The 31st World Congress of the International Association of Surgeons, Gastroenterologists and Oncologists

"Excellent Surgical Oncology"

OCTOBER 3 – 5, 2019

SUPPORTED BY:

ORGANIZED BY:

CO-HOST:

www.smj.si.mahidol.ac.th
E-mail: sijournal@mahidol.ac.th
Dear Colleagues,

International Association of Surgeons Gastroenterologists and Oncologists (IASGO) was founded in Amsterdam in 1988. Today, we are privileged to have strong IASGO sections in more than 70 countries, which greatly assist in assessing educational needs. The main goal of this organization has been and remains globalization of medical knowledge and expertise through a well-structured and precisely organized system of continued medical education.

On behalf of IASGO Thailand, it is our distinct privilege and great pleasure to welcoming you in the city of angels, Bangkok, Thailand for the 31st World Congress of the International Association of Surgeons, Gastroenterologists and Oncologists (IASGO 2019) during October 3-5, 2019 at Centara Grand & Bangkok Convention Centre at Central World, Bangkok, Thailand.

The main theme to be brought up for the congress is “Excellent surgical oncology”. With regard to this, distinguished experts are invited to give lectures and demonstration in the congress. Of course, I strongly believe this congress will bring everyone up-to-date knowledge and happiness with the moment of friendship in the field of Surgical endoscopy, GI tract surgery, HPB surgery and Oncology.

Sincerely yours,

Thawatchai Akaraviputh
President of IASGO: Thailand Chapter
President IASGO 2019
### Organizing Committee

1. Dr. Thawatchai Akaraviputh, MD.  
   Congress President
2. Dr. Vitoon Chinswangwatanakul, MD.  
   Scientific Chairman
3. Dr. Rawisak Chanwat, MD.  
   Secretary General
4. Dr. Supakorn Rojananin, MD.  
   Sponsor and Exhibition
5. Dr. Krit Kitisin, MD.  
   Treasurer
6. Dr. Sa-ard Treepongkaruna, MD.  
   Registration
7. Dr. Chairat Bunchaliew, MD.  
   Public Relation
8. Dr. Thun Ingkakul, MD.  
   Congress Protocol
9. Dr. Nuengruetai Orannapalai, MD.  
   Social Program
10. Dr. Chainarong Phalanusitthepha, MD.  
    Committee
11. Dr. Phaiboon Pensuswan, MD.  
    Committee
12. Dr. Akkaraphorn Deeprasertvit, MD.  
    Committee
13. Dr. Siripong Cheewatanakornkul, MD.  
    Committee
14. Dr. Wipusit Taesombat, MD.  
    Committee
FLOOR PLAN

23rd Floor

22nd Floor

The 31st World Congress of the International Association of Surgeons, Gastroenterologists and Oncologists
The total area is round-up figure
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<tr>
<th>Date/Time</th>
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<td>08.30-09.00</td>
<td>IASGO presidential lecture</td>
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<td>Our 30 years' experience of living donor liver transplantation</td>
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<td>Topics and Speakers:</td>
<td>1. Surgical treatment for intrahepatic cholangiocarcinoma Yamamoto Masakazu, Japan</td>
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<td>2. Laparoscopic liver surgery: Implications for the future of hepatobiliary oncology Nuh Bahhuri, Germany</td>
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<td>3. Surgeons role in cancer palliation Vijay Khatri, USA</td>
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<td>Chairperson:</td>
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<td>Topics and Speakers:</td>
<td>1. Liver: HCC treatment Rawisak Chanwat, Thailand, Wipart Taesombat, Thailand</td>
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<td>2. Treatment of EGJ cancer: current evidence Hirohito Yamashita, Japan</td>
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<td>3. MIS for retroperitoneal tumor Prasit Mahawongkajit, Thailand</td>
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<td>1. MIS in upper GI cancer: surgery for rectal cancer Peng Soon Koh, Malaysia</td>
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<td>2. MIS for difficult scenario Nicha Srisuworanan, Thailand</td>
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<td>3. Specific considerations of colorectal MIS Maika Sanjuan, Thailand</td>
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<td>1. Pancreatic surgery in jehovah’s witnesses patients Toru Kappos, Japan</td>
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<td>Topics and Speakers:</td>
<td>1. Median arcuate ligament syndrome: diagnosis and management of colonic diverticulitis Charleen Jang, Korea</td>
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**Thursday, 3 October 2019**

- **07.30-08.30**
  - Registration

- **08.30-09.00**
  - Coffee break & Poster presentation (23rd Fl., Ballroom C)

- **09.00-09.30**
  - IASGO Executive committee meeting (09.00-10.00)

- **09.00-10.30**
  - State-of-the-art Lecture I
    - **Chairperson:** Chaitat Bunchaliew, Thailand, Krit Kititsin, Thailand
    - **Topics and Speakers:**
      1. Surgical treatment for intrahepatic cholangiocarcinoma
      2. Laparoscopic liver surgery: Implications for the future of hepatobiliary oncology
      3. Surgeons role in cancer palliation

- **10.30-12.00**
  - State-of-the-art Lecture II
    - **Chairperson:** Rawisak Chanwat, Thailand, Chairat Bunchaliew, Thailand
    - **Topics and Speakers:**
      1. Liver: HCC treatment
      2. Treatment of EGJ cancer: current evidence
      3. MIS for retroperitoneal tumor
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<td>14.30-15.00</td>
<td>Coffee break &amp; Poster presentation (23rd FL, Ballroom C)</td>
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<td>MIS esophagectomy Chairperson: Hiroharu Yamashita, Japan, Chadin Tharavej, Thailand Topics and Speakers: 1. Surgical treatment of the neoplastic obstruction of the esophagus Valter Nilton Felix, Brazil 2. Positioning of the surgery in the multimodal therapy for thoracic esophageal cancer Hisahiro Matsubara, Japan</td>
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<td>MESDA Chairperson: Vitoon Chinswangwatanakul, Thailand, Suthep Udomsawasup, Thailand Topics and Speakers: 1. MESDA: Training without boundary (Overview) Masaki Ito, Japan 2. The success story of MESDA (Result) Sudarobt Linananda, Thailand 3. The future of soft cadaveric training Suthep Udomsawasup, Thailand</td>
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<td>16.30-20.00</td>
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### Friday, 4 October 2019

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| 08.00-09.30 | Keynote 2: Upper/Lower GI  
Chairperson: Anuak Yemrakeson, USA, Nopdanai Chaisomboon, Thailand  
Topics and Speakers:  
1. Update and multi-modality treatment for gastric cancer Ming-Tsan Lin, Taiwan  
2. Anticancer drugs of tomorrow in GI Oncology Dan G Duda, USA  
3. Anal sepsis patterns and treatment options Arun Rojanasakul, Thailand |  
Update treatment in advanced gastric cancer  
Chairperson: Asada Methasate, Thailand, Topics and Speakers:  
1. LIFT upgrade Asada Methasate, Thailand  
2. What is the optimal operation for resectable and borderline resectable pancreatic cancer? Yuichi Nagakawa, Japan  
3. Update surgery for BR and LA pancreatic cancer - conversion surgery after nonadjuvant therapy Thilo Hackert, Germany  
4. The rationale of conversion surgery for far-advanced pancreatic adenocarcinoma Kenichi Hakamada, Japan  
5. Conversion surgery for unresectable pancreatic cancer - does it work or not? Hideyuki Yoshitomi, Japan | Tips and techniques in robotic surgery (VDO)  
Chairperson: Voraboot Taweesrichana, Thailand, Topics and Speakers:  
1. Role of HIPECs in advanced gastric cancer Voraboot Taweesrichana, Thailand  
2. Role of chemotherapy in advanced gastric cancer Voraboot Taweesrichana, Thailand | HPB – Surgery  
Chairperson: Vitoon Chinswangwatanakul, Thailand, Wiroon Boonuch, Thailand  
Topics and Speakers:  
1. Role of surgical resection for the patients with hepatocellular carcinoma in the era of liver transplantation Sang Su Yun, Korea  
2. Anatomical liver resections using laennec concept: similarities and differences with glissonian approach in liver surgery Aleksandar Karamarkovic, Serbia  
3. Extending curaion for liver cancer in modern era Cheung Tan To, Hong Kong  
4. Extensive liver surgery Zoran Milosevic, Serbia |  
ICS  
Chairperson: Thawee Ratanachuk, Thailand, Santi Lokejroenlarb, Thailand  
Topics and Speakers:  
1. Screening of colorectal cancer in Thailand Taya Kityakara, Thailand  
2. Nutrition support in cancer Vibul Trakulthong, Thailand |  

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| 09.30-10.00 | Anal fistula treatment  
Chairperson: Jirawat Pattana-arun, Thailand, Varut Lohsiriwat, Thailand  
Topics and Speakers:  
1. LIFT upgrade Arun Rojanasakul, Thailand  
2. Endorectal advancement flap Charles Tsang, Singapore  
3. VAFFT and its modification Woramin Riansuwan, Thailand  
Topics and Speakers:  
1. Nonoperative treatment for hemorrhoid Varut Lohsiriwat, Thailand  
2. Laser treatment for hemorrhoid Jirawat Pattana-arun, Thailand, Nopdanai Chaisomboon, Thailand, Vitoon Chinswangwatanakul, Thailand  
3. Hemorrhoid artery ligation |  
| 10.00-11.00 | Pancreatic cancer  
Chairperson: Kenichi Hakamada, Japan, Kittipong Chaiyabutr, Thailand  
Topics and Speakers:  
1. What is the optimal operation for resectable and borderline resectable pancreatic cancer? Yuichi Nagakawa, Japan  
2. Update surgery for BR and LA pancreatic cancer - conversion surgery after nonadjuvant therapy Thilo Hackert, Germany  
3. The rationale of conversion surgery for far-advanced pancreatic adenocarcinoma Kenichi Hakamada, Japan  
4. Conversion surgery for unresectable pancreatic cancer - does it work or not? Hideyuki Yoshitomi, Japan |  
| 11.00-12.00 | MIS in pancreatic surgery  
Chairperson: Kyoji Takeyari, Japan, Sa-arid Treepongkarna, Thailand  
Topics and Speakers:  
1. Laparoscopic pancreatocystectomy: how I stabilized my techniques Yoo-Soon Yoon, Korea  
2. Difficulty scoring system in laparoscopic pancreatic resection Masafumi Nakamura, Japan  
3. Minimally invasive pancreaticoduodenectomy after LEOPARD 2 - should we continue? Thilo Hackert, Germany |  
| Modern management for hemorrhoid  
Chairperson: Nopdanai Chaisomboon, Thailand, Vorut Lohsiriwat, Thailand  
Topics and Speakers:  
2. Laser treatment for hemorrhoid Jirawat Pattana-arun, Thailand  
3. Hemorrhoid artery ligation Charles Tsang, Singapore  
Topics and Speakers:  
1. Update treatment in advanced gastric cancer Chairperson: Asada Methasate, Thailand, Topics and Speakers:  
2. Historical perspective: how did we treat patients with resectable pancreatic cancer? Yuichi Nagakawa, Japan  
3. Laparoscopic surgery for advanced gastric cancer Wiis Kastertsmirviry, Thailand  
4. Role of chemotherapy in advanced gastric cancer Voraboot Taweesrichana, Thailand |  
| Oral Presentation  
Chairperson: Thawee Ratanachuk, Thailand, Santi Lokejroenlarb, Thailand  
Topics and Speakers:  
1. The Application of Indocyanine Green-Fluorescence Imaging During Robotic Liver Resection: A Case Matched Study Marco Vivo Marino, Italy  
2. Prevention of Delayed Gastric Empty after Living Donor Left Hepatopancreatobiliary-pancreatic surgery Mitsuhashi Takatsuki, Japan  
3. Volume-Associated Indocyanine Green Platelet, and Prothrombin Time (VIPP) Score-Based Model for Predicting Posthepatectomy Liver Failure: A Novel Tool to Strategize Hepatopancreatobiliary-pancreatic surgery Naoruho Hennoy, Japan |  

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The 31st World Congress of the International Association of Surgeons, Gastroenterologists and Oncologists

www.iasgo2019.org
### Friday, 4 October 2019

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<td>3. SEMS in obstructed CRC</td>
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<td>Impacts of the daVinci robotic surgery on surgeons and their practices</td>
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<td>1. From a private practicing surgeon’s perspective</td>
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<td>3. Summary of my 18-year robotic surgery experience</td>
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<td>13.30-14.30</td>
<td>All about gallbladder cancer</td>
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<td>1. Gallbladder Polyps &gt;1 cm: is cholecystectomy necessary?</td>
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<td>2. Incidental carcinoma of gallbladder cancer: open or laparoscopic surgery</td>
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<td>2. ERAS in UGI surgery, anaesthesiologist aspect</td>
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<td>3. ERAS in UGI surgery, experience in Thailand</td>
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<td>1. Acute lower gastrointestinal bleeding</td>
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<td>Hussain Ghorab, Egypt</td>
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<td>2. Bowel obstruction: the experience of a general surgery department in Dakar</td>
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<td>3. Genetic subtypes for pancreatic neuroendocrine tumors based on sequencing study</td>
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<td>Liver transplantation</td>
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<td>Chairperson: Vitoon Chinswangwatanakul, Thailand, Yasutsugu Takada, Japan</td>
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<td>1. Patient reported outcomes after liver resection for liver tumours</td>
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<td>2. Living Donor liver Transplant in The Middle East</td>
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<td>3. Liver transplantation for HCC patients: optimal selection criteria and effects of pre-transplant treatments</td>
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<td>4. Liver transplantation in Sudan</td>
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<td>Chairperson: Akimasa Nakao, Japan Seethai Lumsrunchamrern, Thailand</td>
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<td>1. Deep Venous Thrombosis in Bulky Pelvic Cancer Patients</td>
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<td>Christian Percev, Bulgaria</td>
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<td>2. Survival Outcome of Regular Endoscopic Ultrasound Guided Biliary Drainage (EUS-BD) in The Malignant Biliary Obstruction (MBO) Patients</td>
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<td>3. Time to Rethink Prophylaxis in Pancreaticoduodenectomy?</td>
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<td>Tommaso Stecca, Italy</td>
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<td>13.30-14.30</td>
<td><strong>Oral Presentation</strong></td>
<td><strong>Chairperson:</strong> Thilo Hackert, Germany, Thun Ingkakul, Thailand</td>
<td><strong>Topics and Speakers:</strong> 1. Local excision/Tems/Tamis for early rectal cancer Worrinum Riansunwann, Thailand 2. Multivisceral resection for CRC, How far can we go? Chantaba Chotphanakij, Thailand 3. Rectal cancer after neoadjuvant chemoradiation, What to do next? Sungho Malakorn, Thailand</td>
<td><strong>Topics and Speakers:</strong> 1. Surgical strategies in necrotizing pancreatitis: a single center experience over a period of 27 years Doris Henne-Bruns, Germany 2. Laparoscopic Emergency Colorectal Surgery Sertac Usta, Turkey</td>
<td><strong>Topics and Speakers:</strong> 1. The Usefulness of Intraoperative X-Ray Fluoroscopy for Avoiding Urethral Injury in Transperineal Total Mesorectal Excision Takuya Tokunaga, Japan 2. Laparoscopic Emergency Colorectal Surgery Sertac Usta, Turkey</td>
<td><strong>Topics and Speakers:</strong> 1. Liver transplantation for perihilar cholangiocarcinoma Wojciech Polak, Nederland 2. How I do it: difficult total hepatectomy in LDLT Sasumi Eguchi, Japan</td>
<td><strong>How to deal with intraoperative complications?</strong> <strong>Chairperson:</strong> Norihiro Kokudo, Japan Vor Luvira, Thailand, Chairat Bunchaliew, Thailand</td>
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<td>14.30-15.30</td>
<td><strong>CRC, from early to advanced I</strong></td>
<td><strong>Chairperson:</strong> Christian Petkov, Bulgaria, Art Hiranyakas, Thailand</td>
<td><strong>Topics and Speakers:</strong> 1. Local excision/Tems/Tamis for early rectal cancer Worrinum Riansunwann, Thailand 2. Multivisceral resection for CRC, How far can we go? Chantaba Chotphanakij, Thailand 3. Rectal cancer after neoadjuvant chemoradiation, What to do next? Sungho Malakorn, Thailand</td>
<td><strong>Update in pancreatic surgery</strong> <strong>Chairperson:</strong> Thilo Hackert, Germany, Thun Ingkakul, Thailand</td>
<td><strong>Topics and Speakers:</strong> 1. Surgical strategies in necrotizing pancreatitis: a single center experience over a period of 27 years Doris Henne-Bruns, Germany 2. Laparoscopic Emergency Colorectal Surgery Sertac Usta, Turkey</td>
<td><strong>Oral Presentation</strong></td>
<td><strong>Chairperson:</strong> Norihiro Kokudo, Japan Vor Luvira, Thailand, Chairat Bunchaliew, Thailand</td>
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<td>15.30-16.00</td>
<td><strong>Coffee break &amp; Poster presentation (23rd FL, Ballroom C)</strong></td>
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### Friday, 4 October 2019

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<tr>
<td>16.00-17.00</td>
<td>CRC, from early to advanced II</td>
<td>Advanced MIS procedure</td>
<td>Bile duct tumor and cholangiocarcinoma</td>
<td>Miscellaneous</td>
<td>MIS Millionaires 2019</td>
<td>Oral Presentation</td>
<td>IASGO General Assembly</td>
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<td>Chairperson: Joaquim Costa Pereira, Portugal, Siripong Sirikarnpipoon, Thailand</td>
<td>Chairperson: Vittavat Ohmponmuwat, Thailand, Thawee Ratanachek, Thailand</td>
<td>Chairperson: Taku Aoki, Japan, Ryu Ji Kon, Korea</td>
<td>Topics and Speakers:</td>
<td>Chairperson: Pornthep Prathanvanich, Thailand, Voraboot Tanwarutchanana, Thailand</td>
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<td>Topics and Speakers: 1. Essential pathological report of colorectal neoplasms Naruemon Wisedopas, Thailand</td>
<td>1. Intraductal papillary neoplasm of the bile duct Vor Luvira, Thailand</td>
<td>1. Compliance with an enhanced recovery after surgery program (ERAS) among older adult surgery patients Hiroko Kunitake, USA</td>
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<td>17.00-18.30</td>
<td>Networking Dinner (For Faculty; Invited Only) at Ballroom A&amp;B</td>
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### Saturday, 5 October 2019

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| 08.00-09.30 | **Best VDO Presentation**  
Chairperson: Anusak Yiengpruksawan, USA, Rawisak Chanwat, Thailand  
1. Laparoscopic Splenectomy for Wandering Spleen  
Fatih Sumer, Turkey  
2. Laparoscopic Partial Splenectomy for Splenic Cyst  
Fatih Sumer, Turkey  
Ming-Hsuan Wu, Taiwan  
4. Postoperative Outcomes of Laparoscopic Peritoneotomy Plus Hyper Thermic Intraperitoneal Chemotherapy for Treatment of Peritoneal Surface Malignancies  
Nikolay Belev, Bulgaria  
5. Laparoscopic Treatment of Dunbar Syndrome: Case Report in A Video  
Charlene Viana, Portugal  
6. Double Cystic Duct Encountered During Laparoscopic Cholecystectomy: A Rare Biliary Anomaly  
Mahim Kosbariya, India | **Liver: MIS (Advanced)**  
Chairperson: Sa-ard Trepengkaruna, Thailand, Araya Khaimook, Thailand  
Topics and Speakers:  
1. Standardization and safe dissemination of laparoscopic liver resection in Japan  
Minoru Tanabe, Japan  
2. Learning curve in minimally invasive surgery  
Ser Vee Lee, Singapore  
3. Adopting minimally-invasive hepatopancreato-biliary (HPB) surgery in Southeast Asia: experience of an early adopter with the first 314 cases  
Brian K. P. Goh, Singapore | **Pancreatic cancer 2:**  
Chairperson: Nan-Ak Wiboonkhawan, Thailand  
Topics and Speakers:  
1. Role of endoscopic ultrasonography-guided tissue acquisition in the era of personalized medicine  
Seungmin Bang, Korea  
2. Standardization of treatments for pancreatic cancer: to realize long-term survival  
Hiromune Shimamura, Japan  
3. How to improve the long-term outcomes of pancreatic cancer patients?  
Wenhui Lou, China | **Oral Presentation**  
Chairperson: Voravoot Tawerutchana, Thailand, Thikhamporn Tawantakorn, Thailand  
1. Patient Related Factors and Complexity of Surgery Decides Morbidity and Mortality Following Surgery and Not Open or Laporoscopic Approach in Gastrointestinal and Hepatitis Surgeries If We Follow ERAS Protocol  
Bhavirin Vatsavida, India  
2. Clinicopathological Study of Small Bowel Metastases  
Yuho Liao, Taiwan  
3. Impacts of Minimal Invasive Surgery and Immuno-nutrition in Surgical Patients  
Ting-Chun Kuo, Taiwan  
4. Evolution of Surgical Tactics in The Treatment of Synchronous Colon and Kidney Neoplasms  
Ivelin Takorov, Bulgaria  
5. Bulgarian Experience with Laparoscopic Combined Colorectal and Liver Resections for Metastatic Colorectal Cancer  
Ivelin Takorov, Bulgaria  
6. The Controlling Nutritional Status (CNOT) Score Predicts Postoperative Short- and Long-Term Outcomes in Stage II, III Gastric Cancer Patients  
You Na Kim, Korea | **Video Presentation:**  
Chairperson: Tharathorn Suwathanarak, Thailand  
1. Fluorescent Image Guided Robotic Gastrectomy for Management of Cancer  
Chik Wah, Carmen Chu, Hong Kong SAR PRC  
2. Total Biliary Cyst Excision with Reconstruction by Jejunum Conduit Interposition of Variable Diameter (Case Report with Video)  
Pavel Markov, Russia Federation  
Daisuke Nakano, Japan  
4. Laparoscopic Liver Resection: Technique and Experience from a Tertiary Hospital  
Sudarat Nimpimgratana, Thailand  
5. Laparoscopic Splenic Vessels Preservation Distal Pancreatectomy for Insulinoma at Tail of Pancreas  
Thikhamporn Tawantakorn, Thailand |

### 09.30-10.00  
Coffee break & Poster presentation (23rd FL, Ballroom C)
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<td>12.00-12.30</td>
<td>Closing Ceremony &amp; Best video presentation award (23rd FL, Ballroom B)</td>
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The 31st World Congress of the International Association of Surgeons, Gastroenterologists and Oncologists

www.iasgo2019.org
Our 30 Years’ Experience of Living Donor Liver Transplantation

Masatoshi Makuuchi
President Emeritus, Towa Hospital, President Emeritus, Japanese Red Cross Medical Center, Professor Emeritus, University of Tokyo, Towa Hospital, 4-7-10, Towa, Adachi-ku, Tokyo 120-0003, Japan.

We started living donor liver transplantation (LDLT) since June in 1990 at Shinshu University Hospital. Doctors and professors at the institution, moreover nurses and paramedical personnel were quite cooperative. Therefore we could do it with their highly dedicated support. November in 1990 we did LDLT for the first patient with congenital biliary atresia. Before our case, Nagasue at Shimane University group, then Kyoto University group under Ozawa did it. Our case was the third one in our country, however, the cases of Shimane and Kyoto died within a year. While in our case, she tolerated the surgical intervention and survived in the good condition still now. She is the longest survivor in our country.

Our success of this field is our skill in hepatic surgery. They are inflow occlusion for the liver division, intraoperative ultrasound to estimate liver anatomy, blood flow estimation during donor hepatectomy, graft blood flow estimation depending on especially after reconstruction of the portal and hepatic veins, indication of portal vein reconstruction, need for dual reconstruction of hepatic arteries and portal veins. Congestion of hepatic and portal veins. They are estimated intraoperative ultrasonography.

The preservation of the middle hepatic veins and it tributaries to the graft. The portal vein of the pediatric patients are thin, so that the suitable extension method of the graft portal vein is requested. Doppler ultrasound is also very important to estimate the blood flow of the graft after reconstruction of the portal and hepatic veins.

As for the reconstruction of hepatic arteries, we insisted that all reconstruction of all hepatic arteries are not needed. The largest one is reconstructed, then the blood flow of the other arterial branch is estimated. Estimation of the blood flow should be done before resection of the donor liver. Then it is also estimated on the back table. And finally in the recipient body.

For example, the blood flow of the left liver can be estimated in the donor, on the back table and also after the thickest left hepatic artery has reconstructed.

I has been unclear that the liver regeneration will be changed or not which has been unclear. We use a part of the donor liver transplants to the recipient. We watch the donor liver and the recipient liver. The regeneration speed is different in the donor and the recipient. The transplanted liver regenerates rapidly in the recipient and the liver remained in the donor regenerates much slowly. Moreover, we can see the overshoot of liver regeneration more than 100% in the recipient liver. While in the donor liver regenerates slowly. In human being, liver regeneration may not be depending on the paracrine factors, but extrahepatic factors such as flow volume and speed of portal blood.

Depending on recent presentations in our country from endoscopic surgeons.

In liver transplantation using whole liver from brain dead donor, it is very important to take out the liver in a very short time as possible as you can. However, the intermittent inflow occlusion is quite safe procedure from my experience since 1980 where 15 to 30 minutes inflow occlusion followed by 5 minutes of reperfusion is repeated very long time up to 3 hours, it is quite safe. The procedure has been applied since 1990 in liver transplantation from the living donor.

What we did in LDLT for small children.

1. FK506 (Tacrolims) for children.
2. Calculation of standard liver volume, i.e. Urata’s formula.
3. Reconstruction of hepatic veins and IVC due to obstruction of them.
4. Reconstruction of PV, specific for small children.
What we did in Adults.
5. Small for size graft. Nov.1993, we did adult to adult LDLT. The patient survived 17 years. This patient is the world first successful adult to adult LDLT case.
6. LDLT from husband to wife.
7. Fulminant hepatic failure.
8. Familial amyloid polyneuropathy.
9. Left liver with caudate lobe graft with caudate vein reconstruction.
10. How to evaluate liver congestion.
11. Hepatic venous reconstruction and their surgical repair.
13. Right lateral (S6+S7) sector graft.

Shown from 1 to 13 were all published in English journals. LDLT have to be done due to our poor supply of organs from the brain dead donor. However, our experiences in LDLT during last 30 years is quite valuable, because we encountered many new findings which are not yet reported. They are our precious joy after heavy job.

Surgical Treatment for Intrahepatic Cholangiocarcinoma

Masakazu Yamamoto, Shun-ichi Ariizumi
Department of Surgery, Institute of Gastroenterology, Tokyo Women’s Medical University, Tokyo Japan.

Intrahepatic cholangiocarcinoma (ICC) is considered a fatal disease because of its high recurrence despite curative surgery. The macroscopic classification of ICC in the General Rules for the Clinical and Pathological Study of Primary Liver Cancer of the Liver Cancer Study Group of Japan reflects tumor spreading patterns; therefore, clinicopathological findings and surgical outcomes can be predicted using this classification. Tumor size, number, lymph node and intrahepatic metastases and vascular invasion are important prognostic factors in ICC; however, lymph node dissection and optimal extent of liver resection are still controversial. Recently, the outcomes of hepatectomy with simultaneous resection of the portal vein and hepatic artery for advanced ICC have improved. I would like show surgical outcome of intrahepatic cholangiocarcinoma and importance of adjuvant treatments.

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SMJ

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The 31st World Congress of the International Association of Surgeons, Gastroenterologists and Oncologists
Laparoscopic Liver Surgery: Implications for The Future of Hepatobiliary Oncology

Nuh N. Rahbari

Department of Surgery, University Medicine Mannheim, Germany.

The first laparoscopic liver resection was performed by Reich et al in 1991. Ever since there has been continuous evolution in techniques, instruments and surgeons’ experience. To date, the minimally-invasive approach has been successfully established in various fields of complex hepatobiliary surgery such as major hepatectomy, anatomic resections including the posterosegmental segments, the ALPPS procedure and living-donor hepatectomy. In fact, data from several studies and meta-analyses prove the advantages of laparoscopic liver resection with respect to intraoperative blood loss, perioperative morbidity and hospital stay. While the feasibility and safety of laparoscopic liver resection has been demonstrated, its impact on indications and multi-disciplinary decision-making in hepatobiliary oncology remain to be established. Areas with indications that need to be re-considered include patients with significant liver cirrhosis, patients requiring stages resections and those with severe comorbidities. It is among our duties as hepatobiliary surgeons to promote minimally-invasive liver resection with the aim to extend the percentage of patients undergoing potentially curative resection.

Surgeons Role in Cancer Palliation

Vijay P. Khatri, MBChB, MBA, FACS
Assistant Dean of Faculty Affairs, Professor of Surgery, California Northstate University, Elk Grove, California, 95757, USA.

Surgical intervention is often not thought of as an option for palliation in patients with incurable malignancy for relief of symptoms attributable to their cancer. The morbidity, mortality and the cost is thought to be prohibitive. Overall it is estimated that about 15-20% of all resections meet the criteria that can be defined as palliative surgery. The common indications for palliative surgical procedures include control of locoregional disease, control of a fungating or bleeding tumor, control of pain, and reconstructive procedures to improve quality of life. The complex decision-making process needs to integrate various factors such as patient and family goals, understanding tumor biology and stage, disease trajectory, past treatments, and assessing the individuals’ health status. The benefits of palliative surgery should focus on quality of life, symptom control, and symptom prevention. The peri-operative management of an individual with cancer necessitates interdisciplinary approach with knowledge of the influence of prior biological agents, adjuvant chemotherapy, and radiation therapy on tissue healing and postoperative recovery. These are further compounded by recent weight loss, nutritional condition and limited performance status. In many cases the burden of the metastatic disease may need to be reduced with systemic chemotherapy and preoperative radiation therapy to facilitate resection. Though it is counter-intuitive, a multimodality approach that results in margin-negative surgical resection may afford durable palliation.

Since treatment decisions are so individualistic, clinical trials are infrequent and perhaps even difficult to conduct in this population. Therefore, there is a paucity of prospective studies with quality of life outcomes specifically whether palliative procedures are superior in terms of outcome measures (quality of life and cost-effectiveness) compared with non-operative alternatives. Future studies will necessitate greater engagement of surgeons in palliative care in addition to being involved in the curative phase of cancer treatment.
Role and Limitation of Neoadjuvant Hepatic Arterial Infusion Chemotherapy in Advanced Hepatocellular Carcinoma Patients with Child Pugh Class A

Sung-Su Yun
Department of Surgery, College of medicine, Yeungnam University, Daegu, Korea.

Background: The patients with advanced hepatocellular carcinoma (HCC) have a poor oncologic outcome. In this study, we evaluated role and limitation of neoadjuvant hepatic arterial infusion chemotherapy (HAIC) in advanced HCC patients with Child Pugh class A and the efficacy of liver resection after downstaging following neoadjuvant HAIC.

Methods: Between April 2003 to March 2015, 103 patients with advanced HCC, underwent neoadjuvant HAIC were analyzed in this retrospective study. Response to HAIC was evaluated by dividing time period into after 3 cycles and after 6 cycles, each defined as early and late period. Liver resection following neoadjuvant HAIC was offered in patients who were considered to be the candidate for curative resection with tumor-free margin as well as sufficient future liver remnant volume.

Results: The median survival time (MST) in all patients was 14±1.7 months. Response rate and disease control rate were 37 (36.3%) and 83 (81.4%) in early period, respectively, and 14 (26.4%) and 25 (47.2%), in late period, respectively. Response rate in early period was significantly better than that in late period (P= 0.028). Twelve patients (11.7%) underwent liver resection following neoadjuvant HAIC and the MST was 37±6.6 months. One-, 3-, and 5-year recurrence free survival were 58.3%, 36.5%, and 24.3% respectively. Liver resection was only independent prognostic factor that associated with overall survival in multivariate analysis (P=0.002).

Conclusion: HAIC could be another alternative to treat inoperable HCC patients with good liver function. If liver resection is possible following neoadjuvant HAIC, liver resection would provide better outcomes than HAIC alone.

Recent Advances in Systemic Therapy in HCC

Ahmed O. Kaseb, M.D., CMQ
Professor and Director: HCC Program, GI Medical Oncology Department, The University of Texas MD Anderson Cancer Center, Houston, Texas, USA.

Introduction: Hepatocellular carcinoma (HCC) is the leading cause of death in cirrhosis patients, and the fastest growing cause of cancer-related deaths in American men. HCC prognosis remains very poor, mainly due to: (1) advanced tumor stage, accompanied by chronic liver disease (CLD) at diagnosis, which precludes aggressive neoadjuvant approaches to downsize tumors and offer curative surgical options, (2) approved systemic therapies for non-surgical HCC showed modest activity in randomized phase III trials.

Learning Objectives
Lessons learned from the targeted therapy and immunotherapy era in HCC: Systemic targeted and immunotherapies have demonstrated a limited impact on improving outcomes in advanced HCC. This is mainly because the low response rates in general when used as single agents.

Review molecular pathogenesis and recent updates on HCC systemic therapy: Development of HCC is a complex multistep process, which involved heterogeneous immune microenvironment changes and molecular abnormalities, therefore, offering numerous potential targets. Recently, a growing number of novel combinations of targeted and immunotherapy agents, have shown encouraging clinical activity in HCC.

Discuss challenges to targeted and immunotherapies era in HCC: Current development of immunological and targeted therapies in HCC suffers from several challenges such as lack of personalized approaches to select patients who are more likely to respond, and lack of approaches to monitor biologic activity based on tissue, blood or imaging-based biomarkers to assess clinical outcomes.

Conclusion: This talk aims at explaining systemic therapy strategies in HCC through a framework of multidisciplinary approaches to guide patient selection and help predict therapy outcomes.
How to Avoid Biliary Complications in Liver Hydatidosis Surgery

Mannino M., Coco O., Decimoterzo M., Di Carlo I.
Department of Surgical Sciences and Advanced Technologies “G.F. Ingrassia”, Cannizzaro Hospital, University of Catania, Catania, Italy.

Medical, surgical and interventional radiological procedures are the available treatments for liver hydatidosis. Between the surgical procedures, the debate is still open if open approach is preferable to laparoscopic approach. No review or study can demonstrate the superiority of one approach to the other one; open approach, however, offers the best opportunity to sterilize appropriately all the cystic cavity, while laparoscopic approach is associated to an increased risk of spillage into the peritoneal cavity of cyst content.

Open surgery also represents the best option to identify the eventual fistulas between the cyst and the biliary tract in order to prevent the related complications. This check of biliary tract can be done by bubbles air or by methylene blue and can prevent not only the immediate post-operative complications, but also complications like biliary-bronchial fistulas that can affect the patients many years after the surgical procedure.

Optimal Treatment for Adenocarcinoma of The Esophagogastric Junction: Present Discrepancy and Future Agreement

Hiroharu Yamashita, Yasuyuki Seto
Department of Gastrointestinal Surgery, Graduate School of Medicine, The University of Tokyo.

Among the 3 subtypes of adenocarcinoma of the esophagogastric junction (AEG) according to the Siewert classification system, type II, true cardia cancer, is located at the anatomical border between the esophagus and the stomach, and involves both organs equally. Therefore, controversy persists as to whether type II should be regarded as a gastric or an esophageal cancer. With uncertainty regarding the optimal extent of prophylactic lymph node dissection, both subtotal esophagectomy and extended total gastrectomy have been advocated. According to the results of a nationwide retrospective study in Japan, complete nodal clearance along the distal portion of the stomach showed marginal survival benefits for patients with type II AEG less than 4cm in diameter. Many retrospective studies obtained consistent results even for large type II AEGs. Given that extended total gastrectomy by the transthoracic approach offered no survival benefit over that obtained with the transthiatal procedure for type II AEG with an oral edge within 3 cm from the anatomical esophagogastric junction, transthiatal extended proximal gastrectomy appears to be regarded as a viable option for many type II AEGs.

Subtotal esophagectomy for type I and extended total gastrectomy for type III AEGs are well-established standards of care. Type II represents a “transition” from type I to type III, and the surgical procedures is intermediate between those for types I and III. The extent of esophagogastric resection should be tailored according to the geographic tumor location, i.e. the distance from the esophagogastric junction to the proximal and/or distal edge of the tumor.

Surgical Strategy and Tactics for Retroperitoneal Masses

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Director, Minimally Invasive and Robotic Surgery Center and Director, Surgical Oncology Service, Valley Hospital at Ridgewood, New Jersey, USA.

Retroperitoneal space is not a uniformed single space. It is partitioned into several complex spaces by multiple organs and vascular structures. There are neoplastic masses originated from various tissue origins that behave differently depending on their pathology. Majority of retroperitoneal masses originate from mesenchymal and neurogenic tissues, of which the latter are more common. Although common surgical approach for retroperitoneal tumors worldwide remains laparotomy, increasingly minimally invasive surgery (MIS) technique has been applied. In this presentation, we will discuss surgical strategy for these lesions using MIS approach and demonstrate the technique with video clips.
MIS for Adrenal Tumours

Kirubakaran Malapan
MBBS(India), M.Med Surgery (Malaysia), Fellowship in Breast and Endocrine Surgery (Malaysia), Fellowship in Bariatric and Metabolic Surgery (Taiwan), Consultant Breast and Endocrine and Bariatric Surgeon, Gleneagles Penang Hospital, Malaysia.

The advancement in the clinical management of adrenal tumors can be attributed to the technological improvement of imaging techniques and the implementation of minimally invasive surgical approaches.

Widespread use of imaging studies such as ultrasonography (US), computed tomography (CT) and magnetic resonance imaging (MRI) allows better visualization and detection of asymptomatic adrenal incidentalomas. The most frequent symptomatic adrenal pathologies encountered are benign conditions such as hypercortisolism (Cushing’s syndrome), primary hyperaldosteronism (Conn’s syndrome), and pheochromocytomas. Adrenal malignancy is suggested by morphologic characteristics found on imaging studies and the risk of malignancy increases for larger adrenal masses.

Minimally invasive surgery has become the initial choice for the treatment of adrenal tumors with either the retroperitoneal or transperitoneal approaches. This minimally invasive surgical approach has established itself as the “gold standard” for the surgical treatment of most adrenal lesions. The advantages in performing laparoscopic adrenalectomy include reduced hospital stay, fewer complications, and better aesthetic results. Traditional open adrenalectomy is still reserved for malignant or larger adrenal tumors. Regardless of approach, the key to successful adrenalectomy remains the same: proper patient selection for surgery, solid understanding of adrenal pathophysiology, and a thorough knowledge of adrenal anatomy.

Minimally Invasive Surgery in Pancreatectomy: Early Experience and Development in UMMC

Peng Soon Koh, Jun Kit Koong, Kamarajan Ramayah and Boon Koon Yoong
HPB Unit, Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia.

Surgery in HPB diseases involved cases of high complexity associated with high patient morbidity and mortality. In view of this, there is a steep learning curve when embarking on minimally invasive surgery (MIS) when it comes to surgery for HPB diseases. Nevertheless, MIS is gaining popularity and the reported number of cases for MIS is increasing worldwide.

The benefits of MIS are well documented, which involve reduced post-operative pain, shorter hospital stay to faster recovery and back to early activity as well as cost and cosmetic advantages.

In UMMC, a renowned tertiary institution in Malaysia, the HPB Unit being a fairly young unit since its incorporation as part of the General Surgery Division, the route towards MIS in HPB Surgery remained challenging. A steep and long learning curve is faced by those embarking on MIS where training, mentorship, case volume along with operating time are vital to ensure experience is gained towards complex MIS operation.

The number of complex MIS cases in UMMC has steadily increased and improved over the years, which began with liver resections and subsequently followed by pancreatic surgeries. Case selection is important when embarking on complex MIS and should be performed in experienced high volume centre with dedicated HPB Unit. Surgeons embarking on this route should also be familiar with operative anatomy, open surgery and basic laparoscopic work. Here, we would like to share our experience in the development of MIS in pancreas surgery at our institution.
Lateral Node Dissection in Rectal Cancer: What are The Issus?

Seon-Hahn Kim, M.D., Ph.D., FACS
Department of Surgery, Korea University Anam Hospital, Korea University College of Medicine, Seoul, Korea.

There are two facts about the ‘lateral pelvic node (LPN)’ in rectal cancer. Fact No.1 is that metastasis occurs in some rectal cancers, with varying incidence of up to 28% in cases of locally advanced low rectal cancer. Fact No.2 is that undertreated or suboptimally treated metastatic node increases local recurrence. The strongest evidence to support the fact No 2 is the JCOG0212 Japanese multicenter randomized trial; TME alone vs. TME with LPN dissection (LPND) for clinical stages II/III low rectal cancers (local recurrence rate, 13% vs. 7%). In this lecture, I would like to briefly answer to the following several questions; (1) Is the lateral node metastasis a regional disease or a systemic disease? (2) How does preoperative radiotherapy effectively sterilize the pelvic sidewall, or in other words does LPN remain a problem despite (chemo)radiotherapy? (3) What do the current major guidelines (NCCN and ESMO) tell about the LPND? (4) How can we perform LPND when required?

Pancreatic Surgery in Jehovah’s Witnesses Patients

Alfredo Guglielmi, Mario De Bellis, Andrea Ruzzenente, Fabio Bagante, Raffaele Ziello, Tommaso Campagnaro, Simone Conci, Filippo Nifosì, Calogero Iacono
Department of Surgery, Division of General and Hepato-Pancreato-Biliary Surgery, University of Verona, School of Medicine, Verona, Italy.

Background: The refusal of blood transfusions compels surgeons to face ethical and clinical issues. A single-institution experience was reviewed to assess feasibility and short-term outcomes of bloodless pancreatic surgery.

Methods: The institutional database was reviewed to identify patients undergoing curative surgery for pancreatic and periampullary tumors from January 2010 through August 2018. A protocol to optimize the perioperative hemoglobin values by administration of drugs stimulating erythropoiesis and to minimize blood loss was systematically used.

Results: Perioperative outcomes of 32 JW patients were included. Median age was 67 years (range, 31-77) and 19 (59.4%) patients were treated with preoperative erythropoietin. Twenty-four (75%) patients underwent pancreaticoduodenectomy, 4 (12.5%) distal pancreatectomy (DP) with splenectomy, 3 (9.4%) spleen-preserving DP, and 1 (3.1%) total pancreatectomy. Median estimated intraoperative blood loss and surgical duration were 400 mL (range, 100-1000) and 470 minutes (range, 290-595), respectively. Median preoperative hemoglobin was 13.9 g/dL (range, 11.7-15.8) while median postoperative nadir hemoglobin was 10.5 g/dL (range, 7.1-14.1). The most common histological diagnosis (n=15, 46.9%) was pancreatic ductal adenocarcinoma. Clavien-Dindo grade I-II complications occurred in fourteen (43.8%) patients while one (3.1%) patient had a Clavien-Dindo grade IIIa complication which was an abdominal fluid collection that required percutaneous drainage. Six (18.8%) patients presented low-grade postoperative pancreatic fistula (POPF grade A-B). Median length of stay was 16 days (range, 8-54) with no patient requiring transfusion or re-operation and no 90-day mortality.

Conclusion: A multidisciplinary approach and specific perioperative management allowed to perform pancreatic resections in JW patients with good short-term outcomes.
### Table 1. Clinico-pathological features of the patients included in the study.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, years, median (range)</strong></td>
<td>67 (31-77)</td>
</tr>
<tr>
<td><strong>BMI, Kg/m², median (range)</strong></td>
<td>24.8 (20.7-35.6)</td>
</tr>
<tr>
<td><strong>Female sex, n (%)</strong></td>
<td>18 (56.3)</td>
</tr>
<tr>
<td><strong>Diabetes mellitus, n (%)</strong></td>
<td>6 (18.8)</td>
</tr>
<tr>
<td><strong>Hypertension, n (%)</strong></td>
<td>9 (28.1)</td>
</tr>
<tr>
<td><strong>Previous abdominal surgery, n (%)</strong></td>
<td>5 (15.6)</td>
</tr>
<tr>
<td><strong>Neoadjuvant chemotherapy, n (%)</strong></td>
<td>4 (12.5)</td>
</tr>
<tr>
<td><strong>Preoperative erythropoietin, n (%)</strong></td>
<td>19 (59.4)</td>
</tr>
<tr>
<td><strong>CEA, ng/mL, median (range)</strong></td>
<td>1.9 (0.4-5.7)</td>
</tr>
<tr>
<td><strong>CA19-9, U/mL, median (range)</strong></td>
<td>178.9 (0.88-23602) 602</td>
</tr>
<tr>
<td><strong>Jaundice, n (%)</strong></td>
<td>22 (68.8)</td>
</tr>
<tr>
<td><strong>Biliary drainage, n (%)</strong></td>
<td>20 (62.5)</td>
</tr>
<tr>
<td><strong>ASA</strong></td>
<td></td>
</tr>
<tr>
<td>1, n (%)</td>
<td>4 (12.5)</td>
</tr>
<tr>
<td>2, n (%)</td>
<td>17 (53.1)</td>
</tr>
<tr>
<td>3, n (%)</td>
<td>11 (34.4)</td>
</tr>
<tr>
<td><strong>Histological diagnosis</strong></td>
<td></td>
</tr>
<tr>
<td>Pancreatic ductal adenocarcinoma, n (%)</td>
<td>15 (46.9)</td>
</tr>
<tr>
<td>Adenocarcinoma of the papilla of Vater, n (%)</td>
<td>3 (9.4)</td>
</tr>
<tr>
<td>Pancreatic neuroendocrine tumor, n (%)</td>
<td>3 (9.4)</td>
</tr>
<tr>
<td>Adenocarcinoma of the distal bile duct, n (%)</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>Mucinous cystic neoplasm with low-grade dysplasia, n (%)</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>Adenosquamous carcinoma, n (%)</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>Intraductal tubulopapillary neoplasm of the pancreas</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Pancreatic serous cystadenoma, n (%)</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Solid pseudopapillary tumor of the pancreas, n (%)</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Undifferentiated carcinoma with osteoclast-like giant cells, n (%)</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Mixed adenoneuroendocrine carcinoma</td>
<td>1 (3.1)</td>
</tr>
</tbody>
</table>

BMI = body mass index, ASA = American Society of Anesthesiology, physical status classification system, CEA = carcinoembryonic antigen, CA19-9 = carbohydrate antigen 19-9.

### Table 2. Details of operative data.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Pancreatic resections</strong></td>
<td></td>
</tr>
<tr>
<td>Pylorus preserving pancreaticoduodenectomy, n (%)</td>
<td>24 (75)</td>
</tr>
<tr>
<td>Distal pancreatectomy with splenectomy, n (%)</td>
<td>4 (12.5)</td>
</tr>
<tr>
<td>Spleen preserving distal pancreatectomy, n (%)</td>
<td>3 (9.4)</td>
</tr>
<tr>
<td>Total pancreatectomy, n (%)</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td><strong>Time of surgery, min, median (range)</strong></td>
<td>470 (290-595)</td>
</tr>
<tr>
<td><strong>EBL, mL, median (range)</strong></td>
<td>400 (100-1000)</td>
</tr>
<tr>
<td><strong>Tumor size, mm, median (range)</strong></td>
<td>26 (5-110)</td>
</tr>
<tr>
<td><strong>Lymph nodes harvested, n, median (range)</strong></td>
<td>23 (14-50)</td>
</tr>
<tr>
<td><strong>ANH/Cell saver, n (%)</strong></td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

EBL = estimated blood loss, ANH = acute normovolemic hemodilution.
Table 3. Details of pre-operative and post-operative blood test.

<table>
<thead>
<tr>
<th></th>
<th>PRE-OP</th>
<th>POD1</th>
<th>NADIR</th>
<th>DISCHARGE</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td></td>
</tr>
<tr>
<td>Hemoglobin, g/dL</td>
<td>13.9 (0.99)</td>
<td>12.1 (1.70)</td>
<td>10.8 (1.73)</td>
<td>11.2 (1.71)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hematocrit, %</td>
<td>43 (3.36)</td>
<td>38 (4.63)</td>
<td>34 (4.59)</td>
<td>36 (4.69)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Platelets, K/µL</td>
<td>275 (92.15)</td>
<td>268 (126.81)</td>
<td>n/a</td>
<td>457 (165.19)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>aPTT, sec</td>
<td>1.1 (0.1)</td>
<td>1.2 (0.15)</td>
<td>n/a</td>
<td>1.1 (0.09)</td>
<td>0.037</td>
</tr>
<tr>
<td>INR</td>
<td>1.1 (0.1)</td>
<td>0.9 (0.1)</td>
<td>n/a</td>
<td>1 (0.1)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Albumin, g/dL</td>
<td>40 (5.22)</td>
<td>31 (4.39)</td>
<td>n/a</td>
<td>33 (4.16)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

POD1 = post-operative day 1, SD = standard deviation, aPTT = activated partial thromboplastin time, INR = international normalized ratio, n/a = not available.

Table 4. Post-operative outcome.

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<table>
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<tbody>
<tr>
<td>90-day mortality, n (%)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Morbidity, n (%)</td>
<td>15 (46.9)</td>
</tr>
<tr>
<td>Blood transfusion, n (%)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Postoperative hemorrhage, n (%)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Clavien-Dindo grade I-II</td>
<td></td>
</tr>
<tr>
<td>POPF grade A, n (%)</td>
<td>5 (15.7)</td>
</tr>
<tr>
<td>POPF grade B, n (%)</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>DGE grade A, n (%)</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>DGE grade B, n (%)</td>
<td>3 (9.4)</td>
</tr>
<tr>
<td>Biliary fistula, n (%)</td>
<td>2 (6.3)</td>
</tr>
<tr>
<td>Pulmonary thromboembolism, n (%)</td>
<td>1 (3.1)</td>
</tr>
</tbody>
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<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Clavien-Dindo grade III</td>
<td></td>
</tr>
<tr>
<td>Intra-abdominal fluid collection, n (%)</td>
<td>1 (3.1)</td>
</tr>
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<tbody>
<tr>
<td>Length of stay, days, median (range)</td>
<td>16 (8-54)</td>
</tr>
</tbody>
</table>

POPF = post-operative pancreatic fistula, DGE = delayed gastric emptying.

Table 5. Review of current literature on pancreatic resection in Jehovah’s Witness patients.

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Period (years)</th>
<th>Pancreatic resection</th>
<th>Hb pre-op</th>
<th>ABT</th>
<th>Morbidity</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konstantinidis (2013)</td>
<td>10</td>
<td>15</td>
<td>6 PD 4 DP/SP</td>
<td>12.5</td>
<td>1</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Lee (2016)</td>
<td>11</td>
<td>7</td>
<td>4 PPPD 4 PD 2 SP 1 DP</td>
<td>12.5</td>
<td>0</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>Present study (2017)</td>
<td>32</td>
<td>8</td>
<td>24 PPPD 4 DP 3 SP 1TP</td>
<td>13.9</td>
<td>0</td>
<td>47</td>
<td>0</td>
</tr>
</tbody>
</table>

ABT = allogenic blood transfusion, PD = pancreaticoduodenectomy, DP = distal pancreatectomy with splenectomy, SP = spleen-preserving distal pancreatectomy, PPPD = pylorus-preserving pancreaticoduodenectomy, TP = total pancreatectomy.
Introduction: Solid pseudopapillary tumors (SPTs) of the pancreas are a rare clinical entity; it accounts 1-2% of all exocrine pancreatic tumors. SPT was first described in 1959 by Virginia Kneeland Frantz (Frankz’s tumor) - hence the name. It affects young females predominantly in their second or third decade of age. SPN usually shows an indolent behavior and these tumors have very low malignant potential.

Materials & Methods: We report a series of three SPT patients who underwent surgery for a pathologically confirmed SPN from June 2007 to October 2008 and the patients were reviewed prospectively. All patients were discharged home post-operatively in uneventful course. Cases follow up extended for 10 years post-operatively (120 months) and imagining follow up didn’t reveal any local recurrence of the disease.

Results: All of them were female patients from 19 to 41 years old and one of them was presented while she is pregnant. The most common clinical presentation was chronic upper abdominal discomfort with dull pain (N=3) and two of them gave history of early satiety at time of presentation. Tumor location and dimensions varied, 2 of those cases the tumor were occupying the tail of pancreas while the remaining one had the tumor on the body of pancreas and the largest dissected tumor were 20x17 cm in diameter. Two patients were operated with distal pancreatectomy with and without splenic preservation and the other one were operated with central pancreatectomy with pancreato-gastric anastomosis.

Conclusion: Solid Pseudopapillary tumor of the pancreas is a rare neoplasm. It predominantly affects young females. Typically, it presents with nonspecific signs and symptoms. Complete surgical excision with a clear margin is usually adequate treatment for this tumor and carries excellent prognosis.
Gastrointestinal cancers are a significant health care problem worldwide. The tumor immune microenvironment (TIME) plays a critical role in GI cancers. The behavior of tumor cells is depending of a TIME surrounding them and specific TIME is not only preponderant on prognosis, but also impacts efficiency of systemic antitumor therapy and play a huge role in tumor progression. Therefore, understanding of the TIME is mandatory for the development of new therapeutic approaches. There are three classes of TIME: infiltrated-excluded (immunogenic “cold” tumors, e.g. pancreatic cancer), infiltrated-inflamed (“hot” tumors, e.g. MSI-H colorectal cancer), and a TLS (tertiary lymphoid structures) TIME.

Targeting TIME for cancer therapy can be divided into: targeting extracellular matrix tumor cell derived exosomes, chronic inflammation, avoiding neovascularisation, targeting hypoxia and acidosis, cancer-associated fibroblasts, activating anti-tumoral activity of immune system (targeting of immune check-point inhibitors!) and inhibiting macrophages recruitment and differentiation. There are numerous numbers of ongoing studies investigating efficacy of this approach (only for the use of immune checkpoint target agents 754 clinical trials targeting the PD-1/PD-L1 pathway and the 175 clinical trials that focus on CTLA-4 protein!). There are promising results of several agents in different GI cancers alone (pembrolizumab) or in combination (nivolumab+ipilimumab), also in combination with chemotherapy, and with agents targeting the stroma or angiogenesis.

With concept that each tumor is multifactorial disease, specific for each patient and thus requiring a different strategy regarding therapeutics, and with help of nanotechnology, we can achieve a personalized medicine in oncology.

Pancreatic cancer therapy remains a formidable challenge. Partially as a result of improvements in the treatment of other cancers and an aging population, pancreatic cancer will become the second leading cause of cancer-associated mortality within the next decade in the world. Worldwide, the incidence of pancreatic cancer is predicted to be ~420,000 by the year 2020, with an associated mortality of around 410,000 and expected to become the second leading cause of cancer mortality by 2030. Surgical resection is the only curative treatment, but even after surgery, 5 year survival does not reach to 20%. The reason for low objective response rate to conventional standard therapy is because of the inherent genetic instability of pancreatic cancer cells, immunosuppressive microenvironment at the tumor site, and the complex peritumoral stroma. Our ever-growing understanding of the complex genetic, epigenetic and metabolic alterations as well as of the equally complex interplay of cancer cells with stromal cells, immune cells and endothelial cells has not yet resulted in a dramatic change in the overall outcome for patients with pancreatic cancer. Challenges include identification of at-risk populations for screening and prevention, early detection by advanced imaging and novel cancer biomarkers and most notably better therapeutic options that overcome the resistance of pancreatic cancer to current treatment modalities, including chemotherapy, immunotherapy, targeted therapies and personalized therapies. Here, I will present a perspective on current and future pancreatic cancer therapies.
Hypothermic Oxygenated Machine Perfusion of Liver Grafts: From Basics to Clinics

Irinel Popescu, Florin Botea, Diana Nicolaescu, Alexandru Barcu, Nausica Picu, Simona Dima
Center of General Surgery and Liver Transplantation, Fundeni Clinical Institute, Bucharest, Romania, Center of Translational Medicine, Fundeni Clinical Institute, Bucharest, Romania.

Liver grafts from deceased donor benefit from additional treatment before implantation consisting in oxygenated machine perfusion (MP) that is already implemented in several centers worldwide. In this presentation, we review the current experimental and clinical applications of various HOPE protocols - hypothermic or normothermic oxygenated MP, controlled oxygenated rewarming, regional perfusion protocols. and present our preliminary experience on hypothermic oxygenated MB (HOPE) on 9 cases, reviewing the underlying mechanisms, indications and results of this novel procedure.

HOPE is emerging as a better alternative to cold static storage, improving the function of high-risk liver grafts (extended criteria donor grafts) and protecting them against long-term biliary stenosis. Furthermore, HOPE may lead to a breakthrough in the knowledges on liver grafts that could represent a major leap in the development of liver transplantation, development that is currently somehow coming to a standstill.

Neuroendocrine Liver Metastases: Can A Long-Term Survival Benefit be Achieved?

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Neuroendocrine liver metastases may originate from primary tumors of various localizations, various biochemical activity, and various biological behaviour.

Recent studies favor an aggressive surgical approach also for advanced stages of neuroendocrine carcinomas with promising results for overall survival. Surgical debulking is profitable if the majority of the tumor can be removed. Conventional contraindications to liver resections such as peritoneal spread must be seen differently in patients with favorable tumor biology. All patients need individually tailored decisions considering all diagnostic and therapeutic options including interventional radiology as well as nuclear medicine, endocrinology, and oncology. Patients with non-localized primaries remain diagnostically and therapeutically challenging. Diagnostic options for primary tumor search include biochemical assays, imaging modalities (also comprising specific techniques of scintigraphy), endoscopy and operative exploration. For diagnosis of primaries in the jejunum and ileum, capsule endoscopy and balloon enteroscopy are used with growing experience: Capsule endoscopy is non-invasive and better tolerated, while balloon enteroscopy offers precise localization and also allows biopsy or removal of small lesions.

Conclusion: Neuroendocrine liver metastases represent a heterogeneous group of diseases; achieving a long-term survival benefit is still a challenge in part of them. Treatment must be tailored to each single patient. The search for unknown primary tumors remains a hard task, but recent diagnostic developments have created new perspectives. Before proceeding to surgery, all findings should be discussed by a multidisciplinary team.
Surgical Resection Combined with Chemotherapy for Advanced Colorectal Liver Metastases

Kiyoshi Hasegawa, Yuijiro Nishioka, Takashi Kokudo, Yuichiro Mihara, Chikara, Shirata, Genki Watanabe, Harufumi Maki, Akihiko Ichida, Takeaki Ishizawa, Junichi Kaneko, Nobuhisa Akamatsu, and Junichi Arita

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The refinements of surgical techniques and perioperative managements have increased the safety and indication of hepatic resection for colorectal liver metastases (CRLM). Now surgical resection is established as the standard treatment option. The recent remarkable advance of chemotherapy is also improving postoperative prognosis. Especially for advanced CRLM, chemotherapy sometimes enables us to extend the surgical indication and improve prognosis in patients with technically/oncologically unresectable CRLM. On the other hand, deterioration of liver function caused by chemotherapy is a possible problem. How to safely perform liver surgery with curability becomes more important in treatments for CRLM.

In the Tokyo University Hospital, several clinical trials have been done to provide evidences to establish the proper perioperative managements for CRLM. I will summarize the evidences currently available about this important topic and discuss about the optimal perioperative treatments for CRLM with the introduction of the results of our trials.

Multidisciplinary Treatment for Colorectal Liver Metastases, Special Attention to Ablation Therapy

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Multidisciplinary treatment plays a key role in the treatment strategy for colorectal liver metastases (CRLM). Liver resection and systemic chemotherapy has developed as standard treatment followed by ablation therapy. Ablation therapy is performed solely or in combination with chemotherapy and/or liver resection. The number of patients undergoing ablation therapy has been dramatically increasing. Ablation therapies mainly consist of radiofrequency ablation (RFA) and microwave ablation (MWA). Microwave thermosphere ablation is a novel technique in MWA. Percutaneous, laparoscopic and open approaches are selected individually or in combination for each patient. Recently, numerous papers have reported about RFA and MWA for CRLM. We have already demonstrated the advantages of liver resection + ablation on liver resection alone (Int J Clin Oncol 2013 and Br J Surg 2017). A randomized controlled study (RCT) comparing chemotherapy ± ablation provided the results of superior progression-free survival in patients treated with chemotherapy + ablation compared to chemotherapy alone (Ann Oncol 2012). The other RCT comparing the overall survival between liver resection and thermal ablation therapy for small CRLM is currently collecting cases (BMC Cancer 2018).

In this paper, we will summarize the utility of ablation therapies for CRLM in the era of developed liver resection, chemotherapy, and ablation therapy.
Tailored Approach in Sphincter-Saving Surgery for Rectal Cancer

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Quality of life is one of the most important aspects to be taken into consideration in the treatment of rectal cancer, mainly because of the impact surgery has on the patient’s defecation physiology. Sphincter-saving surgery must take into consideration several important aspects, such as the risk of anastomotic leakage and the functional outcomes following the low anterior resection.

Taking these aspects into consideration, we have, on the one hand, conducted studies aiming to address the issue of the defunctioning ileostomy and its outcomes on the patient’s renal function and reached the conclusion that diabetes and the use of neoadjuvant chemotherapy significantly influence the patient’s renal function and must be taken into consideration when deciding upon performing a loop ileostomy.

On the other hand, we have studied the function of the anal sphincter following sphincter-saving surgery and, in performing this, we evaluated the patient’s subjective and objective defecatory status following low anterior resection of the rectum; we reached the conclusion that manometric evaluation is correlated to incontinence scores and, in addition, female gender, multiple comorbidities and a long interval until ileostomy closure are factors impairing anal sphincter function on the short-to-mid-term evolution.

In conclusion, a tailored approach is key to an efficient treatment of the rectal cancer patient and multiple factors influence the outcome of each case and must be taken into consideration.

Possibility and Limitation of Endoscopic Treatment of Early Gastric Signet Ring Cell Carcinoma

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Signet ring cell carcinoma (SRC) is a poorly differentiated cancer of the stomach. Generally, poorly differentiated cancer is believed to show poor prognosis and aggressive behavior. Recently, however, there is debate on the aggressiveness of SRC in early gastric cancer (EGC). We therefore studied postoperation biopsies to investigate the aggressiveness of SRC in EGC. We reviewed medical records of patients with EGC who had surgery from January 2011 to December 2015 in a tertiary hospital in Daejeon, South Korea. We evaluated the histologic type, invasion depth, lymphovascular invasion (LVI), and lymph node (LN) metastasis.

A total of 822 EGC lesions from 789 patients were studied. Approximately 498 differentiated cancer, 65 poorly differentiated cancer, 91 SRC, 26 poorly differentiated with SRC, 41 mixed type, 10 medullary carcinoma, and 91 poorly cohesive carcinoma other than SRC were included. LN metastasis was associated with the histologic type of EGC (P=.000). Nine percent of differentiated cancer, 21.5% of poorly differentiated cancer, 5.5% of SRC, 11.5% of poorly differentiated with SRC, 26.8% of mixed type, 20% of medullary type, and 15.4% of poorly cohesive carcinoma other than SRC showed LN metastasis. The risk of SRC was not higher than well to moderately differentiated cancer (odds ratio [OR]=0.842, P=.768). Risk of LVI was also similar with LN metastasis.

Compared with differentiated cancer, OR of SRC was 1.969 (P=.172).

Our results show that SRC is not more aggressive than differentiated cancer. SRC may be considered a candidate for endoscopic treatment.
Long Term Results and Quality of Life of Laparoscopic Surgery for Ulcerative Colitis (UC)

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Objectives: The objective of our study is to compare the mean 64 (1-158) month follow-up results of patients with ulcerative colitis (UC) treated with open and minimally invasive surgical methods.

Methods: Between 2005 and 2018 a total of 90 patients had undergone surgery for UC, out of which 28 (31.11%) were emergency (total colectomy with mucous fistula) and 62 (68%) were elective cases (proctocolectomy and ileal pouch-anal anastomosis). Laparoscopy was used in 65 (72.2%) and conventional method in 25 (27.7%) cases. Quality of life was examined with questionnaires.

Results: During the long term follow-up, significantly fewer complications were in the laparoscopy group such as septic condition (7.6% vs. 64%), intestinal obstruction (16.9% vs. 56%) and “other” complications (6.1% vs. 52%) such as hernia formation, anastomotic stenosis, per anum bleeding, and pouch-vaginal fistula. Trait anxiety was significantly lower in patients having undergone laparoscopic surgery compared with patients who had had open surgery (P=0.018) (average value of trait anxiety in patients with open surgery was 48.71, SD=10.91; this value was 40.22, SD=9.82 in the laparoscopic group). The incidence of abdominal pain was significantly less common (1.895 vs. 2.769; P=0.024) in the laparoscopic group based on the Gastrointestinal Quality of Life. A significant correlation was found between the results of the psychological and gastrointestinal questionnaires.

Conclusion: Minimally invasive technique provides a better long-term outcome for patients with UC, fewer late complications and a more balanced emotional condition.

Colorectal Intracorporeal Anastomosis by Laparoscopy in Rectal Surgery

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Introduction and Objective: Intracorporeal anastomosis is well established in laparoscopic right hemicolectomy. In laparoscopic left colectomy and in low anterior resection the colon is usually exteriorized for extracorporeal anvil placement. This can create more traction in the colon and its meso and may lead to unidentified vessel tear. We describe a completely intracorporeal anastomosis in low anterior resection by laparoscopy and present its results.

Methods: Retrospective study over a prospective database in three different centers that perform CRIAL in low anterior resection. Patients were included from 2011 to 2019.

Results: Low anterior resection with CRIAL was performed in 124 patients from the three centers. Ileostomy was performed in 2 patients (1.6%). Pos-operative length of stay was 4.5 days (median IQR 4-6) and was not different in the three centers. More than two thirds of patients had no morbidity. Minor morbidity (Clavien-Dindo I-II) was present in 25 % of patients and major morbidity was present in 8 % of patients. 5 patients were diagnosed with anastomosis leak (4%) and the rate of intraabdominal abscess was 1.6%.

Conclusion: CRIAL in low anterior resection offers full control at all times over the anastomosis construction. It is feasible and reproducible, can achieve a low morbidity and anastomosis leak rate.
Laparoscopic Colectomy for Advanced Colorectal Cancer

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Laparoscopic surgery for colorectal cancer has become widely accepted and implemented in routine practice, but resection of advanced cancer can be challenging if it directly invades other organs or structures (T4b). It requires a multivisceral resection (MVR) that is conventionally performed using an open approach, but reports on laparoscopic MVRs are increasing. Anyway, laparoscopic surgery for T4b stage is still controversial. A laparoscopic approach might jeopardize radicality of the resection, with its impact on long-term oncological outcome. In COLOR trial, clinically suspected tumor invasion of adjacent structures (cT4b stage) was an exclusion criterion for laparoscopy due to a reported conversion rate of up to 50% for the remaining T4 tumors, they proposed that an open approach could be more appropriate for T4 colon cancer. Thus, the guidelines from both the European Association of Endoscopic Surgery (EAES) and the French Society of Digestive Surgery (SFCD) state that advanced T4 colorectal cancer remains an absolute contraindication for laparoscopic resection.

A recent systematic review and meta-analysis on laparoscopic surgery for advanced T4 colon cancer revealed that laparoscopic surgery for T4a tumors might be safe, whereas for T4b colon cancer requiring multivisceral resection it should be applied with caution. However, this study is restricted to non-randomized comparisons with substantial allocation bias.

The aim of this presentation is to demonstrate the benefit of laparoscopic surgery for advanced colorectal cancer in selected cases.

Advances and Controversies in The Management of Colonic Diverticulitis

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The adoption of laparoscopic procedure for colorectal diseases has been limited worldwide due to its technical demanding. Many studies have repeatedly reported the benefits of laparoscopic colon surgery in the association with significant improvements in short-term outcomes compared with conventional surgery.

Sigmoid colectomy for diverticulitis is well-known for the technical challenge caused by severe inflammation in the left-lower quadrant and pelvis. The most challenging and therefore time-consuming part of the operation is taking down of the inflamed segment of the bowel while protecting adjacent normal structures. Technical difficulty increases significantly if abscess or fistulizing disease is present. Perioperative morbidity and mortality for diverticulitis is also multifactorial and associated with other patient variables such as patient physiologic status and patient comorbidities. Although it is certainly feasible to perform sigmoid resection for diverticulitis laparoscopically, it can be one of the most technically challenging procedures to perform. Even in experienced hands, laparoscopic sigmoidectomy for diverticulitis, particularly in complicated diverticulitis results in high conversion rates and can be time consuming. However, the addition of laparoscopy as surgical options for sigmoid diverticulitis may decrease postoperative morbidity and mortality.
Radiotherapy in Multidisciplinary Management of Esophageal Squamous Cell Carcinoma

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In the panel discussion of treatment in terms of surgery, chemotherapy and radiotherapy, this subtopic of radiotherapy will be evidence-based review and will cover standard role of radiotherapy in neoadjuvant setting and also standard role of radiotherapy in definitive concurrent chemo-radiotherapy. In addition, the possible benefit and how to select patients for radiotherapy in challenging situations e.g. residual disease after surgery or even standard chemo-radiotherapy and recurrence disease will be discussed.

Liver Surgery: Past – Present and Future

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Hepatic surgery was a life-threatening procedure which become safe at the end of the 20th century after innovative description of its anatomy by Couinaud allowing anatomic resection with primary control of both inflow and outflow pedicles. Once the feasibility of major liver resection was established, the following years focused on improving its safety. Main surgical advances were learned from Japan including Portal Vein Embolization and Intra operative ultrasonography. Other technical improvements were preoperative 3D visualization, the ultrasonic dissector, the hanging maneuver and the peritoneal patch to easily provide vascular graft. The development of liver transplantation using a partial graft from living donor was a revolution for liver surgeons rediscovering the anatomy of hepatic veins, it’s role on liver regeneration opening the concept of the minimal liver function required to survive. Ongoing efforts to minimize abdominal wall trauma have led to expend the laparoscopic approach, which become the standard approach for several minor resections. The expansions of laparoscopy to more complex resections necessitate a true expertise following basic oncological principles. Although, current hepatic robotic surgery still lacks demonstrated benefits in terms of surgical quality and postoperative complications there is no doubt that the future of liver surgery will be played on a screen.
Laparoscopic Liver Resection in Difficult Locations

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With many reports on encouraging outcomes, laparoscopic liver resection has been accepted as attractive treatment method for liver resection. Main indications are Hepatocellular carcinoma (HCC) and Colorectal liver metastasis (CRLM). In Asia, incidence of HCC is higher than western countries. Recently laparoscopic liver resections on difficult locations are more frequently performed than before. Difficult segments are usually segment 4a, VII, VIII and caudate lobe resection. When the lesion is located in the area, there are several limitations on operation. One is limitations on obtaining good operative filed. Second is technical difficulty during parenchymal resection and Third is difficulty of controlling hemorrhage if it occurs. These limitations can be overcome by using intercostal trocars, flexible scopy and using 3D or high definition images. HCC is usually associated with chronic liver disease and cirrhosis. When the patient undergoes liver resection, surgeons must consider the volume and function of the remnant liver because patients with liver cirrhosis are predisposed to hepatic failure after major resection. Therefore, it is better to preserve the liver volume as much as possible. Resection must be performed with a full understanding of anatomical liver resection. Anatomical liver resection can be performed even in difficult segments. Glissonian pedicle approach is one method for anatomical liver resection. Recently advanced laparoscopic liver resection should entail anatomic liver resection.

Now, it is technically possible to perform any anatomic liver resection from Segment 1 to 8. This parenchyme preserving, precise, anatomical and tailored operation will be a trend in the future.

Critical Points in Biliary Surgery. Why Did This Happen to Me?

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The most complex lesions of the bile duct are associated with injury of the upper biliary confluence, vascular lesion, thermal mechanism, failure in primary repair and low lesions at the level of the ampula of Vater.

A brief series of exceptional biliary lesions is analyzed; his mechanism of production, complications and surgical management. These lesions are at the level of the upper biliary confluence, including the right hepatic artery, an undiagnosed lesion of a Luscka duct, associated with thermal perforation of the common bile duct. All underwent stenosis, which was managed with minimvasive procedures and one of them required a surgical review of the hepaticojejunostomy and a case of total tearing of the ampula of Vater during the surgery of a digestive hemorrhage by duodenal ulcer. No mortality in this serie.

Injuries that add factors of wrong prognosis have an evolution with complications and sequelaes. The lessons learned from these exceptional cases were the hilar injuries have a high incidence of stenosis of the hepaticojejunosotmy and even more early when vascular or thermal lesions are associated, the latter because it is difficult to establish the limit of heat damage. Secondary stenoses of hepaticojejunosotmy should be managed with minimally invasive treatments. The re-hepatoicojejunosotmy is a very complex procedure and the surgical revision of it can be a feasible alternative.

The biliopancreatic lesion in the course of an inflammatory duodenal surgery exposes a complex lesion that must be managed by means of the papillary reinsertion in a Y-Roux loop including the external drainage of the Wirsung canal.
Rescue Surgery for Complicated Biliary Injury after Laparoscopic Cholecystectomy

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Introduction: Rescue surgery for iatrogenic biliary injury is challenging, especially in cases with complicated biliary injuries. Objective: We have developed a safe, and secure strategy for reconstruction of injured bile ducts during cholecystectomies. Here, we present a successful case of rescue surgery for complicated biliary injury after laparoscopic cholecystectomy (LC).

Materials and Methods: The patient was a 49-year-old male. Three days after LC performed at the previous hospital, bile leakage occurred. Re-operation was performed on 14 postoperative day, and the point of bile leakage was sutured. However, the bile leakage did not subside, and the patient was referred to our department. The ERCP revealed that the common bile duct was completely divided. ENBD tube was inserted into the orifice of the left hepatic duct through the common bile duct. As the first procedure, tubing of the bile ducts was performed. After laparotomy, we found the drainage tubes and ENBD tube. Three biliary tube were inserted into orifices the left, right anterior, and right posterior bile duct. Five months after the first procedure, the second procedure including limited liver resection (segment 4 and 5) and hepaticojejunostomy was performed.

Results: Postoperative course was uneventful, and the 3 stenting tubes were removed 3 months after the second procedure. The patient is doing well 2 years after the second procedure without symptoms.

Discussion and Conclusion: We speculate that there are two key points associated with our strategy. First is an adequate interval between the two procedures. We had to wait 5 or 6 months till the inflammation around the hilar plate was completely resolved. Second is the addition of hepatic resection. Limited resection of the segment 4 and 5 (unroofing) produced a wide exposure of the hilar plate, making the anastomosis easier. Our strategy is recommended especially in cases with complicated biliary injury.

Keywords: Biliary injury, laparoscopic cholecystectomy, hepatic resection

Tips and Techniques for Difficult Laparoscopic Cholecystectomy

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Laparoscopic cholecystectomy (LC) may be difficult to perform in patients with acute cholecystitis (AC) with severe inflammation and fibrosis. The Tokyo Guidelines 2018 (TG18) expand the indications for LC under difficult conditions for each level of severity of AC. It is essential, irrespective of grade, to avoid increases in bile duct injury (BDI) as a result of the recommendation in TG18 to perform LC in surgical management of AC. Therefore, safety steps and bail-out procedures are presented, which are important when performing LC for AC treatment. To minimize the degree of BDI due to severely inflamed gallbladder: We evaluate surgical difficulty at the beginning of the operation by identifying fibrosis, scarring, edema, easy bleeding of the gallbladder, and intraabdominal findings, such as visceral fat or liver cirrhosis. We follow the standardized safe steps in LC for AC. We maintain the plane of dissection within the gallbladder surface throughout LC. We do not use the fundus-first approach, wherever possible. We consider intraoperative cholangiography to reduce the extent of the BDI. If the anatomical structure remains difficult to identify, we consider bail-out procedures.

As a result of these preventive measures, there have been no experiences of BDI due to misidentification, and only one minor BDI due to a difficult gallbladder has been occurred. In that case, the injury was repaired laparoscopically during the operation. We are further developing a safe system to reduce misidentification using artificial intelligence technologies.
Surgical Treatment of The Neoplastic Obstruction of The Esophagus

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Regarding surgical treatment of neoplastic obstruction of the esophagus, there are various options as to the width of the resection margin, extent of lymph node dissection, the organ and route used for reconstruction, multimodality therapy, including neo or adjuvant therapy, induction therapy and salvage surgery following definitive chemoradiotherapy. Therefore, it is difficult to choose the currently most appropriate standard therapy based on evidence. Esophageal obstruction implies nutritional impairment. Rehabilitation at the expense of enteral nutrition is imperative in the preoperative period at least until reaching BMI 18.

For the cervical esophageal carcinoma, the surgical procedure should be determined carefully, after due consideration given to the balance between the radicality of the treatment and the QOL. Thus, efforts are focused on surgical techniques represented by two-field lymph node dissection (thoracic and abdominal) for cases of thoraco-abdominal esophageal carcinoma and on the use of video surgery. A right video-thoracoscopy and a video-laparoscopy or laparotomy, with total extirpation of the thoracoabdominal esophagus and lymph node dissection is generally carried out.

For reconstruction, the posterior mediastinal route has been most frequently employed by us. The stomach is the most common organ used for reconstruction. Our favorite anastomosis technique includes manual suture at cervical level.

The video-laparoscopic esophageal bypass using an isoperistaltic gastric tube constitutes a good therapeutic option for patients in clinical stages III-T4 and IV, although endoscopic prostheses have been preferable by most Services around world.

Our results in the treatment of esophageal neoplasia follow the averages of the literature.

Positioning of The Surgery in The Multimodal Therapy for Thoracic Esophageal Cancer

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As for the surgery for thoracic esophageal cancer in Japan, the esophagectomy with 3 fields lymph node dissections becomes the standard treatment.

Lymph nodes classification was greatly changed in the esophageal cancer handling agreement eleventh edition revised in 2015, and supraclavicular lymph nodes (No. 104) were classified as N2 in a middle intrathoracic esophagus cancer, and a neck dissection became indispensable for D2 surgery.

Whereas we receive results of JCOG9907 concerning the perioperative adjuvant therapy, and preoperative chemotherapy is placed as standard therapies.

The multicenter randomized controlled trial tripartite Two-drug standard preoperative chemotherapy, three-drug chemotherapy, and chemoradiotherapy, are performed in JCOG and are in condition to wait for results now.

Whereas the salvage operation after the radical chemoradiation treatment for esophageal cancer is high-risk. However, the expectation for chemoradiation with/without salvage surgery continues from the viewpoint of esophagus preservation, too.

Strategies for treatment such as Watch and Wait in rectal cancer is possible in esophageal cancer, or the utility of the radical chemoradiation treatment after the induction chemotherapy is considered, too.

However, the progression of recurrent esophageal cancer is early, and there are a lot of cases to be in a condition having difficulty in curative treatment.

It is thought that need to choose carefully is important about the case to delay surgery time in esophageal cancer.
Update and Multi-Modality Treatment for Gastric Cancer

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Gastric cancer, one of the most common abdominal cancer in Asian countries, is usually diagnosed in advanced stage with malnutrition and associated gastrointestinal symptoms. Surgical intervention with curative intent is the most important modality providing better oncological outcomes. Although the incidence of gastric cancer decreases in modern era, it still ranks the main cause of cancer related deaths.

National Taiwan University Hospital, one of the leading academic institutions, set up a multidisciplinary team to provide patient-centered treatment after comprehensive discussions between multi-department subspecialists, including medical oncologist, surgical oncologist, dietician, and family medicine in charge of palliative cares. As to the surgical modality, we also provide patient-centered minimal invasive procedures (endoscopic, laparoscopic or robotic) depending on the patients’ factors (cancer stage, comorbidities and financial status) and surgeons’ skills.

Concerning the malnourished status in most gastric cancer patients, nutritional intervention is very important to improve surgical outcomes and to complete chemotherapy course. Enteral nutrition is favored than parenteral nutrition in the tolerable patients. Specialized immunonutrition is suggested to the cancer patients undergoing major operations with potential advantage for reducing immune and inflammatory responses. These formulas contain the Arginine, Gln, N-3 fatty acid supplementation. However, in selected patients not achieving the goal of daily caloric or with severe malnutrition, parenteral nutrition will be administered simultaneously.

In addition to aforementioned modalities, we design both rehabilitation program and telecare system to help gastric cancer patients fasten recovery. The aim of rehabilitation program is to prevent cognitive dysfunction and advance physical function during critical perioperative periods because the patients suffering from wound pain and surgical stress easily develop these illnesses. For the telecare system, its aim is to shorten the gap between the hospital and homes. It is because, during post discharge period, the patients should take care of themselves and the surgical professionals provides few services for them under traditional cares.

In modern era, the surgeons are facing some challenges, such as patient-centered rather than surgeon-centered or team work rather than heroism. We should keep learning to adopt these concepts to deliver comprehensive healthcare in terms of better outcomes to the patients.

Anticancer Drugs of Tomorrow in GI Oncology

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Director of Translational Research in GI Radiation Oncology, Investigator, Edwin L. Steele Laboratories for Tumor Biology, Department of Radiation Oncology, Massachusetts General Hospital, Associate Professor of Tumor Biology, Harvard Medical School.

Surgical treatment is a potentially curative treatment option for GI cancers such as hepatocellular carcinoma (HCC), intrahepatic cholangiocarcinoma (ICC) or pancreatic ductal adenocarcinoma (PDAC). However, many of the patients treated with surgery experience disease progression. Moreover, many patients present with unresectable disease at diagnosis. In such cases, until recently, available treatment options have been very limited in efficacy, which led to dismal survival rates. More recent developments in oncology have offered renewed hope for advanced GI cancer patients. Hypofractionated radiation has shown feasibility and promise in unresectable HCC setting, and is now being tested in a randomized phase III trial (clinicaltrials.gov identifier NCT03186898). Antiangiogenic agents have strongly impacted the management of advanced HCC, with multiple drug options in first line setting (sorafenib, lenvatinib) and second line setting (regorafenib, cabozantinib, ramucirumab). Notably, immunotherapy with anti-PD-1/PD-L1 antibodies has shown real potential to transform advanced GI cancer therapy, both in first line and second line settings. Finally, combinations of these new strategies are very attractive approaches, as they promise durable and profound responses in advanced GI cancers. In order to fulfill this promise, these concepts require greater understanding based on mechanistic preclinical studies and validation in correlative studies in clinical trials as a basis to establish optimal combinatorial strategies. I will present results from clinical correlative studies and preclinical models of these diseases performed at our institution. This “bench-to-the-bedside and back” approach raise the hope for a more efficient development of targeted agents in advanced setting.
Recently, with knowledge gained from findings during LIFT procedure and MRI fistulography enable us to understand natural anal fistula patterns. There are six patterns of anal fistula and the author’s recommended operative options for each pattern are listed in the table.

Note: Setons are not recommended because loose seton need more operative sessions and cutting seton has significant risk of anal incontinence.

<table>
<thead>
<tr>
<th>Fistula patterns</th>
<th>Operative options</th>
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<tr>
<td>1 Low intersphincteric</td>
<td>FIPS (fistulotomy immediate primary sphincteroplasty)</td>
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<tr>
<td></td>
<td>LIFT</td>
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<tr>
<td>2 Low transphincteric</td>
<td>LIFT, FIPS, Flap, fistulotomy</td>
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<tr>
<td>3 Anterior high transphincteric</td>
<td>LIFT, Flap, FIPS</td>
</tr>
<tr>
<td>4 Posterior high transphincteric</td>
<td>LIFT, FIPS, Flap, Hanley’s fistulotomy</td>
</tr>
<tr>
<td>5 High intersphincteric</td>
<td>Intra-anal fistulotomy(IAF), LIFT</td>
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<tr>
<td>6 posterior high transphincteric</td>
<td>IAF+ suture external sphincter,</td>
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<tr>
<td>+ high intersphincteric</td>
<td>LIFT+tube drain</td>
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**LIFT Upgrade**

The LIFT procedure is a sphincter saving operation for anal fistula which was first introduced in 2007. It is a safe, cost-effective procedure with 70 to 80% success. Over the past years, many modifications of the operating technique have been added to the original technique which include:

1. Modifications of the ligation of the intersphincteric tract to ensure secure closure; selection of suture materials, reinforcement of the ligated stumps with additional suture to external sphincters.
   2.1 Coring out distal tract
   2.2 Fistulotomy from external opening to the external sphincter
   2.3 Drainage of the cavity; tube drainage, seton drainage and vacuum drainage
3. Combination of LIFT with other techniques have been described including Bio-LIFT, Plug-LIFT, VAAFT-LIFT, Flap-LIFT.
4. New approaches
   4.1 Intra-anal LIFT (aLIFT)
   4.2 Coring out and ligate intersphincteric tract without intersphincteric incision (eLIFT).
LIFT is based on a valid concept. However, the procedure is technically demanding and the outcomes are variable. There is still room of improvement where many modifications are being tested. Surgeons should pay attention to the details of the techniques and finally we can achieve the “LIFT upgrade” procedure.
Endorectal Advancement Flap

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The Endorectal Advancement Flap (ERAF) is a sphincter-saving procedure for the treatment of complex anal fistula. It involves fashioning a trapezoidal flap of rectal mucosa, with a proximal base wider than the distal apex. The flap is mobilized until its distal lip, which encompasses the internal opening, reaches the anal verge without tension. Its thickness will include mucosa, submucosa and some internal sphincter fibers. To preserve vascularity of the flap, cautery is seldom used. The remaining internal opening on the muscle bed is curetted clean and sutured closed with 2/0 Polysorb®. The attenuated internal sphincter is then repaired, in an imbrication manner, to bury the primary closure. Following that, the flap is trimmed and sutured down with interrupted 2/0 Polysorb® to cover the anal canal defect. Reported primary healing rates of the ERAF range from 59.6-96.7% [1–3] fistulotomy, and seton placement. These procedures, however, can be associated with varying degrees of fecal incontinence. Endorectal mucosal advancement flap has been advocated as an alternative procedure that avoids this problem. This study was undertaken to determine the risks and benefits associated with endorectal mucosal advancement flap in the treatment of complex fistula-in-ano. One hundred sixty-four patients underwent 167 endorectal mucosal advancement flap procedures for complex cryptoglandular fistula-in-ano between January 1982 and December 1990. There were 126 men and 38 women whose mean age was 42.1 years (range 20 to 79 years). It is important that any underlying sepsis is controlled before embarking on the ERAF procedure. For this reason, an interval seton for 2 months is recommended before performing the procedure. In our experience, when each procedure is performed after an interval loose seton, ERAF has a higher success rate of 93.5% compared to a success rate of 62.5% (p=0.006 ) for the ligation of intersphincteric fistula tract (LIFT) [4]. Univariate analysis for risk factors for failures revealed age (p=0.004), history of surgical abscess drainage (p=0.04), BMI (p=0.002), supra-sphincteric fistula (p=0.019) and horseshoe abscesses (p=0.036) as independent parameters for therapy failure. During multivariate analysis, only history of surgical abscess drainage (OR=8.09, p=0.048, 95%CI 0.98-64.96), supra-sphincteric fistula (OR=6.83, p=0.032, 95% CI 1.17-6.83) and BMI (OR=1.23, p=0.017, 95% CI 1.03-1.46) were independent parameters for therapy failure [3]. Incentives, authority. In a systematic review and meta-analysis of 26 studies comparing advancement flap procedures using flaps of different thickness (full, partial, mucosal) [165 patients], full-thickness flaps produced the lowest recurrence rate (7.4%), followed by partial flaps (19%) and mucosal flaps (30.1%). [5]. Although popularized as sphincter-saving, studies have suggested an altered continence rate of 9-50% following ERAF [1, 2] fistulotomy, and seton placement. These procedures, however, can be associated with varying degrees of fecal incontinence. Endorectal mucosal advancement flap has been advocated as an alternative procedure that avoids this problem. This study was undertaken to determine the risks and benefits associated with endorectal mucosal advancement flap in the treatment of complex fistula-in-ano. One hundred sixty-four patients underwent 167 endorectal mucosal advancement flap procedures for complex cryptoglandular fistula-in-ano between January 1982 and December 1990. There were 126 men and 38 women whose mean age was 42.1 years (range 20 to 79 years, with the rate of altered continence increasing with flap thickness [5]. Nevertheless, the ERAF procedure remains a reliable option in patients with complex and recurrent anal fistula or those who have had multiple failed previous surgeries as it belies the underlying principle of bringing well vascularized tissue to a scarred infected field and consequently, a higher chance of healing.

VAAFT and Its Modification

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Background: Complex anal fistulas is quite commonly disease. The ligation of the intersphincteric fistula tract (LIFT) for the management of anal fistula which are traditional LIFT and combination of LIFT with electrocautery under direct camera vision by VAAFT, also called VA-LIFT techniques. However, it remains controversial which surgical procedure is suitable for complex anal fistula. 

Objective: To analyze the healing rate of the intersphincteric ligation technique of the fistulous tract (LIFT) in the treatment of anal fistula as well as recurrent rate at 1 year after the procedure, occurrence of fecal incontinence and identification of risk factors.

Methods: A retrospective study of 229 complex fistula patients who underwent LIFT procedure from January 2012 to December 2017 was analyzed. Age, sex, comorbidity, history of previous anal surgery, smoking, alcohol drinking, Obesity, fistula characteristics were reviewed.

Results: Of the 229 patients, 167 (72.5%) healed completely and did not require any further surgical treatment at end of follow-up. 63 (27.5%) recurrences and none of the participants had post procedure fecal incontinence. VA-LIFT technique was considered a protective factor for recurrent fistula (P<0.001). Factors related to recurrence were found to be having a history of anal surgery (P<0.001) and Obesity (P<0.001).

Conclusion: LIFT technique is feasible for the treatment of complex anal fistula and clinicians can consider the use of conventional LIFT combined with VAAFT (VA-LIFT) to reduce recurrent anal fistulas. However the further study about benefit of VA-LIFT in RCT should be conducted.

Keywords: Fistula in ano, ligation of intersphincteric fistula tract, VAAFT
What is The Optimal Operation for Resectable and Borderline Resectable Pancreatic Cancer?

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Several randomized controlled trials have shown that extended lymph node dissection including the superior mesenteric artery (SMA) nerve plexus does not provide survival benefits in patients with pancreatic head cancer, and standard lymph node dissection is recommended. However, the dissection range of the standard group varied in each study, and the appropriate resection range was not clear. R0 resection with induction of adjuvant chemotherapy is required to improve the prognosis of pancreaticoduodenectomy in patients with pancreatic head cancer. Therefore, curative resection with less operative time, blood loss, and influence on the postoperative health-related quality of life is important. The SMA margin is the most important factor for achieving R0 resection, because the tumor mainly spreads behind the SMA. The area behind the SMA is generally called “mesopancreas,” and many surgical procedures for the complete dissection of the mesopancreas have been reported. However, there are no uniform criteria of the appropriate range of dissection. The anatomy around the SMA is very complicated, and it is difficult to understand the anatomy during surgery. It has been reported that the root of the inferior pancreaticoduodenal artery (IPDA) becomes a good landmark for complete dissection of the mesopancreas. However, the artery cannot be confirmed before starting SMA dissection because it is covered by dense-connective tissues composed of nerve and fibrous tissues (NFTs). On the other hand, it has been generally known that PDAC spreads with invasive and lymph node metastasis in these NFTs. Pathologically, these NFTs were composed of nerve fibers or elastic fibers. We had examined the running patterns of the NFTs around the SMA with anatomists using autopsy examples. We found that the patterns were regular and can be classified into four areas based on their anatomical locations. Therefore, we hypothesized that the NFT structures are good landmarks for determining the appropriate resection area around the SMA in pancreaticoduodenectomy in patients with resectable PDAC. We introduce the feasibility of anatomical pancreaticoduodenectomy based on the NFT structures in PDAC patients.

Update Surgery for BR and LA Pancreatic Cancer – Conversion Surgery after Neoadjuvant Therapy

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Pancreatic cancer remains a therapeutic challenge with a poor prognosis. Surgery with radical tumor removal is possible in only 15% to 20% of all patients by the time of diagnosis. In the case of localized disease, resection is mainly limited by the involvement of arterial structures resulting in a mostly palliative treatment of the respective patients. During the recent decades, important progress has been made in the treatment of pancreatic cancer (PDAC). With progress in surgical techniques, centralization and embedding PDAC therapy in a multimodal approach – especially including adjuvant chemotherapy, surgical as well as oncological outcome has considerably improved.

The most important current discussion in PDAC therapy is the indication for neoadjuvant therapy which has been evolving for many tumor entities during the last decade. Numerous – mainly observational – studies investigating this approach in borderline resectable (BR) and locally advanced (LA) PDAC have been published, however, no sufficient high-level evidence data are available to date.

The most recent IAP definition on resectability in PDAC has appraised not only anatomical (A) issues to define resectability, but also biological (B) and conditional (C) factors that might be associated with poor outcomes after upfront surgery and may therefore represent situations in which neoadjuvant treatment may be favorable.

For BR-PDAC, there are few small randomized controlled trials (RCT) that show a certain advantage of neoadjuvant therapy on the rate of R0 resections and the lymph node status as well as survival, currently a number of RCTs are ongoing worldwide to increase evidence on this issue.

As PDAC surgery with arterial reconstruction is associated with an increased postoperative morbidity and mortality, this is not recommended as a standard approach and should be limited to highly selected patients. Consequently, in case of LA-PDAC with arterial involvement, modern chemotherapy and chemoradiation protocols can achieve a downstaging and devitalizing of locally advanced pancreatic cancer and should always be considered an option to achieve conversion surgery with complete tumor removal afterwards. The currently most promising protocol in this situation is FOLFIRINOX, which leads to resectability in a large proportion of patients. An unaddressed problem in the setting of preoperative chemotherapy or chemoradiation is response evaluation as conventional cross-sectional imaging fails to accurately reflect the extent of remaining viable tumor and a radical removal maybe achieved by an artery-sparing sharp dissection technique. Therefore, in case of stable disease or tumor remission after completion of conversion therapy, a surgical exploration should always be attempted in all patients fit for surgery because resection can be achieved in up to 60% of these patients offering the chance of long-term survival.

Future efforts in BR- and LA-PDAC should aim to create more evidence by high-quality RCTs on the indications and specific protocols for neoadjuvant treatment as well as improvement of imaging modalities and markers predicting response more accurately to identify patients who benefit from this approach.
Advent of potent chemotherapy has changed the total picture of surgical strategy against advanced pancreatic cancer. Typical examples are aggressive surgical management of conversion surgery for initially unresectable locally advanced or metastatic pancreatic adenocarcinoma (PDAC) and repeat pancreatectomy for isolated local recurrence. Rationale of pancreatectomy for such far-advanced PDAC is derived from detailed systemic evaluation with new image technologies, longer observation as stable diseases, sites and distribution of initial and recurrent diseases, biomarkers predicting aggressive behavior of PDAC, normalization or marked decrease in tumor markers like CA19-9. Other biomarkers such as circulating tumor cells, cell-free circulating tumor DNA, exosomes, tumor-educated platelets, and various kinds of glycoproteins have also been reported to date. However, the actual clinical benefits of the conventional biomarkers and newly developed liquid biopsy for PDAC is still unknown. We herein report our institutional outcomes of conversion surgery and repeat pancreatectomy for far-advanced and recurrent PDAC with a review of literature.

Most diagnoses are made when the disease is either locally advanced or metastatic in pancreatic cancer (PC) patients. There are only few reports regarding “conversion surgery (CS)” to be performed for those patients following favorable responses to preoperative treatment (POT). In this presentation, we review current status and present our experience of CS.

Between 2006 to 2016, we performed CS for 34 patients with initially locally advanced (LA) and 10 patients with metastatic PC (7 cases: liver, 2 cases: lung, 1 case: peritoneum). Gemcitabine and S-1 (GS) was the most frequently used as POT. The duration between initiation of treatment and surgery was significantly shorter in LA with 4.2 months than in M with 13.8 months. Median survival time (MST) from initiation of therapy was 29.6 m in LA and 60.6 m in M. In LA cases, patients with R0 or R1 resection survived longer (28 m) than those with R2 resection (12.5 m). Multivariate analysis showed only post-operative adjuvant therapy was a predictive factor for favorable prognosis.

In M cases, 5 patients had recurrence within 6 months after surgery, while 2 patients survived more than 3 years. These results showed survival benefit of CS in selected patients. However, there was no indicator for selecting patients who will receive benefit from CS. In addition, the roles of new chemotherapy regimen such as FOLFIRINOX and Gemcitabine and nab-Paclitaxel in CS should be examined. Further data accumulation of CS is required to establish the safety and effectiveness of this treatment.
Laparoscopic Surgery for Advanced Gastric Cancer

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The outcomes of laparoscopic gastrectomy (LG) for early gastric cancer treatment has been proved by various studies. However, the feasibility of this technique for advanced gastric cancer are still debated. The indications, technique and outcomes of LG for advanced gastric cancer remain controversial due to its technical difficulties and the lack of long-term results. Since then, surgical experience with LG has been increasing, particularly in Eastern Asian countries such as Japan, Korea, and China, where gastric adenocarcinoma is more prevalent, the application of this technique for advanced stage cancer has been increasing. By contrast, LG is underutilized in where the prevalence of disease is lower such as western countries and Thailand.

The indications, patient selection, surgical techniques, postoperative care, and outcomes of LG for advanced cancer are discussed in this topic.

Robotic Approach for Gastric GIST in Difficult Locations

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Surgical strategy for gastric GIST is based on several factors including tumor size, mitotic rate, and location. Nowadays, majority of GIST can be managed laparoscopically. However, laparoscopic approach may not be possible or difficult for GIST locating in deep or posterior locations such as those at the cardia, gastroesophageal junction, or posterior wall. In such situations, robotic surgery may prove to be a better alternative option because of the 3-dimensional vision and dexterity-enhanced endowristed instruments, which allow for resection of the tumor in this area to be done efficiently, safely, and with curative potential. This multimedia report presents our experience utilizing robotic approach for GIST in such difficult locations.

Role of Surgical Resection for The Patients with Hepatocellular Carcinoma in The Era of Liver Transplantation

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We have many treatment options for patients with hepatocellular carcinoma (HCC) with (or without) underlying liver cirrhosis: hepatic resection, liver transplantation, locoregional therapy, and chemotherapy. Hepatic resection offers the best long-term outcome in patients without chronic liver disease. Liver transplantation offers the best long-term survival and the lowest incidence of tumor recurrence in patients with cirrhosis and early HCC. Locoregional therapy is good for the early HCC and recently we know the role of target therapy and neoadjuvant Intraarterial infusion chemotherapy for the patients with HCC.

Recently, many country in the world have different treatment guideline for the treatment of HCC patients. In this presentation, I will review different guidelines esp. difference in eastern and western country and review the reasons why they have different guideline. And I will present the role of surgical resection for the patients with HCC in the era of liver transplantation.
Nutrition Support in Cancer

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Cancer-related malnutrition induced by the tumors and oncological therapies can produce a negative impact on clinical outcome. Nutrition care process (NCP), in real-life practice, is under-awareness and under-utilization due to inadequate education and lack of interest. This paper present recent informations about the beneficial aspects of nutrition interventions. An appropriate individualized physical activity of aerobic and resistance exercise should be performed to maintain muscle strength and muscle mass. Thus, the more oncoligic patients are well-nourished, the better they can tolerate cancer treatments, and obtain the better results.

Nutrition screening and assessment should be done early and regularly to detect malnourished status in all patients. ESPEN guidelines (2017) recommend daily energy expenditure ranging between 25-30 kcal/kg/day (assumed to be similar to generally healthy subjects - section B2, p.20) and protein intake above 1.0 -1.5 g/kg/day. In case of severely prolonged period of inadequate food intake, nutrition interventions should be administered carefully and slowly to prevent a refeeding syndrome.

The ERAS protocol aims to decrease surgical stress and catabolism, reduce complications, maintain N. status, and optimize recovery. The N. aspects of ERAS are : avoiding preop. fasting, administration of preop. carbohydrate drink, initiate oral feeding on the 1st postop. day, and early mobilization. However, every malnourished pt. should be provide N. support before the operation. ERAS is recommended for all cancer pts undergoing either curative or palliative surgery.

Thaís Tweed et al, performed a systematic literature review to assess the evidence of safety and benefits of early oral feeding (EOF) after gastrectomy in patients with gastric cancer (GC). There were selected 4 RCTs (total 23 eligible articles) met the studied criteria. In the EOF group (n=320) was associated with a decreased length of hospital stay ranging from −1.3 to −2.5 days when compared to conventional care (n=334). A faster time to first flatus was recorded in all 4 studies in the EOF group, ranging from −6.5 hours to −1.5 days. Furthermore, EOF does not increase postoperative complication risk when compared to conventional care. However, the results may differ because advanced stage GC is more common in the Western population (page 93) and early stage GC is more common in the Asian population.

Several meta-analyses show increasing findings that oral and enteral immuno-nutrition (E-IMN) to be more effective than general enteral nutrition (EN). IMN significantly reduce postoperative infectious complications and hospital stays in patients with cancer and upper GI tract surgery. (strength of recommendation : strong; level of evidence : high). Recently, Ying Cheng, et al, performed a meta-analysis included 7 studies involving 583 patients aimed to assess the impact of IMN for gastric cancer patients undergoing a total gastrectomy. The results showed that EIN group, when beyond a 7-day time-frame post-operatively (D ≥ 7), significantly increased level of CD4+, CD4+/CD8+, the IgM, the IgG, the lymphocyte, and the proalbumin. However, those increased effects were not obvious within a 7-day time-frame post-operatively (D < 7). The levels of CD8+ and other serum proteins except proalbumin were not improved both on D ≥ 7 and D < 7. Clinical outcomes such as systemic inflammatory response syndrome, and postoperative complications were significantly reduced in E-IMN group. However, pulmonary infection and length of hospitalization were not improved no matter what time after surgery.

Ovarian cancer has the highest rate of disease-related malnutrition among all gynaecological neoplasms. So, the finding of effective nutritional interventions are very importance to improve ovarian cancer patient’s well-being and survival. Emanuele Rinninella, et al performed a systematic review of 14 RCTs found that early postoperative feeding interventions studies (n = 8) were restore to good state, reduce LOS and better intestinal recovery after surgery. Moreover, innovative N. approaches such as chewing gum intervention (n = 1), coffee consumption (n = 1), ketogenic diet intervention (n = 2) or fruit and vegetable juice concentrate supplementation diet (n = 1) and short-term fasting-STF (n = 1) have been shown as valid and well-tolerated N. strategies improving clinical outcomes. However, these results on STF or FMDs (fast-mimicking diets) should be considered very carefully especially for malnourished pts. during chemotheraphy.

Malnourished patients are at increased risk of complications during hospitalization and are at further risk for adverse health events after discharge. Katie Riley, et al, performed a multisite, pre-post nutrition-focused Quality Improvement Program (QIP) implemented at 2 branches of home health agency (HHA). The researchers aimed to evaluate the outcome of screening malnutrition risk and treatment by at-home use of oral nutritional supplements can help prevent illness onset or relapse and maximize the effectiveness of other medical treatments. The results of the 1546 QIP patients who were at-risk or malnourished showed reduced relative risk of hospitalization post-enrollment by 24.3%, 22.8%, 18.3% at 30, 60, 90 days, respectively, when compared with the historic group, and by 18.2%, 16.2%, 12.1% when compared with the concurrent group. Total cost savings from reduced 90-day healthcare resource utilization was $2,318,894, or $1500 per patient treated.
The gold standard of haemorrhoidal treatment is still the conventional excisional haemorrhoidectomy. However, this is associated with significant post-operative morbidity especially pain and loss of haemorrhoidal anal cushions that is important for sensation and fine continence. As such, several novel treatment options have been developed as an alternative to minimizing these adverse effects. One of them is the Doppler-guided haemorrhoidal artery ligation (HAL) procedure, also commonly referred to as the transanal haemorrhoidal dearterialization (THD) procedure. In essence, it involves precise and selective suture ligation of approximately six branches of the superior haemorrhoidal arteries under Doppler guidance. This can be combined with a recto-anal repair (RAR) which is achieved by running the same ligation suture submucosally in a caudal direction to just above the dentate line and pushing the prolapsed mucosa back into the anal canal before knotting it down, effectively performing a mucopexy. There have been several iterations of the equipment in the market but the core features are a small single use doppler probe that is attached to the tip of the proctoscope inserted, a pivot hole at the apex of the proctoscope which allows reception of a special needle holder mounted with a 2-0 absorbable polyglycolic suture with a 5/8-inch needle and a special window in the proctoscope for passage of the transfixion needle and suture. The use of the pivot hole allows for easy, safe and repeatable calibrated 6mm depth of transfixed sutures. In a multicentre trial of 803 patients with grade 2-4 haemorrhoids, Ratto et al reported a morbidity of 18%, mostly pain and tenesmus. Mean follow-up was 11.1 ±9.2 months. Overall success rate was 90.7%, with a recurrence in haemorrhoidal prolapse, bleeding and both symptoms in 6.3%, 2.4% and 0.6% respectively [1] based on the largest patient population ever published, aims to evaluate the efficacy of Doppler-guided transanal haemorrhoidal dearterialization (THD Doppler). In a retrospective review, Doppler-guided HAL can be safely performed in anti-coagulated patients, without cessation of oral agents without increasing morbidity from post-operative bleeding [2] Springer-Verlag Italia Srl. Background: Approximately one in five persons living in the USA is maintained on oral anticoagulation. It has typically been recommended that anticoagulation be withheld prior to haemorrhoidal procedures. Transanal hemorrhoidal dearterialization (THD. In a systematic review and meta-analysis of six randomized controlled trials (RCT) comparing Doppler-guided HAL (DGHAL) versus stapled haemorrhoidectomy (SH) [554 patients], DGHAL had a lower post-operative pain score than SH (2.9 ±1.5 vs 3.3 ±1.6, p=0.002) but significantly higher persistent/recurrence rate (13.2% after THD vs 6.9% after SH; OR=1.93, 95%CI=1.07-3.51, p=0.029). Complications, readmission rates, hospital stay, return to work and patients satisfaction were similar in both groups [3]. When DGHAL was compared with Rubber Band Ligation (RBL) in a multicentre RCT (HubBLe study), the recurrence rate after a single RBL was higher than DGHAL (adjusted odds ration aOR 2.23, 95%CI 1.42-3.51, p=0.0005) and DGHAL was more painful than RBL in the first 7 days [4] safe therapy while rubber band ligation (RBL). Finally, in a study comparing Doppler-guided HAL vs suture ligation, duration of surgery was significantly higher in Doppler group (31 min vs 9 min, p<0.003), post-operative pain score was higher in the Doppler group (VAS 4.4 vs 2.2, p<0.002), with ensuing greater total analgesic dose and duration of pain control. There was no significant difference in recurrence between the two groups at one year [5] randomized controlled study was conducted on 48 consecutive patients with grade III hemorrhoids requiring surgery. The patients were randomized into two groups. Half of them were treated with ligation and mucopexy (SL), while the remaining patients underwent a Doppler-guided hemorrhoidal artery ligation followed by ligation and mucopexy (DSL). The patients were examined by a blinded independent observer at 2, 4, and 6 weeks and at the end of 1 year after the operation to evaluate postoperative pain scores, amount of analgesics consumed, and complications encountered. The observer also assessed recurrence of hemorrhoids after 1 year. RESULTS: Operative time was significantly longer in the DSL group (31 min vs. 9 min P < 0.003. In summary, Doppler-guided haemorrhoidal artery ligation is a novel anal cushion preserving haemorrhoid surgery that is effective in stopping bleeding through precise ligation of haemorrhoidal artery branches. It can be modified to treat prolapse. However studies show that although superior to single RBL, it may not be better than SH and there is no advantage in using the Doppler probe when compared to visual suture ligation alone.
Laparoscopic Pancreatectomy: How I Standardized My Technique

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Laparoscopic pancreatic surgery is a technically demanding operation to require a long learning curve for proficiency due to high morbidity compared with other gastrointestinal surgery, complex anatomy, technically challenging anastomosis and relatively rare indications. Here the technical tips to decease operative complications and overcome the technical difficulties based on my personal experience are introduced. Laparoscopic distal pancreatectomy (LDP) is a widely accepted operative treatment for benign or borderline malignant disease in the body and tail of the pancreas. However, the spleen vessel-preserving method is more technically demanding because it requires meticulous dissection of the pancreas from the splenic vessels. The procedure of isolation of small branches of the splenic vein for application of clips may cause bleeding. The blunt dissection technique, which sometimes control the small vessel branches along with surrounding pancreas parenchyma without prerequisite dissection or isolation can decrease the risk of bleeding. In addition, the medial-to-lateral approach is more beneficial than lateral-to-medial approach for better visualization of the small vessel branches. When the spleen is planned to be sacrificed, the splenic vein can be safely transected along with the pancreas using the endoscopic stapler. As there is a risk of bleeding while making a window between the pancreas and the splenic vessels for transection of the pancreas, this technique is useful especially when the splenic vein is densely adherent to or sometimes embedded in the pancreas parenchyma. To reduce the risk of POPF, selection of the optimal stapler cartridge according to the pancreatic thickness is essential. The stapling technique is also important to avoid a crushing injury to the pancreas parenchyma. The closure jaw should be clamped slowly taking more than 3 minutes at a fixed speed. When the pancreas parenchyma is too thick or hard to apply a stapler, it is safer to transect the pancreas using an ultrasonic shear and perform a suture ligation of the exposed pancreatic duct followed by application of the fibrin glue or mesh.

Minimally Invasive Pancreatoduodenectomy after LEPARD 2 – Should We Continue?

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Minimally invasive surgery has been established as an alternative or standard procedure in many fields of visceral surgery including distal pancreatectomy. However, for partial pancreatectoduodenectomy (PD) as a complex procedure, the minimally invasive approach is burdened by a – potentially long – learning curve including a considerable rate of conversions to open surgery as well as the performance of hybrid procedures which may limit its value and underlines the need for evidence in this field. In addition, it remains unclear if the minimally invasive approach by laparoscopic resection and reconstruction can be facilitated by the additional use of a robotic system due to the advantages of 3-dimensional instrument handling and a potentially better 3D visibility.

In the last three years, there have been three randomized controlled trials on laparoscopic vs. open PD, namely the PLOT, the PADULAP and the LEOPARD-2 trial with conflicting results. All trials confirmed a longer operation time and a reduction in blood loss with comparable radicality of the resections. While the PLOT and PADULAP trials were in favor of the minimally-invasive approach with regard to a shorter hospital stay, the LEOPARD-2 trial was stopped prematurely due to an unexpectedly high mortality of 10% in the laparoscopic group. This observation raised severe concerns on the feasibility of the laparoscopic approach to PD.

In contrast to the results of the multicenter RCT, a European survey failed to show an increased morbidity or mortality of minimally invasive PD, furthermore, also a metaanalysis of the 3 mentioned RCTs could neither confirm superiority nor inferiority of the minimally invasive approach. Potential explanations for the conflicting results and interpretations include the expertise and case-load of surgeons involved in minimally invasive PD that should certainly be paid utmost attention to and may lead to the conclusion that the laparoscopic technique in PD may be suitable only for highly experienced surgeons and centers.

In contrast to laparoscopic PD, there are no RCTs on robotic PD to date and observational single- or multi-center studies suggest a certain advantage compared to open PD. Although also a complex procedure, robotic PD may be easier than laparoscopic PD due to the manipulative and visual superiority of the robotic technology compared to laparoscopy alone. Consequently, there is clear need for a future evaluation of minimally invasive PD with regard to robotic procedures which should be compared to laparoscopic alone and open PD in an RCT setting. These studies should address not only perioperative outcomes including morbidity and mortality but also address oncological and economical aspects to allow conclusions on future directions in minimally invasive pancreatic surgery.
Robotic Gastrectomy: “Current Status and Future Directions”

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The overall incidence of gastric cancer has rapidly declined over the past 50 years but Gastric cancer still remains one of the leading causes of death from cancer worldwide.

Interest of minimally invasive surgery in treatment of gastric cancer has rapidly increased following the first report of laparoscopic gastrectomy (1994), however, several technical drawbacks and steep learning curve have limited its diffusion and popularity.

Da Vinci surgical system was invented in order to overcome the technical limitations of conventional laparoscopy.

So far, several studies have confirmed the safety and feasibility of Robotic Gastrectomy with lymphadenectomy for the treatment of gastric cancer and showed that Robotic Gastrectomy is associated with oncologically adequate lymphadenectomy, faster patient recovery and longer operating time.

The major technical advantages of the Robot approach are lymph node dissection and ability of intra corporeal reconstruction. The accuracy of robotic surgical dissection results in decreased blood loss and the learning curve and reproducibility of Robotic Gastrectomy seems to be shorter and more feasible than with conventional laparoscopy.

We believe that with a reasonable learning curve, acceptable oncological results and complications, da Vinci robotic gastrectomy can become the procedure of choice for gastric cancer patient.

How to Treat Ruptured Hepatocellular Carcinoma

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Background: Rupture of hepatocellular carcinoma (HCC) is a life-threatening complication and occurs in 2.3 to 26% patients with HCC in Asia and less than 3% in the West. This complication accounts for 6-10% mortality in patients with HCC. For treating the ruptured HCC, emergent or staged hepatic resection, perihepatic packing, trans-catheter arterial embolization (TAE), and/or radio-frequency ablation, were employed.

Methods: There were 18 patients with ruptured HCC (Male : Female = 15 : 3, mean age: 60.6±13.5 years). Viral infectious condition included HBV in 1, HCV in 9 and nonB nonC in 8. 18 cases were reviewed for groping adequate treatment.

Results: Preoperatively, rupture was diagnosed in 14 patients: 13 received TAE followed by hepatic resection and one underwent emergent hepatic resection. Ruptured HCC was not diagnosed in 4 patients and was diagnosed at the time of surgery by the presence of bloody ascites. Hemi-hepatectomy or more extended resection was performed in 6 patients, segmentectomy in 1, subsegmentectomy in 3 and limited resection in 8. Curative resection and reduction surgery were performed in 13 and 5 patients, respectively. There was no in-hospital death. After resection, 11 patients received TAE (n=9), sorafenib (n=3), chemotherapy (n=1), radiation (n=1) and skin meta resection (n=1), but 7 patients did not receive postoperative treatment. 5-year overall survival and recurrence free survival rates were 19.4% and 16.7%, respectively.

Conclusion: Although our results guaranteed the safety of combination therapy of TAE followed by hepatic resection, further adjuvant treatment is necessary to improve the results.
Treatment for Portal Hypertension

Various complications, such as esophagogastric varices, ectopic varices, ascites, and hepatic encephalopathy, can occur in portal hypertension. Bleeding from esophagogastric or ectopic varices is the most critical complication of portal hypertension. Portal hypertension can arise from any condition interfering with blood flow at any level within the portal system.

Many years ago, surgery was the only treatment available for esophagogastric varices in Japan. A number of surgical procedures have been developed to manage esophagogastric varices. Broadly, these can be classified as shunting and nonshunting procedures. There are two types of shunting procedure, namely nonselective and selective.

In the 1970s, techniques for interventional radiology (IVR) were developed and adopted, which improved the survival rates of patients with bleeding esophagogastric varices, and in the 1980s, endoscopic treatment further improved survival rates. In 1980, general rules for recording endoscopic findings of esophageal varices were initially proposed in Japan. In 2013, “General rules for Study of Portal Hypertension” was proposed by the Japan society for portal hypertension. These rules have widely been used in Japan and other countries.

Recently, endoscopic treatments have been developed and widely performed for esophagogastric varices, however surgery is also useful for managing refractory esophagogastric varices.

We review new trend of treatment for portal hypertension.

Results of A Prospective Trial Comparing SBRT with TACE in HCC

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Objectives: To compare SBRT with TACE in a prospective, non-randomised observational trial (HERACLES: HEpatocellular carcinoma stereotactic RA diotherapy CLinical Efficacy Study).

Materials/Methods: Patients who were discussed in a multidisciplinary tumour board over a predefined time of 12 months were offered prospective study participation. Patients with locally advanced HCC had SBRT when TACE was contraindicated, in case of progressive disease after TACE or when TACE was rejected by the patient. All other patients had as standard of care TACE treatment. Impact of predefined patient and treatment related factors on HRQOL (EORTC QLQ-C30 and EORTC QLQ-CR29) was evaluated. Primary endpoint was feasibility.

Results: Between 06/2016 and 06/2017 19 patients had TACE and 19 patients SBRT of whom one patient dropped out during SBRT because of pulmonal progression. In the TACE-arm median age was 69 years, median tumor size was 32 (10-80) mm and median Child-Pugh Score 5 points (A5: 15, A6: 2, B7: 1, B8: 1 patient); 8 patients had an ALBI grade 1, 9 an ALBI Grade 2 and 1 an ALBI grade 3, two patients were BCLC stage A, fourteen B and two C. Patients in the SBRT-arm had a median of 73 years, median tumor diameter was 52 (21-215) mm and median Child-Pugh score was 5 points (A5: 8, A6: 4, B8: 1, B9: 2 patients), 11 patients had an ALBI grade 1 and 7 patients an ALBI grade 2, eight patients were BCLC stage B and nine C, three of them had a metastatic disease. A portal vein thrombosis was present in 6 patients only in the SBRT group. Six patients in the TACE arm had HCC-directed therapy before trial specific therapy and seven in the SBRT arm (most of them had > 1 line...
Seven patients in the TACE group had further TACE and one patient a liver transplantation. The median time between diagnosis and treatment was 1 month in the TACE group and 18 months in the SBRT group. In the SBRT group 1 and 2-year overall survival rate was 56% and 74% in the TACE group (p=0.1). The 1-year local control rate (LCR) was 90% in the SBRT group and 70% in the TACE group (p=0.2) and the PFS was at a median of 7 months in the SBRT group and 11 months in the TACE group (p=0.04). There was no statistically significant difference in the QOL at baseline for both groups, no difference between baseline and follow-up. One patient had a grade 5 fistula in the SBRT group and one patient had a grade 4-5 hepatic failure in the TACE group, 2 a hepatic failure grade 3, 1 grade 3 pancreatitis, 1 grade 3 cholangitis and one abscess in the TACE group. Four patients in the SBRT arm died within one month after therapy due to each pneumonia, urosepsis, sepsis due to necrotizing fasciitis after hip-endoprosthesis and massive progression.

**Conclusion:** The primary endpoint feasibility was achieved with 38 patients included during 12 months in a single center. SBRT, though started at a median of 17 months later after primary diagnosis compared to TACE leads to good local control in far advanced HCC with acceptable toxicity compared with TACE despite of more advanced disease in the SBRT group. A randomized trial is required to further elucidate the role of SBRT in this setting and is in preparation on the basis of this trial.

**Table 1.** Patient characteristics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>TACE (n=19)</th>
<th>SBRT (n=19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval from HCC diagnosis to trial inclusion,</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>median (months)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop-outs</td>
<td>1</td>
<td>1*</td>
</tr>
<tr>
<td>Age, median (years)</td>
<td>69</td>
<td>73</td>
</tr>
<tr>
<td>Diameter, median (range), (mm)</td>
<td>32 (10-80)</td>
<td>52 (21-215)</td>
</tr>
<tr>
<td>Child-Pugh score, median points</td>
<td>A5: 15</td>
<td>A5: 10</td>
</tr>
<tr>
<td></td>
<td>A6: 2</td>
<td>A6: 4</td>
</tr>
<tr>
<td></td>
<td>B7: 1</td>
<td>B7: -</td>
</tr>
<tr>
<td></td>
<td>B8: 1</td>
<td>B8: 2</td>
</tr>
<tr>
<td></td>
<td>B9: -</td>
<td>B9: 2</td>
</tr>
<tr>
<td>ALBI</td>
<td>Grade 1: 8</td>
<td>Grade 1: 11</td>
</tr>
<tr>
<td>Grade</td>
<td>Grade 2: 9</td>
<td>Grade 2: 7</td>
</tr>
<tr>
<td></td>
<td>Grade 3: 1</td>
<td>Grade 3: -</td>
</tr>
<tr>
<td>BCLC stage</td>
<td>A: 2</td>
<td>A: -</td>
</tr>
<tr>
<td></td>
<td>B: 14</td>
<td>B: 9</td>
</tr>
<tr>
<td></td>
<td>C: 2</td>
<td>C: 9 (3 cM1)</td>
</tr>
<tr>
<td>Portal vein thrombosis</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>HCC-directed therapy before trial specific therapy</td>
<td>6</td>
<td>7**</td>
</tr>
<tr>
<td>HCC-directed therapy after trial specific therapy</td>
<td>TACE: 7</td>
<td>SBRT: 1</td>
</tr>
<tr>
<td></td>
<td>LTx: 1</td>
<td></td>
</tr>
</tbody>
</table>

*pulmonary progression during SBRT, **most had > 1 line of therapy), *** one drop out and sum therefore 18.
Impacts of The Da Vinci Robotic Surgery on Surgeons and Their Practices
Transmedic Sponsored Lunch Symposium

Although minimally invasive surgery using laparoscopic technology has gradually replaced open surgery since 1980, its acceptance and utilization have been limited. The main reasons were its counterintuitive approach made worse by 2-dimensional vision, and the instruments that were limited in ranges of movement. As such, it is used mainly for simple cases by most surgeons. Only few surgeons are adapted enough to the technique that they can use it for complex procedures.

The situation has changed since the advent of the Da Vinci RSS in the early 2000. We have now seen significant shift in the surgical practice from open to minimally invasive surgery occurring in almost every field, especially in the North America and Europe.

“Why surgeons are now increasingly embracing minimally invasive surgery using the Da Vinci” - this will be the topic we would like to explore at our lunch symposium.

Three surgeons with different backgrounds and robotic experience will join the discussion and share their experience and impressions of robotic surgery, and how it has impacted their way of thinking and doing surgery.

Dr. Voraboot, an academic surgeon with 4-5 years of robotic experience will talk about how he incorporated the daVinci into his clinical and academic practice and its effects on his teaching and training residents and fellows.

Dr. Poochong, a private practicing surgeon and a recent robotic adopter, will discuss his reasons for adopting the daVinci to his practice and his experience thus far. He will also share the ethical and financial dilemma he faces recommending robotic surgery to patients.

Dr. Yiengpruksawan, the most experienced robotic surgeon, will detail his journey with the daVinci right from the beginning - 19 years ago with the first generation Da Vinci - to present day. The talk will focus on his early struggle with the technology, his doubt, and eventual acceptance with full integration into his practice.

Difficult Colonoscopy

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Difficult colonoscopy maybe defined as the procedures which decrease cecal intubation rate, increase cecal intubation time and patient’s discomfort or even endoscopist’s effort. Sometimes they may lead to the incomplete examination, which waste unnecessary healthcare resources. Difficulties during colonoscopy may be related to the combination of endoscopist, patient or environmental factors and may be predicted by using Difficult Colonoscopy Score (DCS).

In addition to good endoscopist training system and proper basic endoscopic techniques, some alternative techniques such as water immersion techniques (so called “Underwater Colonoscopy”) may be helpful. Special instruments such as variable-stiffness or ultra-thin endoscopes also played roles in some difficult cases.

Finding the hidden lesions especially lesions behind the folds or that covered by mucus or fecal material was also difficult. In addition to good bowel preparation, irrigation system and careful examination, some innovations such as Third-Eye Retroscope or The Artificial Intelligence (AI) will be helpful for both finding and differentiating the polyps in the near future.
Gallbladder Polyps >1 cm: Is Cholecystectomy Necessary?

Akkaraphorn Deeprasertvit, M.D., FRCST
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Lesions that project from the gallbladder wall into the gallbladder interior are called gallbladder polyps (GPs). In the majority of patients, diagnosis is an incidental finding of a routine abdominal ultrasound or following cholecystectomy for gallstones or biliary colic. Even though most of the gallbladder polyps are benign in nature, malignant polyps are present in some cases, and early detection and appropriate early measure is important for curative treatment and long-term survival. The primary goal in the management of gallbladder polyps is to prevent the development of gallbladder carcinoma.

Gallbladder polyps are classified as benign or malignant. Benign GPs are subdivided into: pseudotumors (cholesterol polyps, inflammatory polyps; cholesterolosis and hyperplasia), epithelial tumors (adenomas) and mesenchymatous tumors (fibroma, lipoma, and hemangioma). Malignant GPs are gallbladder carcinomas. The poor prognosis of gallbladder carcinoma patients means it is important to differentiate between benign polyps and malignant or premalignant polyps.

Cholecystectomy for Gallbladder Cancer: Open or Laparoscopic Surgery

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Surgical treatment is the only curative option for gallbladder cancer (GBC). Simple cholecystectomy is optimal treatment for staging T1a. Extended cholecystectomy included regional lymphatic dissection (LN station 13,12 & 8) combine with liver segment 4b&5 (wedge or anatomical) resection was necessary to improve survival for staging T1b, T2 and some selected T3. For more advance disease (T3&T4), aggressive extended hepatectomy and/or pancreateoduodenectomy must be performed for achieve R0 resection. Extrahepatic bile duct resection should be performed only direct invasion of tumor to CBD or cystic duct margin positive, not routinely.

Laparoscopic approach for GBC is still early phase of the adoption curve. Some report showed laparoscopic extended cholecystectomy achieved oncological outcome and survival comparable with that of open surgery particularly in T1 and T2 staging. Because of poorly survival rate in peritoneal metastasis or port site metastasis that coming from bile spillage, perforation of the gallbladder or tumor exposure should be prevent by extremely caution and meticulous technique.

Although laparoscopic approach for GBC is feasible and valid in few expert center, it is necessary to accumulate to gain experience and more evidence is required before widely acceptation.
Chemotherapy for Unresectable Gallbladder Cancer

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When gallbladder cancer (GBC) is discovered, most cases are in advanced stages with 40–75% of patients diagnosed with metastatic disease. GBC, the most common cancer of the biliary system, shows very poor prognosis. ABC-02 randomized phase III trial in 2010 showed that the overall median survival in gemcitabine plus cisplatin (GP) group was 11.7 months. GP chemotherapy has been widely used for advanced GBC. Our group investigated the efficacy of GP chemotherapy and prognostic factors in unresectable GBC. Patients with GBC treated with GP chemotherapy from January 2008 to June 2017 were included. A total of 135 patients received 6.0 (3.0-8.0) cycles of GP. Most of the patients (95.6%) were in stage IVB and the most common site of metastasis was the liver (38.5%). Clinical benefit rate was 80.7%; 2 (1.4%) patients with complete response, 27 (18.5%) with partial response and 80 (54.8%) with stable disease. Overall survival (OS) and progression-free survival were 9.9 and 5.6 months, respectively. Multivariable regression model indicated invasion to liver (hazard ratio (HR) 2.13, p=0.010), metastasis to liver (HR 1.77, p=0.018), neutrophil-to-lymphocyte ratio (NLR)≥3.0 (HR 2.32, p<0.001), CA19-9≥300 (HR 2.08, p=0.003) and decrease of CA 19-9 by 50% (HR 0.51, p=0.009) were significantly associated with OS. Factors related to OS were invasion and metastasis to liver, NLR≥3.0, CA19-9≥300, decrease of CA 19-9 by 50% during follow-up. New randomized phase III trials are ongoing such as capecitabine with oxaliplatin, mFOLFIRINOX, 5-FU with Nal-IRI. We can expect new and 2nd line chemotherapy regimen in the future.

Acute Lower Gastrointestinal Bleeding

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Introduction: Acute lower GI Bleeding (ALGIB) is defined traditionally, as bleeding from a location distal to the ligament of Treitz (named after Václav Treitz, 1853) and may result in hemodynamic instability and/or need blood transfusion. ALGIB has increased due to aging, the higher rates of co-morbidities, and the increasing use of anticoagulants, Non-steroidal anti-inflammatory drugs (NSAID) and aspirin seem to increase the risk of ALGIB. The detection of the source and the etiology of the bleeding is a clinical priority but could be challenging. Localization techniques utilize endoscopic, radiological and nuclear scintigraphy.

Discussion: In spite of the major advances made in diagnostic and therapeutic technology, there is no best ALGIB treatment algorithm to follow. The comprehensive care of these patients is less than satisfactory, as reported by The National Confidential Enquiry into Patient Outcome and Death (NCEPOD, July 2015). There are still significant opportunities to improve the quality of care of these patients. Ideally patients with ALGIB should be admitted, assessed, and managed in dedicated GI Bleeding Units. In patients with significant bleeding, the first priority is hemodynamic stabilization simultaneously with risk stratification and assessment, unfortunately, the available predictive models or scoring systems require further validation and improvement in accuracy. Patients with severe hematochezia should initially undergo upper GI endoscopy. Digital rectal examination must be done in all patients. Because of the therapeutic benefit, current practice consider colonoscopy within 24h of admission after a rapid bowel preparation in the evaluation of patients with severe hematochezia, however, Emergency Physician may consider Computed Tomography Angiography (CTA) to allow for rapid definitive diagnosis. In Obscure GI bleeding (OGIB) and possible small bowel bleeding, Video Capsule Endoscopy (VCE) and deep enteroscopy must be attempted. Recently clinicians mainly depend on non-surgical control of hemorrhage by means of endoscopy and/or angiography. Surgery for ALGIB is only limited to bleeding uncontrolled by other methods.

Conclusion: 1. All ALGIB patients should have early access to endoscopy, interventional radiology, and surgery, either on-site or through referral joint networks to another hospitals 24/7/365. 2. The approach to manage antithrombotic medication after hemostasis has to balance the risk of bleeding/re bleeding with the risk of the patients’ co-morbidity.
Bowel Obstruction: Experience of A General Surgery Department of Dakar

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Email: oumaneka@yahoo.fr

**Introduction:** Bowel obstruction is a stop of intestinal transit. Objective: to report the epidemiological, diagnostic, therapeutic and prognostic aspects of bowel obstruction in our difficult exercise conditions.

**Methods:** We did in the General Surgery Department of Aristide Le Dantec Hospital in Dakar, a descriptive retrospective study over a period of 5 years on 120 cases of acute bowel obstruction.

**Results:** The mean age was 47.5 years and the sex ratio was 2. Risk factors were dominated by abdominal surgery (51.2%) and chronic constipation (11%). The average duration of signs is 3.9 days. Abdominal tenderness, abdominal contracture and fever were found in 20%, 2.5% and 4.16% of patients, respectively. Hyperleukocytosis was present in 32.5% of patients, dysnatremia in 5% of cases and dyskalemia in 7.5%. Abdominal computed tomography gave the etiological diagnosis in 60% of cases. The etiologies were dominated by adhesions of the small bowel (38.3%), colonic volvulus (29.2%) and colorectal tumors (23.3%). Surgical exploration was necessary in 93.3% of cases and showed 2.7% of ischemic loops and 9.8% of necrotic loops. We performed adhesiolyis (36.6%), bypass colostomies (13.4%) and bowel resections followed by anastomoses (26.8%). Morbidity was 17.8% and mortality was 6.6%. The average duration of hospitalization was 20 days.

**Discussion and Conclusion:** Bowel obstruction is common in our areas. It touches the young adult. Morbidity and mortality are still high and depend on the delay in diagnosis and treatment.

**Keywords:** Bowel obstruction, necrosis, intestinal resection

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Genetic Subtypes for Pancreatic Neuroendocrine Tumors Based on Sequencing Study

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Peking Union Medical College Hospital (PUMCH), Beijing, China.

**Introduction:** Non-functional pancreatic neuroendocrine tumours (NF-PanNETs) have variable prognostic outcomes. Genetic mutations have been identified, such as MEN1, DAXX/ATRX, and genes in the mTOR pathway by previous sequencing studies. DAXX/ATRX mutation has been particularly focused for its prognostic significance. However, the underlying genetic bases for variable prognoses are not fully elucidated. Herein, we used whole-genome/whole-exome sequencing (WGS/WES) to investigate the genetic bases of NF-PanNETs.

**Methods:** WGS/WES data of NF-PanNETs was from Peking Union Medical College Hospital (PUMCH), Beijing, China. NF-PanNETs sequencing data was also curated from the International Cancer Genome Consortium (ICGC). We were able to investigate the mutational profiles and copy-number variation (CNV) patterns of over one hundred NF-PanNETs. Such genetic data was correlated with clinicopathological and prognostic data.

**Results:** NF-PanNETs can be categorized into the following three CNV patterns: amplification, neutral and deletion. Tumor mutation burden was significantly higher in CNV deletion subgroup than CNV neutral subgroup and CNV amplification subgroup, respectively. MEN1 and mTOR related genes shown significantly lower mutation rate in neutral subgroup than in CNV deletion subgroup. Mutation rates of DAXX/ATRX were significantly lower in CNV neutral subgroup compared to both CNV deletion and CNV amplification subgroups. The CNV deletion subgroup was mainly characterized by loss-of-function of tumour suppressor genes, such as DAXX and PTEN. NF-PanNETs with CNV alterations (both deletion and amplification) had more advanced clinicopathological parameters and poorer prognoses.

**Conclusion:** These WGS/WES data stratified clinical and prognostic risk of NF-PanNETs based on CNV pattern, revealing that CNV pattern played key roles in the pathogenesis of NF-PanNETs. CNV pattern could be served as a potential prognostic marker in the future.

**Keywords:** Neuroendocrine tumour, copy-number variation, prognosis, sequencing

**Acknowledgement:** This study was supported by Chinese Academy of Medical Sciences (CAMS) Initiative for Innovative Medicine (CAMS-I2M) 2017-I2M-1-001, National Natural Science Foundation of China (NSFC 81573009, 81773292, 81603157), PUMCH Science Fund for Junior Faculty (JQ201507, pumch-2016-2.22).
Hepatic resection has evolved into a common surgical procedure for a wide range of benign and malignant indications. It has been widely accepted that long-term quality of life (QoL) has been used as a valuable outcome parameter in the success of surgical treatment. While experience with complex hepatic resections has grown with favourable outcomes, more data are needed to risk stratify patients and identify those at a high and low risk of post-operative complications in order to provide accurate and informed pre-operative counselling.

With reduced morbidity and increased survival after hepatectomy, quality of life becomes a leading issue and, particularly from a patient’s point of view, as important as disease-free or overall survival.

A retrospective study aimed to evaluate postoperative QoL after resection of liver tumors among the Filipino population showed post-operative outcomes assessed and QoL evaluated using the Quality of Life Assessment Forms (Functional Assessment of Cancer Therapy Hepatobiliary Version 4/FACT-Hep v4) prior to surgery, and during their follow up at 30 days and 90 days following surgery.

The quality of life assessment revealed an overall improvement of general health status after resection (from 129.30 ± 22.96 pre-operatively to 146.63 ± 20.52, p< 0.001). Female gender was negatively associated with emotional well-being and overall QoL scores while tumor size > 2 cm was associated with lower overall QoL score. The rate of serious complications (>grade 2) was 15%.

Hepatic resection results in significant enhancement of QoL in patients especially those with large liver tumors. FACT-Hep questionnaire provides a reliable prognostic indicator in the overall survival for patients who underwent liver resection.

**Background:** Based on the concept of equalization between blood transfusion and liver donation, Living Donor Liver Transplantation (LDLT) programs were established without backup Deceased Donor Liver Transplantation (DDLT) in some countries. The concept of brain death as a step to DDLT was discussed due to donor shortage, morbidity and mortality. The Egyptian Parliament approved the law in 2010 after controversies because many believe that the death occurs only when the heart stops beating.

Donors must be truly willing to donate, and clearly understand the seriousness of the potential recipient condition. Moreover, the donor must understand the standard procedure along with the short-term and the long-term risks. Additionally, the donor must be informed about the expertise and results of the transplantation center.

Undoubtedly, the principles of transplantations for hepatocellular carcinoma HCC differ in DDLT from LDLT. Both consider portal vein invasion and extrahepatic metastasis as absolute contraindications for transplantation.

Until August 2013, 3804 cases underwent liver transplantation in Arab countries, 3052 of those were LDLT and 752 cases of DDLT. Egypt performed 2138 cases of LDLT versus 2 cases only of DDLT. Nowadays, the number of LDLT is around 5000 cases in Egypt.

The ethical aspects of LDLT are of utmost importance. Fortunately, most of these aspects are applied in Arab countries. Conclusion: LDLT is hampered by two important drawbacks; the harm to the donor and the lack of certainty that the donation is free of coercion. Unfortunately, there are no clear solutions for both aspects.
Liver Transplantation for HCC: Optimal Selection Criteria and Effects of Pre-Transplant Treatments

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The Milan criteria (MC) have been widely accepted as an effective way of selecting patients with early-stage hepatocellular carcinoma (HCC) for curative liver transplantation (LT). However, in an attempt to afford the chance of cure to patients outside the MC, many centers have performed LT using extended criteria beyond the MC. To explore optimal criteria that can reasonably predict the risk of recurrence, it is considered that new markers of biological behavior are needed in addition to morphological tumor size and number.

On the other hand, given the risks to the live donor, living donor liver transplantation (LDLT) is indicated only for HCC not suitable for resection or ablation therapy in Japan. Most recipients had a history of non-transplant conventional treatment, and received LDLT for uncontrolled recurrent HCC. Thus, it is also important to clarify the effects of pre-transplant treatments on transplant outcomes.

Recently, we have shown that preoperative des-gamma-carboxy prothrombin (DCP) level represents a useful predictor of recurrence in conjunction with tumor size and number, and defined new criteria (Kyoto criteria) as n£10 and all £5 cm and DCP£400 mAU/ml. More recently, we have conducted a Japanese multicenter study on the predictive value of preoperative fluorine-18-fluorodeoxyglucose positron emission tomography (FDG-PET) for tumor recurrence after LDLT for HCC patients. In these studies, it has been suggested that the recurrence rates are associated with tumor stage immediately before LDLT, irrespective of history of pre-transplant treatments.

Local Excision/ Tems/ Tamis for Early Rectal Cancer

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Although total mesorectal excision is a gold standard surgery in rectal cancer, the postoperative complications, anastomosis leakage, the chance of permanent stoma and unsatisfactory functional outcomes are not uncommon. In contrast, local excision is less invasive and more tolerable in frail patients and those with severe co-morbidities. Simultaneously, both functional and sexual outcomes following local excision are not disturbed and the patient could avoid abdominoperineal resection. The drawback of local excision is leaving perirectal lymph node yielding unknown actual pathological nodal staging which might lead to local recurrence. Therefore, local excision should be attempted for curative intent in clinical T1N0M0 staging rectal cancer with low risks of lymph node metastasis patients including well to moderately differentiated lesion, the depth of invasion into submucosa less than 1,000 µm., no lymphovascular invasion, no perineural invasion, and free resection margin.

According to the techniques, transanal, transphincteric and transacral approaches are conventionally approaches in local excision. Transphincteric and transacral approaches are not contemporarily used due to postoperative incontinence and rectocutaneous fistula. Transanal excision is suitable for low lying tumor located within 7 to 8 cm. from the anal verge and the lesion should involve less than one-third of the rectal circumference. The limitation of this approach is the more proximal lesion in middle and upper rectum which could be overcome by transanal endoscopic microsurgery (TEMS) and transanal minimally invasive surgery (TAMIS).
Surgical Strategies in Necrotizing Pancreatitis: A Single Center Experience Over A Period of 27 Years

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Department of General and Visceral Surgery, University of Ulm, Germany.

Introduction: During the past 20 years, conservative treatment has become more and more the standard in patients with necrotizing pancreatitis (NP). We analyzed how this affected the indications for surgical necrosectomy and the outcome of our patients.

Methods: Between 01/2007 and 12/2018 69 patients with NP, treated in our institution, were retrospectively analyzed (group 3) and compared with 49 patients suffering from NP treated in our hospital from 10/2001 to 12/2006 (group 2) and a group of 121 patients, treated in Ulm between 1/1992 and 12/1997 (group 1). Differences between all groups were analyzed with regard to mortality and timing for surgical treatment. Categorical variables were compared using the Chi-square test, continuous variables were compared using the Student’s t-test or U-test.

Results: Overall mortality was 28% in group 1, 14% in group 2, and 6% in group 3. 78 patients of group 1 (64%), 32 patients of group 2 (63%) and 53 patients of group 3 (76%) underwent surgical necrosectomy. In group 1, debridement was performed after a mean of 19.5 days compared to 31 days in group 2 and 32 days in group 3.

Conclusion: Today, patients undergo surgical necrosectomy after prolonged conservative treatment. From our point of view, beside improved ICU therapy, this factor contributes to a favorable overall mortality.

Surgery for Chronic Pancreatitis – Update 2019

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From the pathophysiological point of view, surgical therapy of chronic pancreatitis (CP) includes merely draining procedures and resection of chronically inflamed tissue. Drainage without resection is the maximum parenchyma-sparing approach which offers – at least theoretically – a preservation of all residual endo- and exocrine function. However, the remaining fibrotic tissue may be responsible for ongoing problems including pain. Besides, it offers only a limited functional benefit if tissue is preserved that has been subjected to long-lasting inflammation and furthermore bears an increased risk of malignant transformation. In CP patients with major pathological changes focused on the head of the pancreas with an inflammatory mass and/or calcifications, causing a subsequent stenosis of the pancreatic and/or bile duct, endoscopic approaches include papillotomy and stent insertion, lithotripsy can be used in addition. Despite a high rate of short-term success, it has been shown that surgery with any kind of drainage or pancreatic head resection is superior in terms of long-term pain control and quality of life. Consequently, national and international guidelines have adopted endoscopic therapy as a suitable initial measure but recommend surgical management when recurrent problems occur within one or two years.

A recent RCT has furthermore shown that timing is essential to achieve good functional and pain outcome which leads to the conclusion that an early surgical approach is favorable.

Various types of surgery for CP have been investigated including partial pancreateoduodenectomy (PD), duodenum-preserving pancreatic head resection (DPPHR) as well as total pancreatectomy with islet autotransplantation. In a large number of studies, PD and DPPHR have been compared and proven effective for achieving excellent pain control and quality of life with DPPHR as the less invasive procedure showing some perioperative advantages (blood loss, duration of the operation). The most recent RCT (CHROPAC) on this topic however, showed an inferiority of DPPHR vs. PD as more readmissions and re-operations were observed. This suggests that PD represents the more definitive solution and should be preferred unless technical difficulties (i.e. portal vein thrombosis, severe venous collateralization) make PD impossible.

Total pancreatectomy with island autotransplantation represents a surgical approach which is equally effective in terms of pain control as partial pancreatectomies, however the aim of long-term postoperative insulin independency is achieved in only 30-40% of all patients. In addition, the possibility of island autotransplantation is limited to highly-specialized centers which highly limits the availability of this approach.

Minimally-invasive or robotic surgery for CP has been described and is possible in selected patients, yet there are no data supporting its superiority compared to open approaches. Future aims should address not only these innovative techniques but also further specify timing of surgery for specific groups of CP patients to optimize outcome.
Liver Transplantation for Perihilar Cholangiocarcinoma

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Perihilar cholangiocarcinoma is rare tumor with the incidence of 1:100,000/year and is associated with a high mortality. The most common risk factor for PHC is the presence of primary sclerosing cholangitis (PSC), which carries the lifetime PHC risk of 10%. The only chance of long-term survival and even potential cure is surgical resection or liver transplantation. However, liver transplantation is indicated only in highly selected patients who are not resectable or who are not candidate for resection due to underlying PSC. Several studies demonstrated that strict selection and neoadjuvant chemoradiation results in improved patient survival after liver transplantation. With the current protocols 65-70% survival rates at 5 year can be achieved after liver transplantation.

How I do It: Difficult Total Hepatectomy in LDLT

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I would like to share a standard operation techniques, tips and pitfalls in the recipient operation of living donor liver transplantations.

Mercedes-Benz incision is a standard incision to obtain the good operation field. The Omni-Tract retractor is a good tool that allows for traction in both the cranial and caudal directions in the operation field. Second and third assistants are able to concentrate on doing suction and threads management, so we can perform better surgery as a team. Since most of the patients have tendency to bleed, we prepare the electric cautery with ABC mode function in addition to regular electric cautery. More than two plastic suction tubes are prepared in advance to use for tissue dissection and suction.

In the living donor liver transplantation, because portal veins, arteries and bile ducts of the graft liver are shorter and smaller compared to the those in brain dead donor liver transplantation, we should do our best to preserve the length of recipient vessels and ducts.

Difficult cases:

Case 1: 50’s Female, Polycystic liver, S/P right hemihepatectomy, S/P left lobe deroofing, T-bil 29 mg/dl, LDLT with her husband’s left lobe graft

Case 2: 50’s Male, LC-C, S/P Distal gastrectomy 30 years ago LDLT with his wife’s right lobe graft

Case 3: 60’s Male, PSC, S/P CABG using RGEA LDLT with his daughter’s left lobe graft
A New Pancreaticojejunosomy Technique Using A Linear Stapler in Pancreaticoduodenectomy

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Introduction: The Pancreatico-Jejunostomy (PJ) anastomosis is the Achilles heel in pancreaticoduodenectomy (PD) surgery. There are a lot of anastomotic techniques described in time to overcome the difficulty and complications in PD surgery.

Objective: We describe a new PJ technique and its results which is performed by using a linear stapler.

Materials and Methods: Patients that had a pancreaticoduodenectomy surgery; after getting their detailed informed consent had their PJ performed by this stapler technique. The pancreas was encircled over the portal vein for transection same as in PD surgery and just like the other PJ anastomosis techniques but then the pancreas neck was directly transected with the linear stapler. After the anastomosis of the posterior part of the pancreatic stump with the jejunum by the running twin needle 3/0 prolene suture starting from the superior border of the pancreatic stump; an enterotomy was made on the jejunum facing the stapled part of the pancreatic stump and the anterior part of the anastomosis is completed using the same suture in a continuous manner.

Results: Starting from February 2016 all the PJ anastomosis in the pancreaticoduodenectomy operations were performed using this technique in over 70 cases with comparable results to our previous technique.

Discussion and Conclusion: This pancreaticojejunosomy technique that we described using a linear stapler is now being routinely used in all PD surgeries in our center. This is a safe and efficient anastomosis technique. Besides its safety; it is also time saving, easy and also practicable by other surgeons.

Keywords: Pancreaticoduodenectomy, pancreaticojejunosomy, technique, stapler

Pancreatectomy with Arterial Resection for Locally Advanced Pancreatic Adenocarcinoma: How Can It Be Done Safely and with Which Outcomes? A Single Institution’s Experience with 118 Patients

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Objective: This study assesses the safety and outcomes of the largest cohort of pancreatectomy with arterial resection (P-AR). Background: A high postoperative mortality rate and uncertain oncologic benefits have limited the use of P-AR for locally advanced pancreatic adenocarcinoma (LAPC).

Methods: We retrospectively reviewed a prospectively maintained database of patients who underwent P-AR between January 1990 and November 2017. Univariate and multivariate Cox analyses were used to assess prognostic factors for survival.

Results: There were 118 consecutive resections (51 pancreatectoduodenectomies, 18 total pancreatectomies, and 49 distal splenopancreatectomies). Resected arterial segments included the coeliac trunk (50), hepatic artery (29), superior mesenteric artery (35), and other segments (4). The overall mortality and morbidity were 5.1% and 58%, respectively. The rates of R0 resection and pathologic invasion of venous and arterial walls were 52.4%, 74.2%, and 58%, respectively. The overall survival was 59%, 33%, and 11.8% at 1, 3, and 5 years, respectively. The median overall survival after resection was 13.70 months (CI 95%:11-18.5 months). In multivariate analysis, R0 resection (HR: 0.60; 95% CI: 0.38-0.96; p=0.01) and venous invasion (HR: 1.67; 95% CI: 1.01-2.63; p=0.04) were independent prognostic factors.

Conclusion: In a specialized setting, P-AR for LAPC can be performed safely with limited mortality and morbidity. Negative resection margin and the absence of associated venous invasion might predict favourable long-term outcomes.

Keywords: Pancreatectomy; arterial resection; locally advanced; neoadjuvant chemotherapy; venous resection.
Unintentional Roux-En-O Reconstruction

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Roux-en-O misconstruction is a very rare complication after Roux-en-Y reconstruction in gastric or biliopancreatic surgery, particularly in gastric bypass for morbid obesity. This is the result of unintentional anastomosis of the proximal biliopancreatic limb of the divided jejunum to the gastric pouch. The gastric pouch connects to the excluded stomach by biliopancreatic limb as a blind “O” loop. Although this is an infrequent complication, it can lead to catastrophic results and increase patient morbidity. Patients with Roux-en-O misconstruction commonly present with bilious vomiting, abdominal pain, reflux symptoms, dehydration, and malnutrition. The diagnosis may be difficult to make even using multiple radiological modalities. With a high index of suspicion, surgical exploration may be the only way to diagnose and fix the problem. However, this complication can be easily avoided and prevented. There are multiple causes and reasons for creation of a Roux-en-O including surgeon factors (i.e. surgical experience and fatigue), surgical technique, and altered anatomy (i.e. previous surgery and congenital intestinal anomaly). The strategies to prevent this complication at the time of surgery include correctly identifying the ligament of Treitz, proper orientation of the biliopancreatic and Roux limbs, marking the limb after jejunal transection, and ensuring a proper Roux-en-Y configuration again at the last step.

Multidisciplinary Approach to Advanced Colorectal Cancer

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Background: The recent more effective chemotherapy and the development of surgical procedures have expanded the possibilities of treating patients with advanced colorectal cancer. Multiorgan resection in the case of locally advanced disease, two-stage hepatectomy, associated liver partition and portal vein ligation (ALPPS) or repeated hepatectomies for liver metastases, lung resection for lung metastases, cytoreductive surgery + HIPEC in peritoneal dissemination - are the surgical solutions proposed for these patients. Materials and Methods: There were 190 multiorgan resections, 260 liver resection for locally advanced and metastatic colorectal cancer provided in last 15 years, 16 cytoreductive surgeries and/or HIPEC procedures with or without peritonectomy in last 3 years for peritoneal dissemination at single institution provided. Results: With multidisciplinary approach we have in advanced stages of colorectal cancer the 5 - year survival in TNM stage III 69% (group of total pelvic exenteration 5-year survival 49%), in TNM IV stage 38%. In colorectal liver metastases the 5-year survival is 40%. In peritoneal metastases median survival is 18.6 months. Conclusion: All patients should be assessed by a multidisciplinary team in a cancer centre. The benefits of multidisciplinary disease management include reducing recurrent disease, optimizing timing of surgery and organ preservation, prolonging survival for the patient and enhancing the surgical possibilities and response to targeted therapies as well.

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Patterns of Clinical Course of Anal Carcinoma

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**Introduction:** Anal cancer is a malignancy involving anal canal and is epidermoid (squamous cell) carcinoma in more than 80%. Anal cancer is a rare malignancy with approximately 5,300 new cases diagnosed annually in the United States. In Bulgaria annually we have about 70 new cases – 0.1% of all diagnosed cancers. Morphologically verified (MV) are 90% of them. Prior to therapy morphological verification with biopsy of the primary tumor is done and then staging including CT, MRI, PET-CT. Some 20 years ago the standard definitive treatment of anal carcinoma was abdominoperineal resection, with associated high rates of morbidity and local recurrence. Nowadays it is clear that the standard therapy is radiation therapy combined with the drugs 5-fluorouracil (5-FU) and mitomycin. These result in high rates of local control, disease-free and overall survival and sphincter preservation - without surgical intervention and colostomy. Follow-up surveillance. The assessment of response after primary treatment is performed at 6 to 8 weeks following the completion of therapy. Patients with complete remission are examined every 3 to months for five years - digital rectal examination; anoscopy; inguinal node palpation. If there is progression or persisting disease at 12 weeks after initial therapy; or in case of local recurrence, abdomino-perineal resection (APR) is the treatment of choice. Local excision is presumed in some cases. Five-year overall survival for Stage I is 70-90%.

**Aims:** The described above is how standard therapy and surveillance strategies look like. We present some other patterns of clinical course and therapy modalities of anal cancer.

**Materials:** According to patterns of clinical course and therapy we group patients as:

1. Stage I or II patients, treated initially with local excision, followed by radiotherapy. Anal sphincter was not involved and sphincter preservation was achieved. Two of them were without radiotherapy and are more than 13 years alive.

2. Stage III patients with abdominoperineal resection, followed by bilateral inguinal and femoral node dissection, and radiotherapy. All patients had high postoperative morbidity.

3. Stage III patients who were initially diagnosed after suffering DVT due to inguinal mass. These had T1-2 anal cancer without sphincter involvement, bilateral bulky inguinal masses. Therapy started with local excision with sphincter preservation. Secondly bilateral inguinal and femoral node dissection was done - total excision of the masses was not possible. Then started radiochemotherapy in the course of which disease progression was marked with liver and lung metastases – restaging patients as IV. Low survival.

4. Stage IV patients with huge primary tumor T4 and hepatic metastases. These were referred to us from radiotherapists to start with APR.

**Discussion and Conclusion:** Despite easy to be found, the diagnosis of anal cancer is often delayed for different reasons. The cure of anal cancer is possible in the majority of patients with preservation of the anal sphincter. In early stages the standard initial treatment with radiochemotherapy leads to complete response in most cases. Advanced cases exhibit a variety in the pattern of presentation and clinical course, regarding the primary tumor, adjacent structures infiltration, lymph node involvement, distant metastases. The treatment modalities for these cases present a challenge for surgeons and oncologists. Despite treatment should start with radiotherapy, in some cases operation is before it.

**Keywords:** Anal cancer - local excision - sphincter preservation – radiochemotherapy - abdominoperineal resection (APR) - bilateral inguinal and femoral node dissection

Endoscopic Treatment of Gastroparesis

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Gastroparesis is a debilitating complex syndrome with poorly understood underlying mechanisms. First line treatment includes prokinetic medications but efficacy of medical therapy is quite limited in long term management. Those refractory to medical treatment should be considered for endoscopic or surgical treatment options. Pylorospasm has been described as one of the key underlying mechanism. As a result, procedures aiming at disruption of the pylorus have improve gastroparesis symptoms in a subset of patients. These pylorus-directed therapies include intrapyloric botulinum injection, transpyloric stenting (TPS), and most recently, GPOEM.

Per Oral Endoscopic Pyloromyotomy (POP), also known as Gastric Per-Oral Endoscopic myotomy (GPOEM), is a novel procedure which is emerging as a forefront of the treatment of gastroparesis. This discussion aims to systemically summarize the existing data on clinical outcomes of endoscopic treatment of gastroparesis, symptomatologic responses to the procedure, its adverse effects, procedural techniques, and predictive factors of clinical success.
Endoscopic Submucosal Dissection Tips and Techniques

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Endoscopic submucosal dissection (ESD) is an advance endoscopic resection which can achieve curative en-bloc resection in early GI cancer such as esophagus, stomach, and colorectal. ESD is a technique required high level of endoscopic skill. A learning curve of ESD mostly start from cognitive training, observe procedures done by expert, assisting, performing some part under supervision, start in small lesion in distal stomach, and expand the practice. Precision diagnosis of lesion characteristic and death of invasion fit with ESD indication to select a potential highly successful case is very important. A high quality of ESD specimen with appropriate depth of submucosal layer dissection is required for precise evaluation of invasion depth of early cancer to decide whether to do additional surgery or not. The appropriate level of dissection is lower one-third or just above muscle layer beneath the vascular network which located in middle submucosal layer. Knowledge of vascular distribution and vessel density in GI luminal wall and pre-coagulate them before dissection can reduce bleeding and perforation from ESD significantly. The devices and endoscope type selection is also a key to success because a different knife has different function and techniques of dissection which is suitable in different locations. A lifting material and various traction method are also help to achieve a good outcome of ESD with lower complications rate. Thus, ESD should be done in en-bloc resection with low complicate rate.

Intraductal Papillary Neoplasm of The Bile Duct

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Intraductal papillary neoplasm of the bile duct (IPNB) is now considered as a specific form of bile duct tumor. By definition, it is intraductal neoplastic growth of bile duct epithelia with a fine fibrovascular core. According to the latest classification of bile duct tumors, benign IPNB are considered pre-invasive lesions of the intraductal growth-type of intrahepatic cholangiocarcinoma or papillary type of extrahepatic cholangiocarcinoma. IPNB has unique characteristics that differ from other types of bile duct tumor, usually presents as multiple lesions with various stage of invasion. The cell of origin of IPNB is believed to be the cell in peribiliary glands, which is distributed along the extrahepatic and intrahepatic bile ducts. IPNB develops through an adenoma–carcinoma sequence. Consequently, it usually progresses slowly, and the patient appears to have better survival than conventional cholangiocarcinoma. Intraductal papillary neoplasm of the bile duct is usually treated in the same manner as cholangiocarcinoma: the mainstay for which is surgical resection to obtain R0 resection (no microscopic tumor left behind in the patient body).

We have proposed the morphologic classification of IPNB according to preoperative imaging, which not only provides a view of patients in terms of their radio-pathologic status but also should help in guiding planning of surgical procedures.
Endoscopic Management of Cholangiocarcinoma

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Endoscopy has several important roles in cholangiocarcinoma range from diagnosis, tissue acquisition, staging, biliary drainage, and endoscopic ablation of cholangiocarcinoma. Endoscopic Retrograde Cholangiopancreatography (ERCP) has replaced transhepatic cholangiography and intraoperative cholangiography for the evaluation of bile duct obstruction and play important role for biliary drainage. ERCP with internal stenting is now accepted as the treatment of choice for preoperative biliary drainage, especially in case with cholangitis, severe symptomatic obstructive jaundice, prior to adjuvant chemotherapy or inadequate liver volume before resection. ERCP with placement of metallic biliary stent is also the main treatment for palliative biliary drainage. Recently, Endoscopic ultrasound guided transmural biliary drainage has an increasing role in case after failed ERCP, either as only drainage method or combination with ERCP for undrained segment. Finally, endoscopic guided endobiliary ablation also has an increasing role for the palliative treatment for malignant biliary obstruction but the benefit is still controversy.

New Trends and Controversy in The Treatment of Intrahepatic Cholangiocarcinoma

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Surgery with curative intent for intrahepatic cholangiocarcinoma (ICC) is still the treatment option to achieve long term survival. Surgical resection is still demanding and associated with a significant postoperative morbidity.

Surgery for ICC often requires major hepatectomies and resections of adjacent organs in order to achieve curative resections. Several clinical studies demonstrated that regional lymph-node dissection is related to survival improving cancer staging and prognostic stratification.

Recently, the role of minimally invasive have been investigated and preliminary data demonstrated good short term results.

Moreover, in patients with small future remnant liver portal vein embolization (PVE) can be necessary. Other types of procedure to increase liver volume like associate portal vein ligation and liver partition (ALPPS) have been proposed and its results are still under evaluation in terms of safety and long-term results.

Several clinical factors have been associated with prognosis, among these lymph-node metastases (N+), multinodular lesions and positive surgical margins (R+) are the most relevant negative features. Recent clinical studies demonstrated the role of adjuvant chemotherapy, improving long term overall survival especially in patients with positive lymph nodes.

Recently, molecular features of ICC have been investigated, additional factors associated with survival have been identified and can help in a more accurate selection of candidates to surgery and to specific targeted therapies.
Compliance with An Enhanced Recovery after Surgery Program (ERAS) AMONG OLDER Adult Surgery Patients

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Background: ERAS protocols are frequently used for colorectal surgery patients to improve outcomes and decrease length of stay. The ability to adhere to ERAS protocols among elderly patients is not known.

Objective: The purpose of this study was to determine the ability of elderly patients to adhere to the perioperative components of an established ERAS protocol.

Methods: Retrospective cohort study of consecutive patients at a community hospital using a prospectively collected database. Settings: All patients undergoing abdominopelvic surgery were educated on the ERAS protocol and were monitored for adherence to four perioperative components: mechanical bowel preparation (Prep), pre-operative antibiotics (Abx), Hibiclens skin wash (Hib), and carbohydrate load (CF).

Results: 92 patients consecutive patients undergoing abdominopelvic surgery between September 2018 and June 2019 were included in the study. 52 (57%) were women. 80% underwent a laparoscopic or robotic surgery. The most common procedures were sigmoid colectomy and right colectomy. Compliance with the four ERAS components was very high and was not statistically different for older patients compared to younger patients (Table 1.) Length of stay was slightly longer for older patients.

Conclusion: Compliance with an established ERAS protocol is possible even for elderly patients undergoing abdominopelvic surgery.

Table 1. Compliance with four ERAS components and Length of stay by age group.

<table>
<thead>
<tr>
<th>Total (n=92)</th>
<th>Age &lt; 65 (n=45)</th>
<th>Age 65-75 (n=23)</th>
<th>Age ≥ 75 (n=24)</th>
<th>P value</th>
<th>LOS Age &lt;65 median (IQR)</th>
<th>LOS Age 65-75 median (IQR)</th>
<th>LOS Age ≥ 75 median (IQR)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed All Four Components as Prescribed</td>
<td>39 (86.7%)</td>
<td>18 (78.3%)</td>
<td>20 (83.3%)</td>
<td>0.67</td>
<td>2 (2-3)</td>
<td>3 (2-5)</td>
<td>3 (2-4)</td>
<td>0.07</td>
</tr>
<tr>
<td>Completed CF as Prescribed</td>
<td>42 (93.3%)</td>
<td>20 (87%)</td>
<td>23 (95.8%)</td>
<td>0.49</td>
<td>2 (2-3)</td>
<td>2.5 (2-4.5)</td>
<td>3 (2-4)</td>
<td>0.06</td>
</tr>
<tr>
<td>Completed Hib as Prescribed</td>
<td>45 (100%)</td>
<td>23 (100%)</td>
<td>24 (100%)</td>
<td>NA</td>
<td>2 (2-3)</td>
<td>3 (2-4)</td>
<td>3 (2.5-4)</td>
<td>0.03</td>
</tr>
<tr>
<td>Completed Abx as Prescribed</td>
<td>42 (93.3%)</td>
<td>21 (91.3%)</td>
<td>21 (87.5%)</td>
<td>0.72</td>
<td>2 (2-3)</td>
<td>3 (2-4)</td>
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<td>0.05</td>
</tr>
<tr>
<td>Completed Prep as Prescribed</td>
<td>45 (100%)</td>
<td>23 (100%)</td>
<td>23 (95.8%)</td>
<td>0.24</td>
<td>2 (2-3)</td>
<td>3 (2-4)</td>
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</tbody>
</table>
Total Mesopancreas Excision: Between Anatomy and Surgery

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Pancreatic head cancer is one of the most lethal human malignancies with a high mortality. The mesopancreas is considered to be the anatomical space limited anteriorly by the posterior surface of the pancreatic neck, posteriorly by the dorsal coalescence fascia, medially by the superior mesenteric vessels and laterally by the duodenum. It contains nerves, lymphatics and vessels. However, no fibrous sheath of fascia was revealed around the structure. Superior mesenteric vessels and celiac trunk are intramesopancreatic structures and are forming the mesopancreas root. The understanding of the mesopancreas and total mesopancreas excision (TMsE) have led to a better understanding of surgical anatomy which help increase the rate of R0 resection. TMsE must be considered in relationship with “Artery-first approaches” to the superior mesenteric artery. Mesopancreas should be regarded as a surgical concept rather than an anatomical structure.

The Techniques and Prognosis of Robotic Rong’s Procedure

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Background: For benign and low malignant neoplasms in the neck and proximal body of the pancreas, the central pancreatectomy is usually applied. The conventional central pancreatectomy leaves two pancreatic stumps and the pancreaticoenterostomy damages the normal anatomy of digestive tract, which also increases the incidence of postoperative pancreatic fistula. How to decrease the risks of operation for benign and low malignant neoplasms is worth thinking. We think the restoration of the continuity of the main pancreatic duct is the key. Based on this understanding, we explored innovative techniques to treat the benign and low malignant neoplasms in the pancreas and named it robotic Rong’s procedure.

Materials and Methods: The clinicopathologic and perioperative data of 19 patients who underwent robotic central pancreatectomy by Rong’s procedure between August 2017 and May 2018 were analyzed retrospectively.

Results: The operations completed smoothly and no conversion occurred. The postoperative pathology showed that 17 patients had benign or low malignant tumors, 1 had a mass-forming chronic pancreatitis and 1 had an isolated pancreatic metastasis from a renal cancer. The median operative time was 127 min. The median blood loss was 50 ml. The mean resected pancreas was 4 cm in length. 15 patients developed a Grade B postoperative pancreatic fistula. During the following up, 4 patients had an asymptomatic pancreatic pseudocyst.

Conclusion: Robotic Rong’s procedure was safe and feasible. With the benefit of the restoration of normal pancreatic anatomy and good prognosis, it could be an alternative to conventional robotic central pancreatectomy.
Long Standing Goitre As A Risk of Thyroid Malignancy

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Background: Goitre is endemic in Sudan. Patients present late and most physicians prescribe long term thyroxin therapy. Surgical treatment is resolved to when pressure symptoms are eminent. The global risk of malignancy in long standing goitre was 2 - 3%.

Objective: To report on the risk of malignancy in goitre exceeding 10 years.

Methods: All patients who underwent total thyroidectomy for goitre exceeding 10 years by the authors in Khartoum during the period March 2017 to September 2018 were included.

Results: 160 patients were studied, 28 males (18%) and 132 females (82.0%), with male to female ratio of 1.0:4.5. Age ranged between 19 and 81 years with mean age of 52.1±13SD. Twenty eight patients (17.5%) had recurrent goitre. 131 patients were euthyroid (81.9%), 22 were hyperthyroid (13.8%) and 7 hypothyroid (4.4%). Pressure symptoms were present in 151 patients (94.4%). 76 had retrosternal extension as evidenced by thoracic inlet x-ray CT scan. All goitres were delivered via cervical approach and no sternotomy was needed. There was clinical suspicion of malignancy in 44 patients (27.5%) patients and all were proved to be true following surgery and histopathology. Another 10 non suspicious glands out of 110 remaining glands turned to be malignant (9%). Histopathology showed 106 simple nodular goitre (67.5%) and 54 malignant (32.5%). 23 (14.4%) follicular, 21 (13.1%) papillary, 8 (5%) anaplastic, 1 (0.6%) medullary and 1 (0.6%) squamous cell carcinoma.

Conclusion: Long standing goitre has a greater risk of malignant transformation and total thyroidectomy to be recommended.

Advantages and Limitations of Robotic Liver Surgery (MIS)

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Minimally invasive liver surgery is an established procedure for benign and malignant liver tumors. Resection techniques for all liver segments, including liver middle resections or extended hemi-hepatectomies and ALLPS have been published so far. Oncological outcomes of patients which underwent minimally invasive liver resections in case of hepatocellular carcinoma or colorectal liver metastases are similar to open procedures. The robot is an innovative tool which has some innovations which may overcome technical limitations based on conventional laparoscopic procedures. Especially the Endowrist® which has seven degrees of freedom and which therefore can be used like a surgeon’s hand to handle tissue is of value during vessel or bile duct preparation and ligation. In critical situations of bleeding stitching of vessels can be handled very safely and controlled, not only for the reason of the Endowrist®, but even for the reason that the surgeon has three instruments and a fantastic visualization to manage the situation. Behind the mentioned advantages hepaticojejunostomy and other reconstructions can be performed very precisely. Nevertheless, there is currently no specific robotic device for parenchymal dissection. To overcome this limitation several techniques including harmonic scalpel, vessel sealer or support by laparoscopic dissection devices have been reported. Robotic liver surgery is considered to be a safe and feasible procedure for liver resections. The conversion rate may be less compared to conventional laparoscopic liver resections and the learning curve is reduced. Starting in 2013 with the first robotic liver resections in Germany we share our experience.
Cholangiocarcinoma (CCA) is a rare cancer in the western world but very high incidence in the northeast of Thailand and many areas in Southeast Asia. It is an aggressive disease leading to a high mortality rate. Liver flukes are the major risk factors. To reduce the health burden, a comprehensive prevention and control program for liver fluke and CCA is urgently required. To date, the only tool for screening of CCA is liver ultrasonography. This enable the early stage of CCA to be detected, hence, improving results of the treatment.

A comprehensive approach being implemented in Thailand under the “Cholangiocarcinoma Screening and Care Program (CASCAP)” is discussed. This program consists of a three-stage prevention and patient care program. The primary prevention component involves liver fluke screening, followed by praziquantel administration. The secondary component involves screening for CCA where patients who were suspected to CCA defined by either bile duct dilatation or liver mass were referred for a confirmatory diagnosis by computed tomography or magnetic resonance imaging (CT/MRI). The tertiary component involves appropriate treatment and end of life care. The anticipated impacts and outcomes of the program include short-, medium-, and the long-term goals for the reduction of CCA incidence. To achieve the long-term sustainable impacts, concerted efforts to raise social awareness and participating action by public, non-government organizations, and government agencies are necessary. The strategic plans developed for this program can be expanded and implemented in other endemic areas for example the Greater Mekong Subregion (GMS) countries.

Patient outcome of HCC with vascular invasion has been very poor and only systemic therapy is recommended by the BCLC guidelines endorsed by AASLD and EASL. However, there is a subgroup of patients who can survive long after surgical treatment even at the very advanced stage of the disease. We have been applying surgical treatment for BCLC-C patients as long as they are operable.

Surgical Strategy for Vascular Invasion: Resectability for patients with macrovascular invasion is judged based on liver function including ICG test and the extent of liver resection required. Anatomic resection including hemihepatectomy or sectionectomy is required in most of the cases to remove possible micrometastases.

Patients with hepatic venous tumor thrombus (HVTT) are classified as those with tumor thrombosis in a peripheral hepatic vein, including microscopic invasion (pHVTT), tumor thrombosis in a major hepatic vein (mHVTT), and tumor thrombosis of the inferior vena cava (IVCTT). Although long-term outcome of patients with IVCTT has not been satisfactory, surgical treatment may be useful to prevent patient sudden death due to IVCTT.

Technical Tips: To avoid too invasive procedures requiring portal vein resection and reconstruction, we have been applying so-called “peeling off technique (PO)” to preserve portal venous wall. When treating HCC with bile duct tumor thrombus (BDTT), preservation of bile duct using a “peeling off technique” is very important because ablation therapy or TACE for tumor recurrence, which should be very common in this setting, may cause severe cholangitis or liver abscess formation after bilio-enteric anastomoses. Technical tips for liver resection for macrovascular invasion will be presented.
Technical Tips for Pancreatic Resection in The Setting of Neoadjuvant Treatments for Pancreatic Cancer

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Surgery alone is not good enough to cure pancreatic cancer because 90% of patients are complicated by metastatic disease. Among surgeons, gastroenterologists, and oncologists, there has been much enthusiasm about neoadjuvant treatments which may provide better selection of patients for surgical resection. In fact, recent evidences are demonstrating that neoadjuvant treatments can prolong the survival significantly. On the other hand, neoadjuvant treatments, especially neoadjuvant chemoradiation therapy (NACRT), raised the bar for surgeons because the fibrosis remaining after the neoadjuvant therapies make surgical dissection much more difficult. We now have to operate on patients with locally advanced disease more often than ever and deal with the firm fibrotic tissues. Furthermore, there is a demand for minimally access surgery by laparoscopic and robotic approaches. These situations have urged us to technological innovation such as artery-first approaches to pancreaticoduodenectomy. There are many methods of artery-first approaches and each surgeon can utilize the techniques they are familiar with. Our preference is “Tiger's Den approach”, which is useful particularly in obese patients and in those after NACRT. Distal pancreatectomy with celiac artery resection (DP-CAR) is an operation of choice for locally-advanced tumors located in the pancreatic body. We developed surgical techniques of artery first DP-CAR using the “Tiger’s Den approach”. These artery-first approaches are suitable and practicable in laparoscopic and robotic surgery as well. To further improve the safety of pancreatic surgery, ICG fluorescence technology has been utilized in evaluating blood flows to the remnant pancreas, stomach, colon, etc. The details of technical tips for pancreatic resection after NACRT will be discussed in this presentation.

Conversion Surgery for Locally Advanced Unresectable Pancreatic Ductal Adenocarcinoma

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The prognosis of pancreatic ductal adenocarcinoma (PDAC) is dismal. However, the prognosis has been improving with recent developments in surgery, chemotherapy (CT), and chemoradiotherapy (CRT).

For resectable PDAC, upfront surgery with postoperative adjuvant CT is standard therapy in Japan. For borderline resectable PDAC, neoadjuvant CT or neoadjuvant CRT has recently been recommended. For unresectable (UR) locally advanced (LA) PDAC, CT or CRT is performed.

Some patients with UR-LA-PDAC after CT or CRT become candidates for conversion surgery. However, the optimal surgical strategy for UR-LA-PDAC remains unclear. Which type of anti-cancer treatment is best? How long is the optimal duration of anti-cancer treatment? How is a favorable response defined with respect to tumor size or tumor markers? Does the risk of perioperative death increase? Is conversion surgery really an effective option?

In conversion surgery for UR-LA-PDAC, portal vein or sometimes arterial resection and reconstruction are necessary. The mesenteric approach and anti-thrombogenic catheter bypass of the portal vein are essential techniques in conversion surgery.

I will discuss the indications for conversion surgery for UR-LA-PDAC and show you my operative techniques of isolated pancreateoduodenectomy combined with portal vein resection using the mesenteric approach and catheter bypass of the portal vein in conversion surgery for UR-LA-PDAC.
In Japan, the first LLR was performed in 1993. Although the laparoscopic approach was introduced into liver surgery at the same time as the other organs, the subsequent development of laparoscopic liver resection (LLR) took significantly longer time. Because of its technical difficulty, it took 17 years for LLR to be accepted as a daily practice. The Japanese Endoscopic Liver Surgery Study Group (JELSSG) was founded in 2011, and it became an obvious turning point in terms of the development of LLR. The JELSSG launched LLR training program using large animals, and basic skill for LLR was transmitted to many beginners. Subsequently, Endoscopic Surgical Skill Qualification System was established by Japan Society for Endoscopic Surgery in 2015. These training and qualification system have greatly contributed the safe dissemination of LLR. At the 2nd World LLR Consensus Conference in 2016, LLR’s difficulty scoring system was newly proposed, enabling safe case selection in line with technical proficiency. Hemostasis, liver transection, trocar position, patient position, etc. have been highly standardized. As a result, it became possible to learn LLR much faster compared to the early days of LLR. According to a nationwide survey in Japan, 25% of total hepatectomy was performed laparoscopically in 2017, and the complication rate was shown to be significantly lower than open surgery.

The technical complexity of minimally invasive surgery (MIS) poses unique challenges with a significant learning curve especially in complex specialties such as Hepatopancreatobiliary (HPB) surgery and Liver Transplantation. In the past decade, there has been an exponential growth in the interest and practice of MIS-HPB surgery worldwide. With increasing experience, better optics and instrumentation, leading surgeons from expert centers are increasingly performing MIS major and complex hepatectomies, pancreaticoduodenectomies, complex combined resections and liver donor hepatectomies routinely and safely. However, few have addressed the deeper issue of mounting the learning curve in the transition from simple laparoscopic procedures to more complex HPB surgeries, especially in a team of early adopters and early majority. Understandably, the learning curve for MIS is difficult to analyze as each surgeon’s learning curve maybe influenced by their diverse training background, depending on whether it was from open surgery to laparoscopic surgery, or from advanced laparoscopic surgery transitioning to MIS-HPB surgery.

Along with the rapid advancements in surgical techniques and equipment, it been suggested that the learning curve may be shortened when the surgeons collectively share their experience and help each other as a team in different phases of each individuals’ learning period. We share our individual and team’s experience and learning curve in MIS-HPB over the past decade, from minor wedge resections to laparoscopic pancreaticoduodenectomies and living donor hepatectomies. (Fig 1)
Adopting Minimally-Invasive Hepatopancreatobiliary (HPB) Surgery in Southeast Asia: Experience of An Early Adopter with The First 314 Cases

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The application of minimally-invasive surgery (MIS) for major hepatopancreatobiliary (HPB) procedures such as hepatectomies, pancreatectomies and biliary reconstructions is increasing worldwide today. However, wide-spread acceptance of MIS in the field is till met with skepticism due to the technical challenging nature of the procedures and the long steep learning curves needed to achieve competence. We reviewed a single surgeon experience with the first 314 consecutive minimally-invasive HPB surgeries performed between 2011-2018. There were 114 pancreatobiliary surgeries and 200 hepatectomies. Robotic assistance was used in 90 cases. There were 21 (6.7%) open conversions. Major morbidity (>grade 2) occurred in 15 patients (11.1%) and there was no 30-day mortality. Over time, more complicated procedures such as pancreateoduodenectomies and major hepatectomies were increasingly performed with no compromise in perioperative outcomes. In conclusion based on this early experience, minimally-invasive HPB surgery can be adopted safely today. In our experience, robotic assistance was complementary and not competitive to conventional laparoscopy. It enabled us to expand the indications for MIS to highly complicated procedures even during a surgeon’s early experience.

Role of Endoscopic Ultrasonography-Guided Tissue Acquisition in The Era of Personalized Medicine

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Recent advances in cancer genomics have driven a paradigm change in anti-cancer treatment toward personalized therapy according to the genetic signature of each patient. Next generation sequencing methods have identified genetic changes, including single nucleotide variants, and have allowed the classification of subtypes of pancreatic cancer according to their different treatment responses. To utilize these genetic features of pancreatic cancer, various recent preclinical models were introduced to pancreatic cancer research. The successful application of preclinical cancer models derived from tumor tissue provides the opportunity for personalized drug selection and prognosis prediction.

For the establishment of preclinical cancer models, sufficient tumor tissue acquisition is essential. However, obtaining surgical specimens is extremely difficult in pancreatic cancer because only less than 15% of all patients with pancreatic cancer can be treated using surgical resection. Endoscopic ultrasound (EUS)-guided fine needle biopsy (FNB) is the only reliable way to obtain the tissue sample in most patients with advanced pancreatic cancer. However, the amount of tissue obtained using EUS-FNB is not enough to perform advanced laboratory or molecular analysis, including exome sequencing. Therefore, the establishment of a platform of primary cancer cell lines or xenograft model with the small piece of tumor tissue obtained using EUS-FNB is urgently required.

In this talk, we will review several promising studies related to this issue including our experience of patient-derived preclinical cancer models using a small piece of tumor tissue from EUS-FNB in pancreatic adenocarcinoma.
Standardization of Treatments for Pancreatic Cancer: To Realize Long-Term Survival

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Background and Aim: Although pancreatic cancer (pancreatic ductal adenocarcinoma: PDAC) is still intractable, recent advance in chemotherapeutic agents for PDAC has given us hope to conquer this horrible malignancy. Here we review our cases of long-term survived patients with PDAC, and discuss about standardization of treatments for them.

Methods: Among patients with PDAC, who underwent pancreatic resection in our hospital between Jan 2000 and May 2013, cases survived more than 60 months were recruited. Characteristics and treatments were retrospectively reviewed. Patients, who were pathologically diagnosed as invasive cancer derived from intraductal papillary-mucinous neoplasm, were excluded.

Results: Among 122 operated PDAC, 20 patients (11 males and 9 females, average age: 66.0) were eligible. Median survival time was 108 months. Pancreatocoduodenectomy and distal pancreatectomy were performed for 15 and 4 patients, respectively. One patient underwent total pancreatectomy. In all cases, radical (R0) resection was achieved. In 3 cases, portal vein resection was needed to obtain R0. Chemotherapy using gemcitabine and/or S-1 was performed for all patients according to the performance status of each patient. Pulmonary resection for lung metastasis in one case seemed contributed to his long-term survival.

Conclusion: We so far conclude that standardization of surgical resection to obtain R0, and of flexible administration of gemcitabine and/or S-1 may contribute to long-term survival of PDAC patients.

Use of Firefly for ICG Immunofluorescence for Robotic Liver Surgery

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The role of minimally invasive liver surgery has been increasingly established after the 3 consensus conferences and several recent randomized controlled trials. The robotic approach represents an alternative and extension to laparoscopic surgery with increasing evidence of its utility in all areas of liver resection including complex resections with biliary reconstruction, ALLPS and donor hepatectomy. The specific advantages of robotic surgery platform include tremor filtration, magnification, multi-quadrant surgery (combined colorectal and liver resections) and stable camera platform with 3D and HD visualization. The limitation of available instrumentation (lack of CUSA) and cost remains an issue for wide spread adoption.

Firefly technology with 3D visualization for ICG immunofluorescence (IF) is integrated in the newer robotic platform (Da Vinci Si and Xi). This is recognized as a useful technique for use in tumour localization, identification of vascular and biliary anatomy as well as guidance for anatomical resection. The ICG resection line improved visualization compared to the ischaemic resection line especially in the superior posterior aspects of the liver. Precise dissection of the liver parenchyma is facilitated with the rapid switching between normal white light and ICG overlap imaging. Using Robotic-ICG Guided Hepatectomy Technique (RIGHT) for resection, the technique for usage is presented and our early results discussed. Limitations of ICG use include the need for inflow dissection for negative staining, difficulty of positive staining especially for robotic platform and shallow penetration of ICG staining for tumour localization (>10mm below capsule).
The Application of Robotic Surgery in Complex HPB Procedures

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The application of robotic approach in the field of HPB surgery is progressively gaining momentum. Several surgeons are embracing the robotic surgery with interesting outcomes and promising results. In a period in which new technologies are going to be introduced into the marketing, we believe it can be interesting to demonstrate the potentialities of the robotic approach also in complex scenario. The HPB procedure in fact requires fine and meticulous dissection, high suturing skills and judicious capacity in managing potential life-threatening intraoperative complications.

In this video-carousel we report the potential advantages of the robotic surgery over the laparoscopic or traditional approaches in challenges surgical procedures such as resection of hilar cholangiocarcinoma, complex liver resection or in case of pancreatic head tumor with vascular abutment. Some tips and tricks are provided with the aim to help novice surgeons who are ready to start a robotic HPB program. Final considerations regarding the safety and cost-effectiveness of the robotic approach will be discussed and commented. In conclusions the robotic surgery can be routinely employed for complex HPB surgery which is associated to not negligible morbidity and mortality rate.

Unusual Presentation of Focal Pancreatic Lesions

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Based on the gross morphology and imaging findings pancreatic focal lesions can be roughly classified into solid, mixed cystic and solid, and cystic ones. In rare cases mismatch between preoperative findings and final pathology can lead to inadequate management.

The aim is to demonstrate the clinical cases of typically solid pancreatic lesions presenting as cystic ones and vice versa and options of preoperative work-up to distinguish those as well as their malignant potential.

Magnetic resonance imaging has become a highly specific imaging technique for pancreatic lesions. Nonetheless we consider at least two different imaging studies being necessary in preoperative work-up for these patients, and if equivocal, additional options should be applied as well. Although available in a limited number of institutions, pancreatoscopy becomes one of the highly specific.

Surgery if required for such a lesions should be performed meticulously and frozen section should be used even though final pathology has a better specificity. Extended resection should be done if the former one is non-confirmatory.

The key point is to distinguish benign from malignant lesion. Even if typical solid lesion appears on imaging as cystic and vice versa, malignant nature of the tumor should be suspected and managed as one until proven otherwise.
Continuous Peritoneal Lavage for Severe Postoperative Pancreatic Fistula after Pancreaticoduodenectomy

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Objective: We investigated the risk factors of clinically relevant pancreatic fistula (PF) after pancreaticoduodenectomy and propose the management for severe PF.

Methods: Total of 167 cases underwent pancreaticoduodenectomy under the protocol of enhanced recovery after surgery in our institute between August 2010 and December 2018. Reconstruction was performed using duct-to-mucosa pancreaticojejunostomy with the lost stent. Drains were placed around hepaticojejunostomy and pancreaticojejunostomy. Drain fluid amylase (DFA) was measured on postoperative day (POD) 1, 2, 3, 4, 5. The drain around hepaticojejunostomy was routinely removed on POD 3 and the drain around pancreaticojejunostomy was removed on POD 5. In case that has clinically relevant PF, the drain around pancreaticojejunostomy was replaced to perform continuous peritoneal lavage (CPL).

Results: Of 167 cases, clinically relevant PF was seen in 29 cases (17.4%). In the multivariate analysis, ASA ≥ 3, soft pancreas, and the high value of DFA on POD 1 were identified as risk factors of clinically relevant PF. In 15 patients with the high values of DFA, they were rapidly reduced with CPL. Among 15 patients, four had the rupture of pseudoaneurysm. Three were successfully treated with the interventional radiology while one died of repeated ruptures of pseudoaneurysm. And the other died of the rupture of pseudoaneurysm before performing CPL.

Conclusion: CPL for clinically relevant PF after pancreaticoduodenectomy could reduce the value of DFA, leading to avoid the critical rupture of pseudoaneurysm.
**O-0001**

**The Application of Indocyanine Green-Fluorescence Imaging During Robotic Liver Resection: A Case-Matched Study**

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**Background:** The ICG-fluorescence properties are progressively gaining momentum in the HPB surgery. However, the exact impact of ICG application on surgical outcomes is yet to be established.

**Methods:** Thirty-five patients who underwent ICG-fluorescence guided robotic liver resection were case matched in a 1:1 ratio to a cohort who underwent standard robotic liver resection.

**Results:** In the ICG group eight additional lesions not diagnosed by preoperative workup and intraoperative ultrasound were identified and resected. Four of the lesions proved to be malignant. Despite the similar operative time (288 vs 272 min, p = 0.778), the risk of postoperative bile leakage (8% vs 12%, p = 0.023), RL resection (8% vs 16%, p = 0.019) and readmission (p = 0.023) was reduced in the ICG group compared with the no-ICG group.

**Conclusion:** The ICG-fluorescence is a real-time navigation tool which enables surgeons to enhance visualization of anatomical structures and overcome the disadvantages of minimally invasive liver resection. The procedure is not time-consuming and its applications can reduce the postoperative complication rate in robotic liver surgery.

**Keywords:** Indocyanine green, robotic liver surgery, image-guided surgery.

**O-0002**

**Prevention of Delayed Gastric Empty after Living Donor Left Hepatectomy**

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**Introduction:** Delayed gastric empty (DGE) is well recognized as the specific complication after left hepatectomy. The aim of this study is to show our strategy to prevent DGE after living donor left hepatectomy.

**Methods:** The 113 cases of living donor left hepatectomy were divided into 3 groups as the first 13 cases without any prevention of DGE (control group), next 50 cases prevented with putting omentum between the liver and pylorus (omentum (O) group), and current 50 cases with putting a Seprafilm between the liver and pylorus (Sepra (S) group). The incidence of postoperative DGE, and the CT finding 1 month after surgery were retrospectively compared between the groups.

**Results:** The incidence of DGE were 3/13 (23%) in control group, 1/50 (2%) in O group, and 0/50 (0%) in S group. The incidence of DGE was significantly decreased in O and S group than control group (P<0.05, Fisher’s test). In S group, fluid collection along the cutting surface of the liver was observed on CT significantly more than other groups (without Sepra, 8/60 (13%) vs S group, 25/48 (52%)), but the incidence of bile leakage was adversely less in S groups than other groups (without Sepra, 4/8 (50%) vs S group, 2/25 (8%)), so that the majority of the collected fluid in S group were presumed as the ascites without bile.

**Conclusion:** Omentum patching and Seprafilm were equally effective to prevent DGE after living donor left hepatectomy, and Seprafilm might be better because it is more physiologic than putting omentum.

**O-0003**

**Volume-Associated Indocyanine Green, Platelet, and Prothrombin Time (VIPP) Score-Based Model for Predicting Posthepatectomy Liver Failure: A Novel Tool to Strategize Hepatocectomy**

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**Objective:** To develop a novel model using quantitative indices to predict posthepatectomy liver failure (PHLF) to strategize hepatocectomy.

**Background:** PHLF is a life-threatening complication; however, the permissible liver reseption rate remains unclear.

**Methods:** Between 2013 and 2017, 366 patients who underwent hepatatectomy at eight institutions were enrolled. A PHLF prediction model was developed using a training cohort of 153 cases at Hiroshima University. Its utility was validated In a multi-institutional cohort of 213 cases. Volume-associated liver-estimating parameters, namely, parameters multiplied by liver resection (Res) or remnant (Rem) rates, were analyzed as risk factors for PHLF ≥ grade B. The linear predictor for severe PHLF was estimated using logistic regression analysis; thereafter, volume-associated indocyanine green, platelet, and prothrombin time (VIPP) score was constructed. Its performance in predicting PHLF was evaluated using the area under the receiver operating characteristic curve (AUROC).

**Results:** The VIPP score comprises three independent factors: indocyanine green redation rate at 15 minutes (%), × Res ≥ 3.0, platelet count (×10³/μl) × Rem ≤ 1.30, and prothrombin time (%) × Rem ≤ 70. Incidence of severe PHLF in patients with VIPP score ≥ 0.0–3.0 in the training cohort was 0.0%, 1.8%, 16.7%, and 52.2%, respectively. VIPP score could stratify the higher-risk group similarly in the validation cohort. AUROC of VIPP scores associated with severe PHLF in the training and validation cohorts were 0.858 and 0.794, respectively.

**Conclusion:** Our model contributes to procedure selection for safe hepatocectomy by referring to the cut-off value of the liver resection rate where the VIPP score is 3.

**O-0004**

**Laparoscopic Versus Open Limited Liver Resection for Hepatocellular Carcinoma with Liver Cirrhosis: A Propensity Score Matching Study with The Hiroshima Surgical Study Group of Clinical Oncology (HiSCO)**

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**Introduction:** Laparoscopic liver resection (LLR) has evolved as a safe and feasible procedure even in patients with cirrhosis. However, LLR in cirrhotic patients remains challenging. This study analyzed the perioperative and oncological outcomes of LLR for hepatocellular carcinoma (HCC) with cirrhosis compared with ORL using propensity score matching.

**Methods:** A multicenter retrospective analysis of records of patients who underwent limited liver resection for HCC and were histologically diagnosed with liver cirrhosis between January 2009 and December 2017 in the eight institutions belonging to the Hiroshima Surgical study group of Clinical Oncology was performed. The patients were divided into two groups: the LLR and ORL groups. After propensity score matching, we compared clinicopathological features and outcomes.

**Results:** In total 236 patients with histological liver cirrhosis who underwent limited liver resection for HCC were included in this study; 58 patients had undergone LLR, and the remaining 198 patients ORL. The number of tumors was higher, tumor size was larger, and difficulty score was significantly higher in the ORL group before propensity matching. After the matching, the data of the well-matched 58 patients in each group were evaluated; the intraoperative blood loss was lower in the LLR group (p = 0.004), and incidence of the postoperative complications was significantly higher in the ORL group (p = 0.019). The duration of the postoperative hospital stay was significantly shorter in the LLR group (p < 0.001). There were no differences between two groups in overall survival and disease-free survival.

**Conclusion:** LLR decreased the incidence of postoperative complications, shortened the duration of postoperative hospital stay. Thus, LLR is a safe and feasible procedure even in patients with cirrhosis.

**Keywords:** Laparoscopic liver resection, limited liver resection, liver cirrhosis, hepatocellular carcinoma, multicenter study.
O-0005

Does Liver Resection Increase Survival in Patients with Metastases from Neuroendocrine Tumors?

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Introduction: Although neuroendocrine tumor liver metastases (NELM) are highly frequent, there are few studies building on various possibilities to approach them; therefore, it is difficult to know whether liver resection as part of multimodal NELM therapy is superior to non-surgical treatment alone.

Objective: This study aims to identify whether there is improvement in the overall survival of NELM patients undergoing hepatic surgery and non-surgical treatment, as to those approached by non-surgical (interventional and medication-based) therapy.

Materials and methods: This retrospective cohort study included 93 patients (49 men, 52.6%) undergoing NELM multimodal treatment between 2004-2018. Two groups were formed: (A) surgery and non-surgical therapy and (B) non-surgical treatment alone. To reduce the bias of patient selection and make the main traits of the groups compatible, we used propensity score as a covariate to the survival analysis (semiparametric Cox regression).

Results: Higher overall survival for group A (77 months, 95%CI:43-117) was seen, compared to group B (31 months, 95%CI:24-61) measured from the initial diagnosis of metastases (P=0.034). The bias-corrected survival analysis was performed once the propensity score was determined: group A (104 months, 95%CI:53-156) vs. group B (49 months, 95%CI:25-125, P=0.20), thus showing that surgery did not significantly influence survival. The remaining risk factor resulting from a multivariate Cox proportional hazard model was Ki-67 of liver metastases >20% (HR:3.04; 95%CI:1.28-7.26; P=0.0118).

Conclusion: Patient selection bias once reduced, patients with hepatic resection as integral of multimodal NELM therapy do not show better overall survival than those undergoing non-surgical treatment alone. Nevertheless, surgery must be considered in case of Ki-67 index >20%, as improved survival and control of clinical symptoms are possible. In case of Ki-67 index >20%, very careful analysis is needed to see whether the benefits are worth performing surgery.

Keywords: Neuroendocrine tumor liver metastases, liver resection, multimodal treatment, propensity score, overall survival

O-0006

Spectrum of Hydatid Disease and Its Management: An 16 Years Institutional Experience

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Background: Hydatid disease is a zoonosis caused by a Cestode parasite of the Echinococcus species. Echinococcus granulosus and Echinococcus multilocularis commonly affect humans. It is characterised by slowly growing cysts in visceral organs. Liver and lungs are the most commonly involved organs but hydatid cysts are known to occur in various other organs. The clinical features vary with the number, size, location and speed of growth of the cysts as well as their anatomical relations inside the internal organs. The diagnostic approach is based on epidemiological details of patients, clinical features and investigations. The choice of imaging technique depends on the organ involved and the stage of the disease. Ultrasound is considered as the best imaging method for the initial diagnosis since it allows categorization of cysts according to their nature, number, site, dimensions and viability. CT scan has high sensitivity and specificity and it is required in cases where ultrasound proved insufficient. Radiological diagnosis can be confirmed using immunological assays. Only albendazole and mebendazole are available for medical management. Surgery is the gold standard in the management of hydatid cyst.

Objective: To study the epidemiology, clinical manifestations, imaging characteristics and various management options of hydatid disease of different organs and to analyse the outcomes.

Materials and Methods: A retrospective analysis of 460 cases of hydatid cyst admitted in Hamidia Hospital, Bhopal in the period from 2002-2017 was conducted. Their epidemiological, demographical, clinical, radiological, pathological and treatment details were collected. Collected data was analysed and observations were made.

Results: Out of 460 cases studied, 60% were females. Majority of the patients were in the 3rd, 4th, and 5th decade. 80% of the patients belonged to rural areas. History of contact with dogs could be elicited in only 30% of the cases. Liver was the most commonly affected organ followed by lungs. Cysts were also seen in spleen, pancreas, kidneys, peritoneum and abdominal wall. 80% of the cases underwent surgical management. Surgical site infection was the most frequent post-operative complication seen in 20% of cases.

Conclusion: Hydatid disease is a problem and burden for both rural and urban population. It is difficult for the clinicians to diagnose this disease because of its non-specific clinical presentation. A possibility of hydatid disease should be considered in the differential diagnosis of cystic swellings present in visceral organs. Early treatment is mandatory to avoid complications. Aim of treatment should be complete elimination of the parasite without any spillage during operation and unnecessary damage to normal host tissue should be avoided. Education and awareness can help control this preventable disease.
Deep Venous Thrombosis in Bulky Pelvic Cancer Patients

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Introduction: Deep venous thrombosis (DVT) is common complication for cancer patients.

Objective: To study DVT in bulky pelvic cancer – origin, course and therapy; to set questions about management and survival.

Materials and methods: In our practice we noticed that DVT patients fall in these categories – due to coagulation disorders, trauma etc.; any cancer related; due to bulky pelvic cancer (BPC) compression. For 2017-2018 in our department were treated 214 DVT patients – with Heparin or Fraxiparin and Warfarin. Cancer related are 60 – all examined for present tumor. We assess particularly the BPC group – 33 – cancer type; prior surgery; response to therapy; survival – inhospital mortality or within 30 days. DVT patient have leg edema-icular measure differs from the other leg. Response to therapy marks with edema decrease.

Results: BPC are relapse or primary gynecologic, rectal, bladder cancers or metastatic inguinal nodes. Leg edema in BPC patient with DVT is remarkable-10cm or more. Response to therapy- no or poor in 75%; partly-25%. Palliative surgery for pelvic cancer after therapy in 4 patients lead to deep venous decompression and leg edema decrease-in 3. After palliative surgery – 1 in-hospital mortality; 3 survived less than month. Only 8 DVT patients survived within 30 days-15 months. BPC patients related DVT survived 6 or more months-27 patients. Other cancer related DVT survived 6 or more months-27 patients.

Discussion and Conclusion: Cancer related DVT initially should be recognized as BPC or not. Bulky pelvic cancers cause deep venous compression, stasis and thrombosis that differs from other DVT. This might be presumed as sign of cancer progression to terminal stage.

Palliative treatment for bulky pelvic malignancies can be palliative-23 patients lead to deep venous decompression and leg edema decrease-in 3. After palliative surgery – 1 in-hospital mortality; 3 survived less than month. Only 8 DVT patients survived within 30 days-15 months. BPC patients related DVT survived 6 or more months-27 patients. Other cancer related DVT survived 6 or more months-27 patients.

Key words: Deep venous thrombosis, bulky pelvic cancer, therapy response, mortality

Survival Outcome of Regular Endoscopic Ultrasound Guided Biliary Drainage (EUS-BD) in The Malignant Biliary Obstruction (MOB) Patients.

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Introduction: Endoscopic ultrasound guided biliary drainage (EUS-BD) is an emerging procedure that used to treat the patient with malignant biliary obstruction (MOB). Outcomes of EUS-BD treatment of MOB patients remain unclear.

Objective: To comparison survival outcome of EUS-BD for the MOB patients in the period of regular EUS-BD versus the period without regular EUS-BD.

Material and Methods: There were 132 cases of MOB. Most of them (99.2% were Cholangiocarcinoma) who received palliative treatment in Thabo Crown Prince Hospital and Hatyai hospital from January 2014 to December 2018. The patients were divided into 2 groups: group I were treated in the time without regular EUS-BD and group II were palliative treated in the time of regular EUS-B.

Demographic data, outcomes of treatment modalities were collected. Postoperative survival rates were computed using the Kaplan-Meier method and log-rank test.

Results: Ninety-five patients were included in group I and 34 were included in group II with mean age 63.7±11.31 years. The total follow-up time was 985.01 person-month, and the mortality rate was 83.72 per 100 person-month. Incidence rate of group I vs. group II was 12.50 per 100 person-month and 6.40 per 100 person-month, respectively. Median survival time was 22.72 months vs.11.54 months. The cumulative 1 year survival rates of 2 groups were 0.17 (95%CI: 0.11-0.25) vs. 0.45 (95%CI: 0.24-0.65). Finally, log rank test shown that incidence of group I vs. group II had significant better survival outcome than group I (p=0.0004).

Conclusion: To achieve a better survival outcome, focus should center on performing regular EUS-BD procedures in MOB patients.

Key words: Endoscopic ultrasound guided biliary drainage, malignant biliary obstruction, cholangiocarcinoma, EUS-BD
O-0011

Robotic-Assisted Versus Open Pancreaticoduodenectomy: The Results of A Case-Matched Comparison

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Background: Robotic pancreaticoduodenectomy is progressively gaining momentum.

Methods: We performed a 1:1 case-matched comparison, among two groups of 35 patients who underwent robotic-assisted (RPD) and open (OPD) pancreaticoduodenectomy from August 2013 to April 2016.

Results: Operative time was longer in the RPD group (355 vs 262 min, p=0.023), whereas median blood loss (235 vs 575 ml, p=0.016) and length of hospitalization (6.5 vs 8.9 days, p=0.041) were lower in comparison to OPD. A significant reduction of overall postoperative morbidity rate was found in the RPD group compared to the OPD group (31.4% vs 48.6% p=0.034). No statistically significant difference was found between the two groups in terms of overall pancreatic fistula rate, R0 resection rate, and number of lymph nodes harvested.

Conclusion: Robotic pancreaticoduodenectomy is a safe and effective technique. It reduces the estimated blood loss, the length of stay and the rate of major complications while preserving a good oncologic adequacy.

O-0012

Efficacy of Silk Sutures Compared with Non-Absorbable Polymer Clips for Cystic Duct Ligation in Laparoscopic Cholecystectomy: A Prospective Randomized Controlled Study

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Background: Laparoscopic cholecystectomy (LC) is considered as the gold standard in gallbladder removal for cases in which surgery is recommended. Despite the drastic improvement LC has to offer, there is still much debate regarding the most effective method in ligating the cystic duct and cystic artery during LC. Non-absorbable polymer clips (Hem-o-lok) are easy to use and do not cause artifacts during CT/MRI scans but the cost is very high and slippage into CBD have been reported. This study has suggested the use of non-absorbable suture materials (silk sutures) for ligation as surgical knots are easy to apply, secure and the cost is significantly lower in comparison to other types of clips currently available.

Methods: A prospective randomized controlled trial study of 90 patients who had indications for LC between September 2017 and November 2018 was carried out. Silk sutures (size 2-0) were used in Group A, while Group B received non-absorbable polymer clips. Demographic and intra-operative data were recorded. Post-operative complications such as bile leakage, surgical site infection or pancreatitis was noted if present. Liver function tests were repeated 2 weeks and 3 months after surgery. If patients experienced post-operative abdominal pain, constipation, fever or jaundice; ultrasound was recommended.

Results: No statistically significant difference was observed in post-operative complications, hospital stay, operating times and intra-operative blood loss between silk sutures and non-absorbable polymer clips. None of the LC procedures were converted into open cholecystectomy and none of post-operative complications had bile leakage. Only 1 case was re-admitted during follow up 2 weeks after surgery due to abdominal pain that was later diagnosed as dyspepsia.

Conclusion: Ligating the cystic duct and artery with silk sutures during LC proved to be as successful and effective as that of non-absorbable polymer clips, in terms of safety, surgical operative time, post-operative complications and costs.

O-0013

The Usefulness of Intraoperative X-ray Fluoroscopy for Avoiding Urethral Injury in Transperineal Total Mesorectal Excision

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Introduction: Recently, reports show that a transanal TME (TaTME) and transperineal TME (TpTME) are feasible approach for patients with mild and low rectal cancer. TaTME show better oncologic outcomes, such as a longer CRM and lower risk of a positive CRM. On the other hand, the evaluation of the pelvis anteriorly from the anal side is complicated. It can be very difficult to understand the exact anatomy especially for less experienced operators, so consequently urethral injury is one of the foremost concerns regarding a TpTME procedure for male patients.

Objective: The purpose of this study is to examine the usefulness of intraoperative X-ray fluoroscopy to avoid urethral injury associated with a TpTME procedure.

Materials and Methods: Real-time navigation using fluoroscopy was undertaken to check the distance from the urethra to the dissection line in the follows three positions: the level of exposing rectourethral muscle; the level in the middle of dividing rectourethral muscle; and the level of identifying the prostate.

Result: The dissection was completed transanally up to the level of peritoneal reflection on the anterior side without urethral injury. Pathological examination confirmed that the circumferential resection margin (CRM) was free of tumor.

Conclusion: TpTME is a feasible approach for patients with mild and low rectal cancer especially for patients who has narrow pelvic anatomy or a high BMI. Intraoperative X-ray fluoroscopy is an easy-to-use approach to help prevent urethral injury in male patient who undergo a TpTME procedure for rectal cancer.

Keywords: Transperineal total mesorectal excision, TaTME, urethral injury

O-0014

Laparoscopic Emergency Colorectal Surgery

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Introduction: The laparoscopic technique is increasingly used in colorectal surgery. In emergency cases, the use of the laparoscopic method was limited. In this study, our aim was to present the outcomes of laparoscopic surgery in emergency colorectal diseases.

Materials and Methods: Data from patients who underwent emergency laparoscopic colorectal surgery between July 2013 and January 2019 were retrospectively collected. Patients who underwent conversion were also included in the study. The demographic data (age, gender, ASA), operation types, length of stay, pathology results, reoperation requirements, morbidity and mortality results were evaluated.

Results: A total of 658 colorectal operations were performed in our clinic between July 2013 and January 2019. Of these, 501 them were elective surgeries and 243 (48.5%) of the cases were taken laparoscopically with a TpTME procedure. Intraoperative X-ray fluoroscopy is an easy-to-use approach to help prevent urethral injury in male patient who undergo a TpTME procedure for rectal cancer.

Keywords: Transperineal total mesorectal excision, TaTME, urethral injury
Between January 2000 and December 2012, 1144 patients were diagnosed with colorectal cancer. Of all 1144 patients, 137 patients (12%) developed secondary cancers postoperatively. We reviewed a prospectively recorded database of patients with colorectal cancer. During 12 years, the age of patients with AA and the incidences were determined and these patients were included in the study. All patients underwent a planned interval appendectomy, a total of 881 patients were included in the study. The final diagnosis was decided based on intraoperative findings, pathological report, and clinical course. Negative appendectomy was defined as the case without appendiceal pathology. Complicated appendicitis was defined as perforated or gangrenous appendicitis. We analyzed the chronological change of appendiceal pathology between the early phase (2006-2011) and late phase (2012-2017).

**Objective:** To identify chronological change of appendiceal pathology in patients who underwent appendectomy for suspected acute appendicitis.

**Methods:** We reviewed a prospectively recorded database of patients with appendectomy for suspected AA from January 2006 and to 2017. After exclusion of 9 patients without a pathology report and 3 patients who were postoperatively followed up in our clinic. In 958 patients, preoperatively and in the follow up CEA and CA19.9 was determined and these patients were included in the study. All patients were postoperatively followed up in our clinic. Here, we analyzed the diagnostic and prognostic value of both tumor markers alone and in combination for CRC patients.

**Results:** In most patients (546 (57%)) both markers, CEA and CA19.9, were not elevated at time of diagnosis. In 211 patients (22%) only CEA was elevated. In 153 patients (16%) showed increased serum levels of both, CEA and CA19.9. Advanced tumor stage was associated with increased CEA and CA19.9 levels respectively. Both, elevated CEA or CA19.9 predicted an impaired survival. Moreover, we identified risk factors for the development of secondary cancers.

**Conclusion:** In conclusion, secondary cancers are commonly encountered in colorectal cancer patients. Moreover, our study suggests, that several factors may contribute to the development and prognosis of secondary cancers in these patients.

**Keywords:** Acute appendicitis, negative appendectomy, appendectomy.
O-0018
Domino Hepatocytes Transplantation, New Alternative Method for The Acute Hepatic Failure Treatment
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Background: Acute hepatic failure is a severe syndrome with an elevated mortality rate, ranging from 40 to 80%. Currently, liver transplantation is the only definitive treatment for these patients and new therapies aiming to treat acute hepatic failure include artificial organs implant and stem cells therapy, for example. However, a major limitation of liver donors exists. Living donor liver transplantation (LDLT), split liver transplantation (SLT), and domino liver transplantation (DHT) are some of the available alternatives, but these methods do not reduce the number of patients on waiting lists. Herein, we discuss domino hepatocyte transplantation (DHT) using livers that would not meet transplantation criteria.

Methods: We conducted a literature search on PubMed/Medline using acute liver failure, liver transplantation, hepatocyte transplantation, and domino liver transplantation as key words.

Results: New sources of biochemically functional hepatocytes and therapeutic treatments, in parallel to organ transplantation, may improve liver injury recovery and decrease mortality rates. Moreover, the literature reports hepatocyte transplantation as a therapeutic alternative for organ shortage. However, a major challenge remains for a wide clinical application of hepatocytes therapy, i.e., the availability of sufficient amounts of cells for transplantation. Ideally, hepatocytes isolated from livers rejected for transplantation may be a promising alternative for this problem.

Conclusion: Our review suggests that DHT may be an excellent strategy to increase cell supplies for hepatocyte transplantation.

Keywords: Acute hepatic failure, domino liver transplantation

O-0019
Pancreatic Neuroendocrine Tumors: Role of Microscopic Lymphatic Invasion (LI) in Risk-Stratification for Disease Recurrence
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Background: Pancreatic neuroendocrine tumor (PNET) is a rare tumor with relatively indolent clinical course. While metastasis to regional lymph nodes has been known to be a strong predictor for recurrence, nodal status is unknown or unreliable for patients who underwent limited resection without lymphadenectomy. We hypothesized that microscopic lymphatic invasion (LI) is associated with nodal status and can be used as alternative predictor for recurrence. The aim of this study was to compare the incidence of LI for PNET with or without lymph node metastasis and its association with the long-term outcomes following resection.

Methods: The patients with PNET who underwent resection with curative intent in our center from 1996 through 2018 were included and the risk factors for recurrence was evaluated.

Results: Total 52 patients were identified and included. The median age was 56 years (14 to 75) and 25 patients (47%) were women. Nine patients (17%) underwent laparoscopic resection and 9 patients (17%) underwent open resection as pancreatectomy or enucleation. As a result, 11 patients (21%) had no lymph nodes evaluated, while LI status was documented on 49 patients (94%). The tumor with LI had more likely lymph node metastasis than those without LI (73% vs 13%, p<0.001). Recurrence-free survival (RFS) rates at 5-year was 68% among the entire cohort. The median RFS for patients with LI was significantly shorter than those without LI (median 53 months vs NR, p=0.001), and it was shorter than the patients with pN1 disease (53 months).

Conclusion: Microscopic lymphatic invasion of PNET is associated with risk of nodal metastasis and predicts the risk of recurrence. It is particularly useful as a surrogate for N stage for patients who are treated with limited resection without formal lymphadenectomy.

Keywords: Pancreatic neuroendocrine tumor, lymphatic invasion, lymph node metastasis, recurrence

O-0020
Evaluation of Splenic Vein Pressure to Predict Sinistral Portal Hypertension after Pancreaticoduodenectomy with Splenic Vein Resection. Who Need Splenic Vein Reconstruction?
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Background: To achieve R0 resection for pancreatic cancer, pancreaticoduodenectomy (PD) with porto-mesenteric-splenic confluence (PMSC) resection is sometimes performed. This procedure may occur sinistral portal hypertension (SPH) and would be a cause of gastrointestinal bleeding due to the varices. We hypothesized that measuring SV pressure before and after SV clamping may help to predict SPH.

Methods: From January 2016 to December 2017, patients who underwent PD with PMSC resection were included in this prospective study. SV pressure was measured before (SV1) and after SV clamping (SV2). Gastrointestinal varices were measured by CT 4-8 months after the operation.

Results: SV pressure was measured in 41 patients and SV reconstruction was performed in 30 patients. Patients with variant SV anastomosis (n=17) avoided SPH, these patients were excluded for the analysis and total of 24 patients were evaluated for SPH prediction. SV2 and the pressure difference between SV1 and SV2 (ΔSV) were reviewed concomitantly with or without SPH. Although there was no significant difference, the median SV2 with SPH (22.5 mm Hg) was higher than that without SPH (17.5 mm Hg). On the other hand, the median ΔSV with SPH (13.5 mm Hg) was significantly higher than that without SPH (7.5 mm Hg) (P<0.0237). Of the patients with SV2 over 20 mm Hg, 85.7% (12/14) of patients developed SPH and of the patients with ΔSV over 10 mm Hg, 90.9% (10/11) developed SPH. Moreover, if the SV2 was less than 20 mm Hg Hg and ΔSV was less than 10 mm Hg, only 33.3% (3/9) patients developed SPH.

Conclusion: We have described the simple and efficient method to predict SPH during PD with PMSC resection. The elevation of SV pressure after SV clamping is well reflecting the incidence of SPH and SV reconstruction is strongly recommended for this case.

Keywords: Perioperative bacterial contamination can worsen pancreatic fistula after pancreaticoduodenectomy
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Introduction: Perioperative bacterial contamination (PPBC) after pancreaticoduodenectomy (PD) can lead to clinically relevant postoperative pancreatic fistula (CR-POPF).

Objective: The aim of this study was to analyze the relationship between PPBC and CR-POPF after PD and to investigate the bacterial species in the perioperative fluid and identify useful antibiotics for CR-POPF.

Materials and Methods: A prospectively collected database comprising 267 consecutive patients who underwent PD between May 2012 and December 2016 was analyzed. Amylase and microbial culture were routinely obtained following resection.

Results: CR-POPF occurred in 81 (30.3%) patients. A significant association with CR-POPF was found for male (P=0.008), non-pancreatic disease (P<0.001), body mass index (BMI)>25 kg/m² (P=0.006), preoperative obstructive jaundice (P=0.016), preoperative biliary drainage (P=0.044), narrow pancreatic duct <3 mm (P=0.008), soft pancreas (P=0.001) and PPBC on POD1 (P=0.001). In multivariate analysis, male (Odds ratio [OR]=2.11; P=0.022), BMI (OR=2.24; P=0.027), soft pancreas (OR=3.94; P=0.001), and PPBC on POD1 (OR=4.70; P=0.001) were independent risk factors of CR-POPF.

Conclusion: We have described the simple and efficient method to predict CR-POPF during PD with PMSC resection. The elevation of SV pressure after SV clamping may help to predict SPH.
O-0022
Short and Long Term Results after Stented or Non-Stented Pancreaticogastrostomy after Pancreatodudodenectomy
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Background: The ideal surgical procedure in reconstruction following pancreatoduodenectomy (PD) is still debated. It is controversial whether pancreatic duct stenting should be used for pancreaticogastrostomy (PG). The aim of the study was to assess the effectiveness of using a stent when fashioning a PG on preserving pancreatic leakage formation after PD.

Design: Retrospective study

Methods: Eighty-eight consecutive patients undergoing PG were divided into three groups: an externally-stented group (n=26), an internally-stented group (n=23), and a non-stented group (n=39). All pancreatic anastomoses were performed on one layer between the pancreatic remnant and the posterior gastric wall with or without using pancreatic duct stents. The main modifications to our technique were an antecolic reconstruction and setting by the Billroth I method. The three groups were compared regarding surgical complications such as pancreatic leakage, morbidity, mortality, nutritional status, and DM, paying attention to postoperative pancreatic dilatation and remnant pancreatic volume.

Results: Operative time and blood loss in all patients were 415±110 min and 745±220 ml, respectively. Postoperative morbidity was 23%, and no mortality was recorded. The rate of overall pancreatic leakage (grade A, B, and C) was 16% in the externally-stented group, 14% in the internally-stented group, and 7% in the non-stented group (P<0.05), respectively. The median postoperative hospital stay was shorter in the internally-stented group, and 7% in the non-stented group (P<0.05). Mortality rates in patients with bilirubin above and below 9 mg/dL were 31.8% and 8.3%, respectively (P = 0.03). Of patients who died, 75% were women (significantly more women than men, P = 0.015). Patients who had deceased-donor liver transplants had a significantly higher mortality rate than those who had living-donor liver transplants (52% vs. 27.5%; P = 0.046). At 3 days posttransplant, bilirubin, creatinine, aspartate aminotransferase, phosphorus, sodium, and ammonia levels were significantly different between survivor and nonsurvivor groups (P < 0.05).

Conclusion: Pancreatic duct stenting in PG increased pancreatic leakage significantly. Our non-stented PG is simple and appears to be an effective reconstructive procedure.

O-0023
Varied Benefits of Multidisciplinary Treatment Using GEM + Nab-Paclitaxel for Borderline Resectable Pancreatic Cancers
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Background: Although neoadjuvant therapy (NAT) for borderline resectable pancreatic cancer(BRPC) has recently been encouraged, no definite evidence has never been reported. We detail short- and long-term outcomes of our treatment including NAT-Gem+nab-paclitaxel (GnP), compared with those of conventional surgery upfront strategy.

Methods: From 2015, we converted our treatment from surgery upfront strategy (SU group, n = 96) to NAT-GnP strategy (GN group, n = 45). Patients' background, surgical, pathological, and survival outcomes were compared between groups. Criteria for BR was defined using NCCN guideline, and R0 resection was defined using conventional 0mm rule. For intention-to-treat based analysis, observation period was initiated from the date of diagnosis in both groups.

Results: Age, sex, pretreatment CA19-9 were similar between groups. In GN vs. SU group, type of BR comprised BR-SMA/HA/CA/PV;16/20/9 vs. 46/25/25. After median 4 courses of NAT-GnP, 38 patients (84%) in GN group underwent surgery while 86 patients underwent surgery in SU group. Only 2 patients (4%) on GN group underwent nontherapeutic procedure while 23 (24%) underwent SU in group (P = 0.0001). Type of resection included PD/DP/TP; 24/11/1 vs. 60/11/2. Vascular resection was conducted in 35(97%) vs. 60(82%) patients (P = 0.04). There was no 90-days mortality in both groups. In whole cohort, R0 resection was achieved in 33(73%) vs 45(47%) patients (P = 0.0037). In resection cohort, R0 rate were 92% vs. 62% (P = 0.0003). Two-year OS were significantly higher in GN groups (OS; 69% vs. 36%, MST; NR vs. 18 months, P = 0.0006). Three-year OS were significantly higher in GN groups (PFS; 42% vs. 21%, MST; 21 vs. 8 months, P = 0.0048), too.

Conclusion: Intention-to-treat based analysis revealed significant benefit of NAT-GnP for BRPCs in long-term survival. It contributed to tumor suppression and patient selection, leading to more aggressive surgical procedure with similar safety.

O-0024
Factors Influencing Mortality Following Liver Transplant in Acute Liver Failure: A Single Center Experience
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Objectives: In irreversible acute liver failure, liver transplant is the only viable treatment option. In this study, our aim was to evaluate and determine the factors related to mortality in patients who received liver transplants in accordance with King's College criteria for acute liver failure in order to prevent futile operations.

Materials and methods: Our study included 65 adult patients with acute liver failure who received liver transplant according to King's criteria. Factors related to mortality, including demographic and operative data, causes of acute liver failure, severity of encephalopathy, and laboratory data, were retrospectively analyzed. Patients who received living-donor liver grafts had donations from first-degree to fourth-degree relatives.

Results: Of 65 patients analyzed, 55.3% were women. Ninety-day mortality rate was 36.9%. Preoperative bilirubin levels in survivor and nonsurvivor groups were 16.3 ± 9.6 and 21 ± 10.7 mg/dL, respectively (P = 0.05). Mortality rates of patients with bilirubin above and below 9 mg/dL were 31.8% and 8.3%, respectively (P = 0.03). Of patients who died, 75% were women (significantly more women than men, P = 0.015). Patients who had deceased-donor liver transplants had a significantly higher mortality rate than those who had living-donor liver transplants (52% vs. 27.5%; P = 0.046). At 3 days posttransplant, bilirubin, creatinine, aspartate aminotransferase, phosphorus, sodium, and ammonia levels were significantly different between survivor and nonsurvivor groups (P < 0.05).

Conclusion: We found living-donor liver transplant to be superior versus deceased-donor liver transplant with regard to development of acute liver failure. Reasons could include the long wait period for deceased donors and liver grafts coming from marginal donors. Bilirubin level and presence of grade 4 encephalopathy had predictive values for poor prognosis of patients.

Keywords: Bilirubin, encephalopathy, liver dysfunction, risk factors

O-0025
Pancreas-Preserving Duodenectomy as A Treatment of Choice for The Isolated Form of The Cystic Dystrophy of The Duodenal Wall (Pure Form of Groove Pancreatitis)
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Background/Aims: Management of isolated form of cystic dystrophy of the duodenal wall (CDDW) or pure form of groove pancreatitis (GP), is a matter of controversy. We are reporting our experience of pancreas-preserving surgery for this disease.

Methods: A retrospective review of 82 patients with clinical, radiologic, and final pathologic confirmation of CDDW was presented (2004-2018). Fifteen of 82 patients were treated by pancreas-preserving duodenectomy (PDD).

Results: Preoperative diagnosis was correct in 79 cases (98.2%). Patients were presented with abdominal pain (100%), weight loss (76%), vomiting (30%) and jaundice (18%). CT, MRI, endoUS were the most useful diagnostic modalities. Twelve patients with CDDW were treated conservatively, 42 underwent pancreatoduodenectomy(PD), pancreatico- and cystoenterostomies (8), duodenum-preserving pancreatic head (DPPH) resections(5) and PPD (15) without mortality. Full pain control was achieved after PPD in 93%, PD in 83%, and after DPPHR and draining procedures in 18% of cases. New diabetes mellitus (5) and exocrine insufficiency (5) developed after PD. Weight gain was significantly greater after PD and PPD comparing to other treatment modalities.

Conclusion: PPD is the optimum method for treating the isolated form of CDDW; Early detection of CDDW allows preserving the pancreas; Pure form of GP is a disease of the duodenum and Whipple procedure is an overtreatment for it.
O-0027
Forty-Five Spleen-Preserving Distal Pancreatectomies with Splenic Vessels Resection without Splenectomies. Which Arteries can We Rely on?

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Background: Knowledge of spleen collaterals is important as for distal spleen-preserving pancreatocomy with splenic vessels resection (DSPPSVR), so as for possible upper GI surgery for these patients.

Objective: Primary: To clarify the sources of spleen blood supply after DSPPSVR. Secondary: morbidity and mortality after DSPPSVR. Methods: Retrospective analysis of CT angiograms (CTA) before and after DSPPSVR and case histories (n=45).

Results: Indications for surgery: MCN (35), bdIPMN (5), CSA(3), NEN(2). Open (39) and laparoscopic (5) surgery were used. No mortality, morbidity 14 (35%), POPF B – 3 (7%), Spleen infarctions – 7 (17%). Clinically significant spleen infarctions and spleenectomies– 0. CT revealed three types of splenic blood supply after DSPPSVR: with gastro-epiploic arcade (GEA) as a main collateral artery (n34, 77%), with short gastric arteries (SGA) as a main collateral (n3, 7%) and intermediate type (n7, 16%).

Conclusion: In SPDP SVR in 90% of cases gastro-epiploic arcade is the main artery for the spleen, and only in 10% - short gastrics; GEA preservation saves the spleen in most number of cases; These patients have a good prognosis and it is important to take the type collateral blood flow into consideration. Take home message. We never know is GE arcade close or open. Just try to preserve it; Do not hope that spleen blood supply will recuperate after surgery; Do not rely on short gastrics.

O-0030
Cancer of The Pancreas and Pancreatic Stellate Cells

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Background: The Pancreatic ductal adenocarcinoma (PDAC) is a malignant disease with a very poor prognosis. In the last decade, a failure of conventional therapies has forced researchers to re-examine the environment of PDAC. The tumour environment has been demonstrated to consist of an abundance of stroma containing many cells but predominantly pancreatic stellate cells (PSCs). Recent research has focused on understanding the interaction between PSCs and PDAC cells in vitro and in vivo. It is believed that the interaction between these cells is responsible for supporting tumour growth, invasion and metastasis and creating the barrier to delivery of chemotherapeutics.

Methods: PubMed search was carried out for the terms 'pancreas cancer' OR 'pancreatic cancer', AND 'pancreatic stellate cells', NOT 'hepatic stellate cells'. All studies were screened and assessed for their eligibility and manuscripts exploring the relationship between PSCs and PDAC were included.

Results: 170 manuscripts were identified and reduced to seventy-three in vitro and in vivo studies for review. The manuscripts showed that PDAC cells and PSCs interact with each other to enhance proliferation, reduce apoptosis and increase migration and invasion of cancer cells.

Conclusion: There is accumulating evidence supporting the multiple roles of PSCs in establishing the tumour microenvironment and supporting the survival of PDAC. To further validate these findings there is a need for greater use of physiologically relevant models of pancreatic cancer in vitro such as three dimensional co-cultures and the use of orthotopic and genetically engineered murine (GEM) models in vivo.

Keywords: Pancreatic cancer, Pancreatic stellate cells, stroma–tumour interactions

O-0029
Importance of Multipotent Stromal Cells During Hepatic Recovery Process

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Objective: To Study umbilical cord-derived multipotent stromal cells (MSCs) function on recovery of the liver after the subtotal resection, that is, removal of 70% of the organ mass, a renowned model of the small-for-size liver remnant syndrome.

Methods: The. The subtotal resection was performed on male Sprague-Dawley rats. The experimental group animals received a transplant of 106 MSCs infused into the spleen. Hepatocyte proliferation was assessed with antibodies to hepatocyte marker CD31, or the active fibroblast marker FAPα. Expression of interleukin and growth factor genes was evaluated with PCR-RT.

Results: Allogeneic intrasplenic transplantation of the umbilical cord-derived multipotent stromal cells stimulates reparative processes within the residual liver tissue after subtotal resection, as indicated by increased rates of hepatocyte proliferation and accelerated organ mass recovery. These effects may result from paracrine influence of the transplanted cells on the resident macrophage population of the liver. The transplantation favors polarization of macrophages to M2 phenotype (the M2-polarized macrophages specifically express CD206; they are known to suppress inflammation and support tissue repair).

Conclusion: We found no direct evidence for the paracrine effect of MSCs on liver regeneration after the subtotal liver resection in rats. However, the paracrine mechanism of the therapeutic activity of transplanted MSC is indirectly indicated by a decrease in the total number of CD68+ macrophages and an increase in the proportion of M2 pro-repair macrophages in the regenerating liver as compared to animals in which the transplantation was only mimicked.

Keywords: Liver macrophages, multipotent stromal cells, regeneration

O-0031
Patient Related Factors and Complexity of Surgery Decides Morbidity and Mortality Following Surgery and Not Open or Laporoscopic Approach in Gastrointestinal and Hpb Surgeries If We Follow ERAS Protocol

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Introduction: Early recovery after surgery (ERAS) protocol is becoming gold standard in perioperative management. We follow ERAS protocol in all our GI and HPB surgeries. We retrospectively Analysed our data of GI and HPB surgery. Aim was study to find after ERAS protocol there is any difference in morbidity and mortality between Open and Laparoscopic surgeries.

Materials and Methods: All the gastrointestinal surgeries performed between april 2016 to march 2019 in our institution have been analyzed for morbidity and mortality after ERAS protocols. We also evaluated factors responsible for morbidity and mortalities and studies weather there is any difference in 90 days morbidites and mortality between open or laparoscopic group following ERAS protocol. Statistical analysis done using SPSS version 23. p value less than 0.05 was considered as statistical significant.

Results: We performed 232 gastrointestinal and hepatobiliary surgery between april 2016 to march 2019. Mean age of patients were 51.38 years. 139 patients were males and 93 were females. 126 were open surgeries and 106 were laparoscopic surgeries. 11 were upper gastro intestinal surgeries (stomach and esophagus), 26 were small intestinal surgeries, 131 were HPB surgeries,39 colorectal and 25 herna surgeries.
O-0031
Mean ASA score was 2.39, mean operative time was 107.73 minutes, mean CDC grade of surgery was 2.56, 38 were emergency surgeries and 194 were elective surgeries. Overall 90 days morbidity rate was 10.3% and over all mortality rate was around 9.05%. On univariate analysis morbidity was associated significantly with higher CDC grade of surgeries, higher ASA grade, more operative time and luminal (non HPB) surgeries were associated with higher 90 days morbidity. On multivariate analysis more operative time (p=0.004) and luminal surgeries (p=0.018) independently predicted morbidity. On univariate analysis 90 days mortality was predicted by grade of surgeries, higher ASA grade, more operative time, open surgeries and emergency surgeries. However on multivariate analysis more operative time (p=0.005) and emergency surgeries (p=0.021) independently predicted mortality. Laproscopic surgeries were not independently associated with mortality and morbidity. However Laposcopic surgeries were independently associated with increased hospital stay (p<0.001).

Conclusion: Following ERAS protocol morbidity and mortality was associated with patient related factor and complexity of surgery. Laposcopic surgeries did not reduce orality and morbidity. However laproscopic surgeries were associated with less hospital stay.

O-0032
Clinicopathological Study of Small Bowel Metastases
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Introduction: The small bowel is a rare site for metastasis and the conditions are only presented in limited case reports. Most reports relating to the small bowel metastasis are caused by either direct invasion or peritoneal seeding.

Objective: The aim of the study is to assess the clinical features of and the prognosis of metastasized tumors of the small bowel.

Materials and Methods: The medical records of patient who had admitted at the National Taiwan University Hospital between 2009-2019 and had developed isolated metastasis to the small bowel were reviewed retrospectively. The patients of metastatic small bowel tumor caused by direct invasion of primary tumor/recurrence, or peritoneal seeding were excluded. The demography, primary cancer history, treatment course and cancer outcomes were evaluated.

Results: During this period, there are 33 patients proven pathologically to developed isolated metastasis to small bowel. The female to male ratio was 8:25. The main presentation of these patients were abdominal pain and tarry stool. The location of small bowel metastasis was equally distributed over duodenum, jejunum and ileum. Lung cancer (N=12) and hepatocellular carcinoma (N=4) were the most prevalent primary cancer site. Most symptoms relapsed within 2 years after primary cancer was diagnosed (N=22). About overall survival, 14 patients died short after surgical resection of the metastatic small bowel tumor with remaining 19 patients alive.

Discussion and Conclusion: Tumors featuring small bowel metastasis are sparsely seen and yield poor prognosis. The study implied that surgical resection of the metastatic tumor offered relief in symptoms and did not translate into long-term benefits.

Keywords: Small bowel metastases, secondary small bowel metastases, small bowel recurrence

O-0033
Impacts of Minimal Invasive Surgery and Immunonutrition in Surgical Patients
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Background: Minimal-invasive surgery (MIS) evolves the preferable surgical policy for gastrointestinal operations, including the cancer patients. Otherwise, perioperative supplementation of immunonutritions in normonutrished patients undergoing laparoscopic colectomy is proved to reduce surgical wound infections.

Methods: We enrolled gastric cancer patients who underwent subtotal gastrectomy during 2006 to 2018 at National Taiwan University Hospital. The patients were categorized into 4 groups according to the operative with/without immunonutritions, conventional laparotomy (group 1), conventional laparotomy with glutamine (group 2), laparoscopy (group 3), and laparoscopy with glutamine (group 4). The clinicophysiological profiles were recorded for analyses, such as patient profiles, perioperative parameters, postoperative pain scale, hospitalizations, and nutritional or inflammatory biomarkers.

Results: The duration of bowel functions recovery, and duration of resuming oral intake decreased in group 4 significantly. Furthermore, the postoperative pain scale and hospital stays also decreased in group 4.

Conclusion: Minimal-invasive surgery along with immunonutrition brought benefits to surgical patients in rapid recovery from major operations.

O-0034
Evolution of Surgical Tactics in The Treatment of Synchronous Colon and Kidney Neoplasms
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Objective: Synchronous tumors are rare and may relate to a certain syndrome manifested by a combination of neoplasms. In most cases, these tumors are found accidentally in the process of primary tumor staging. The detection rate of synchronous blastomas has increased over the past decades due to the advance and more frequent use of imaging technologies. A number of cases of colorectal carcinoma and concurrent incidental renal tumors have been reported in the recent years, with their incidence rates varying as reported by different authors (0.043-4.85%).

Methods: Four cases diagnosed with synchronous colorectal and renal neoplasms who underwent surgical treatment between 2009 and 2017 are presented. The average age of our patients was 52.5 years (43 – 63), and the female/male ratio was 1:1. Colorectal carcinoma was the initial diagnosis, and renal tumors were accidentally detected by CT scan in the staging process.

Results: All patients underwent one-stage surgical procedures: two patients underwent open and two laparoscopic procedures. Three of the patients had combination of rectal and left kidney cancer, and one patient had ascending colon cancer and right kidney cancer. The operative time in laparoscopic cases is significantly higher 250 min vs 160 min, blood loss lower, and early postoperative outcome better, respectively. During the follow up (median 25 months) two of the patients has developed recurrent disease and one – lung cancer. The first two cases have survived 25 and 18 months, respectively. The third and the fourth are still alive 29 and 21 months after resection.

Conclusion: Due to the increased frequency of synchronous colorectal and renal tumors, the diagnosis of either neoplasm always requires the use of imaging techniques. Additionally, the resections should be one-stage procedures, laparoscopic if possible, and performed by experienced surgeons. Due to the low incidence rate of these neoplasms, additional studies are needed to provide clarity on both their etiology and therapeutic methods.
Introduction: Nowadays, regarding a personalized multimodal approach, laparoscopic liver and colorectal resections, separately distinguished, are accepted as feasible, safe and oncologically equivalent to open resections surgical methods for treatment of colorectal carcinoma. However, there is still no consensus, regarding the applicability of combined laparoscopic colon and liver resection. The aim of the present study is to determine the feasibility of such approach and its application in Bulgaria.

Methods: Fifty-five combined liver and colorectal resections were performed during the period from August 2012 to December 2018 at the Military Medical Academy, Sofia (n=22) and Eurohospital, Plovdiv (n=29). In five patients for liver transection “hybrid” technique was used and the rest of the patients underwent totally laparoscopic procedure. Patient and tumor characteristics, operative variables, and postoperative outcomes were evaluated prospectively.

Results: The primary tumour was located in the colon in 37 patients and in the rectum - in 14 patients. Twenty-nine patients had solitary synchronous liver metastases and 22 patients - multiple. The major liver resections were 15. R0 resection was achieved in 48 patients, and in the other cases R1 resection was performed in 3 patients. The first laparoscopic colorectal procedure was the first stage of a two-stage liver resection. Mean operative time was 225 min (140-415 min). Postoperative complications were observed in 9 patients, mortality rate was zero. Mean hospital stay was 6.7 days (6-14 days). During a median follow-up period of 31 months (from 4 to 58 months) six patients developed recurrent disease, regardless its location.

Conclusion: The simultaneous colorectal and liver resection of different volumes and locations with primary colorectal carcinoma and synchronous colorectal metastases while an optimal, individually adapted multimodal approach is followed, combined with sufficient experience and knowledge of the surgeon.

O-0061 Surgical Outcomes and Prophylactic Interventions for Elderly Patients with Gastric Cancer
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Analysis of NCD revealed age was independent risk factor of gastrectomy. Therefore, optimal treatment should be selected according to the individual risk in surgery for elderly pts with gastric cancer. [Patients and methods] Among 722 pts who underwent gastrectomy for gastric cancer from 1/Jan/2014 to 31/Dec/2018 in our institution, data concerning preoperative pts’ backgrounds and short-term outcomes were retrospectively examined from prospective database. [Results] Pts older than 75 occupied 34.7% (251/722) of all. Their median age (range) was 79 (75-94). There were 22 (8.8%) underweight pts with BMI<18.5, 27 (10.7%) malnutritional pts with CONUT≥4. Sixteen (6.4%) pts had worse PS (>1), 188 (74.9%) pts had some comorbidities. Especially, circulatory (56.6%), endocrine (25.9%), and respiratory (12.3%) comorbidities were common. Malnutritional pts, low distant-controlled DM were indication of preoperative prophylactic intervention. Treatment for gastric cancer was decided based on JGCA guideline. Types of gastrectomy: distal/proximal total pylorus-preserving =162/167/70/3. Surgical approach: open/laparoscopic/robotic =124/125/2. Basically, indication of laparoscopic surgery was cStage I, but 12 pts with cStage U-III also underwent laparoscopic surgery due to old age or poor PS. Mild lymph node dissection was also adopted for 51 (20.3%) pts. Postoperative complications were as follows: surgical eG2: 52 (20.7%), surgical eG3: 32 (12.7%), non-surgical eG2: 24 (13.5%). Among non-surgical complications, pneumonia and delirium were common. Median hospital-stay was 12 (1-190), and mortality was 0.8%. In multivariate analysis, open approach, male, PS>1 were independent risk factors for surgical eG3. Respiratory comorbidity, male, worse PS>2, caroic non-preserving operation were independent risk factors for postoperative pneumonia. [Conclusion] Surgical indication for elderly pts with worse PS should be carefully decided. Laparoscopic or cardio-preserving operation is practically effective for elderly pts with gastric cancer.

O-0062 CA19-9 is A Significant Prognostic Marker of Patients with Stage III Gastric Cancer
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Introduction: Identification of patients with high risk for recurrence after resection is important, because it has potential benefits from preoperative treatment and also from individualized, combined therapy. This study aimed to evaluate the prognostic impact of the preoperative Controlling Nutritional Status (CONUT) score in advanced gastric cancer patients who underwent radical gastrectomy and adjuvant chemotherapy.

Methods: This study reviewed 668 patients who underwent radical gastrectomy and adjuvant chemotherapy for advanced gastric cancer at Samsung medical center from 2006 to 2015. Patients were divided into three groups according to the preoperative CONUT score. The prognostic impact of CONUT score for postoperative complications and cancer-specific survival were evaluated.

Results: Although there was no significantly difference in sex, ASA score, stomach resection, and surgical approach between two groups, CONUT-low patients had a lower body mass index (p = 0.022), lower preoperative prognostic nutritional index (p < 0.001), more advanced disease stage (p = 0.016) and were significantly older (p = 0.001) compared with CONUT-low patients. Multivariate analysis showed the CONUT score as an independent predictor of postoperative complications (odds ratio, 2.393; 95% confidence interval [CI], 1.451–3.945; P = 0.001). The CONUT score was a strong predictors of overall survival (Log-rank HR, 2.825; 95% CI, 1.410–5.658; P = 0.003) and cancer-specific survival (HR, 2.677; 95% CI, 1.190–6.023; P = 0.017) independent of disease stage and adjuvant chemotherapy regimen.

Conclusion: The preoperative CONUT score is useful predictor of postoperative short- and long- term outcomes for advanced gastric cancer who underwent radical gastrectomy and adjuvant chemotherapy regardless of the regimen.
Laparoscopic Surgery for Advanced Gastric Cancer Combined with High Pressure Aerosol Chemotherapy for Prophylactic and Treatment of Peritoneal Carcinomatosis

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Introduction: Laparoscopic gastrectomy show better postoperative results in comparison to open surgery while having the same oncologic results. Pressurized intraperitoneal aerosol chemotherapy (PIPAC) is based on breaking up chemotherapy agents into particles of 10-15 microns and delivering them in a concentration of 10% of the systemic dose under pressure of 15mmHg for 30 minutes. Prevention and therapy of PC is the main indication for PIPAC which have promising initial results.

Objective: Our aim is to established the effectiveness of combined radical laparoscopic gastric surgery with PIPAC in advanced gastric cancer for the prevention and treatment of PC.

Materials and Methods: Patients with respectable advanced gastric cancer with high risk of PC are candidates for this study. In prospective 12 patients had laparoscopic gastrectomy (7 total and 5 subtotal) with D2 lymph node dissection. After finishing the reconstructive stage we applied PIPAC for 30 minutes. This procedure was repeated after 30 days for a total of 3 times. We analyzed retrospectively 14 laparoscopic gastrectomies for a past period of 1 year (poorly differentiated, diffuse type) actively searching for PC.

Results: Two complications (16.6%) were established in the laparoscopic surgery group with PIPAC (pancreatic fistula, anastomotic leak) and 3 complications (21.4%) in the retrospective group (pancreatic fistula, duodenal stump leak, anastomotic leak, all Clavien-Dindo-II). In 8(57%) of the retrospective patients PC was established at the end of the first year after surgery. Three of the patients in the aerosol group have reached the end of the first year with no data supporting PC, the others remain to be analyzed.

Conclusion: PIPAC has better pharmacological capabilities compared to HIPEC and systemic chemotherapy for the treatment of PC as in vitro and animal studies and clinical data support this statement. RCT are needed for complete and exact validation of this method.

Keywords: Laparoscopic gastrectomy, advanced gastric cancer, pipac, peritoneal carcinomatosis.

Comparisons Long Term Survival of Laporoscopic vs Open Gastrectomy for Gastric Cancer- An Updated Metaanalyis

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Aims of study: Aim of this metaanalysis was to long term over all and disease free survival of laproscopic and open gastrectomy for gastric cancer.

Materials and methods: EMBASE, MEDLINE, PubMed and the Cochrane Database were searched for studies comparing long term survival outcomes in patients undergoing laparoscopic gastrectomies with those patients undergoing open gastrectomies. Systemic review and Metaanalysis was done according to MOOSE and PRISMA guidelines. If there was no or low heterogeneity (I2 < 25 %), then the fixed-effects model was used. Otherwise, the random-effects model was used.

Results: 7 studies consisting of 5150 patients were included in study. Total 2300 patients were there in laproscopic gastrectomy group while 3640 patients were included in open gastrectomy group. There was no significant difference between 5 year over all between the two groups. (P=0.788) odds ratio. 1.091 (95 % C.I. 0.969, 1.229). There was no difference in 5 year disease free survival in both the groups. (P=0.814, Odds ratio 1.079 (95% C.I. 0.955-1.220).

Conclusion: There was no significant difference in 5 year disease free and over all survival between the two groups.

Short Term Results of The FLOT Neoadjuvant Therapy on The Surgical Management of Advanced Gastric and Gastro-Oesophageal Junction Adenocarcinoma

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Introduction: Recently the therapeutic treatment for advanced, stage T2-T4 gastric and gastro-oesophageal cancer and those adjacent to the regional lymphnodes involves neoadjuvant chemotherapy with subsequent surgical intervention.

Methods: Neoadjuvant oncological treatment for gastric cancer previously consisted of the intravenous administration of epirubicin, cisplatin and fluorouracil(ECF) or epirubicin, cisplatin and capicetabine(ECX) combination (Group I). In the course of the new protocol, patients were included with resectable gastric or gastro-oesophageal junction cancer who had a clinical stage CT2 or higher nodal positive CN+ disease (Group II). Between 20th of december 2017 and 1st of March 2019 we retrospectively analyzed the effect of these FLOT oncological protocols in terms of surgical outcomes in cases of T2-T4 tumors (n=14). We compared the results the randomly assigned fifteen patients (n=15) from ECF/ECX protocol (Group I) and these fourteen patients(Group II) from FLOT group. The effectiveness of oncological therapy is best characterized by the Tumor Regression Grade (TGR1 means total regression, whilst TGR5 indicates progression). We evaluated the types of possible side effects, type of surgery, number of removed regional lymph nodes and different pathological parameters.

Results: Comparing the two groups we found that in cases of FLOT neoadjuvant chemotherapy (Group II) complete regression was achieved in 2 patients (14%), while in cases of intravenous administration (Group I, n=15) complete regression no occurred. Furthermore, in cases of FLOT treated patients, the average number of removed lymph nodes slightly increased from 28,4 to 30,6 pcs/pts. In terms of the safety resection margins (distal, circumferential) no significant difference was found between the two groups. Neutropenia was the most frequently encountered side effect. Leukopenia, neutropenia and nausea occurred more frequently in cases of the old protocol (Group I).

Conclusion: As a result of the FLOT neoadjuvant oncological protocol for advanced gastric and gastro-oesophageal cancer, the number of cases with complete tumor regression has significantly increased. The present results strongly suggest a significant advantage in favor of the FLOT neoadjuvant treatment following surgery. The prevalence of side effects were also appreciably lower in cases of the FLOT protocol.
Objective: Minimally invasive surgery has rapid advances in the last decade. In recent years, publications from the Far East have made laparoscopic surgery more popular in gastric cancer. The process that started with distal gastric surgery progressed to include all gastric cancer surgeries with advances in technology and increased experience. We aimed to present our results on laparoscopic gastric tumor surgery.

Methods: We retrospectively evaluated the gastric tumors who underwent laparoscopic gastric resection between 2014-2019. The patients were evaluated according to their demographic characteristics, pathological characteristics, morbidity and mortality.

Results: Total 128 patients underwent laparoscopy for stomach tumor. Eighty-five were male and 43 were female, and the mean age was 59 ± 13 (19-81). Body mass index was 25.2±5.3 (16-45) kg/m². Of the patients, 115 were adenocarcinoma, 8 were gastrointestinal stromal tumors, 3 were neuroendocrine tumors and 2 were lymphomas. Ten patients (7%) required to conversion to open surgery. Of the remaining 118 patients, 58 had distal subtotal, 42 had total, 4 had central gastrectomies, 4 had vertical gastrectomies, and 3 patients had proximal gastrectomies. Seven patients were evaluated as unresectable due to peritoneal metastasis. In 111 resected patients, mean operation time was 326.1 ± 118 (60-720) min and blood loss was 157 ± 176 (10-900) ml. The patients were started oral feeding on mean 2.25 (median; 2) days and discharged at 8.4 (median; 6) days. D2 lymph node dissection was performed in 70 of 99 patients who underwent laparoscopic gastric resection for carcinoma and mean 35.6 ± 13 (19-81) lymph nodes were removed. Surgical intervention was required in 6 patients with postoperative complications. Three (3%) hospital mortality (30 days) were observed. One patient had pancreatic ischemia due to celiac artery thrombosis. The patient died after relaparotomies. The second hospital mortality was due to unexplained ileum and colon ischemia. After the relaparotomies, he died of multiorgan failure. The third patient died due to intestinal stenosis-related sepsis after total gastrectomy for remnant gastric cancer.

Conclusion: Laparoscopic gastric surgery has been increasingly used in the last decade in the Far East. In addition to being the preferred method in early stage cancers, the increasing experience in surgical field has been used in advanced disease. In Turkey, most of the diagnosed gastric cancers are in advanced stages but laparoscopic gastric cancer surgery is still improving in our country. As far as we know, this is the largest reported series of Turkey on laparoscopic gastric cancer surgery.

Keywords: Laparoscopy, gastric cancer, advanced tumor

O-0067
Hepatic Vascular Endothelial Growth Factor Role in Regulation of Rat Liver Sinusoidal Endothelial Cell Progenitor Cells

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Background: After hepatic injury, bone marrow-derived liver sinusoidal endothelial cell progenitor cells (BM SPCs) repopulate the sinusoid as liver sinusoidal endothelial cells (LSECs). After partial hepatectomy, BM SPCs provide hepatocyte growth factor, promote hepatocyte proliferation, and are necessary for normal liver regeneration. We examined how hepatic vascular endothelial growth factor (VEGF) regulates recruitment of BM SPCs and their effects on liver injury.

Methods: Rats were given injections of dimethylnitrosamine to induce liver injury, which was assessed by histology and transaminase assays. Recruitment of SPCs was analyzed by examining BM SPC proliferation, mobilization to the circulation, engraftment in liver, and development of fenestration.

Results: Dimethylnitrosamine caused extensive denudation of LSECs at 24 hours, followed by centrilobular hemorrhagic necrosis at 60 hours. Proliferation of BM SPCs, the number of SPCs in the bone marrow, and mobilization of BM SPCs to the circulation increased 2- to 4-fold by 24 hours after injection of dimethylnitrosamine; within 5 days, 40% of all LSECs came from engrafted BM SPCs. Allogeneic resident SPCs, infused 24 hours after injection of dimethylnitrosamine, repopulated the sinusoid as LSECs and reduced liver injury. Knockdown of hepatic VEGF with antisense oligonucleotides completely prevented dimethylnitrosamine-induced proliferation of BM SPCs and their mobilization to the circulation, reduced their engraftment by 46%, completely prevented formation of fenestration after engraftment as LSECs, and exacerbated dimethylnitrosamine injury.

Conclusions: BM SPC recruitment is a repair response to dimethylnitrosamine hepatic injury in rats. Hepatic VEGF regulates recruitment of BM SPCs to liver and reduces this form of hepatic injury.

Keywords: Hepatic injury, hepatocyte growth factor, liver sinusoidal endothelial cell progenitor cells.
A 29-year-old female presented to the emergency department with palpable abdominal mass and pain. Physical examination revealed a large mass in the abdomen extending from the umbilicus to the right lower quadrant. Complete blood count and biochemical blood tests were normal. Abdominal ultrasound revealed a spleen absence in the left upper quadrant and a mass that was compatible with a 22x18 cm spleen on the right side of the pelvis. Abdominal tomography revealed a torsion of the spleen, two rounds of torsion in the splenic vein, open splenic artery and free fluid in the lower abdominal quadrants. The patient was thought to have wandering spleen and related torsion. In the supine position, the surgeon and the camera assistant were placed on the right of the patient. After pneumoperitoneum and trocar placements, the spleen was found in the pelvis with the distal pancreas and two rounds of torsion was observed in the pedicle. The spleen was viable and larger than normal. After detorsion of two rounds counterclockwise, the size of the spleen returned to normal. The spleen moved to the left upper quadrant. A prolene fixed mesh was wrapped with omentum (Fig 4). The operation time was 180 minutes with 50 cc bleeding. The patient was discharged on the 5th postoperative day and at the sixth month, the patient was uneventful.
Postoperative Outcomes of Laparoscopic Peritoneectomy Plus Hyper Thermic Intraoperative Chemotherapy for Treatment of Peritoneal Surface Malignancies

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Introduction: Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) are considered the only curative treatment for many peritoneal surface malignancies. Minimally invasive surgery is playing an increasing role in the treatment of patients with gastrointestinal and gynaecological malignances as the data show reduced morbidity, faster recovery and similar oncological outcome when compared to open procedures.

Objective: The purpose of this study was to evaluate feasibility and safety of CRS combined with HIPEC by laparoscopy for patients with limited peritoneal disease.

Methods: Between March 2015 and April 2019, we performed 155 radical CRS plus HIPEC. Some patients (10) with and limited peritoneal disease (Peritoneal Cancer Index [PCI] less than 8) underwent CRS and HIPEC by a laparoscopic approach. We compare postoperative results with group of patients wit PCI less than 8 operated by open approach.

Results: All patients underwent complete cytoreductive surgery with HIPEC and peritoneotomy was needed. The median surgical procedure length was 230 min (150-300) vs 240 (210-360), with a median hospital stay of 8 days (6-14) vs 15 (11-32). One patient had a postoperative complication in laparoscopic group (surgical site infection) vs four in the laparotomy group.

Conclusion: Laparoscopic CRS combined with HIPEC is feasible and safe for curative treatment of strictly selected patients with peritoneal surface malignancy and might reduce postoperative complications and length of hospital stay.

Keywords: Laparoscopic peritoneectomy, peritoneal carcinomatosis, HIPEC.

Double Cystic Duct Encountered during Laparoscopic Cholecystectomy: A Rare Biliary Anomaly

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Introduction: Variations in the anatomy of gallbladder, bile ducts and the arteries that supply them and liver are important to the surgeon because failure to recognize them may lead to inadvertent ductal ligation, biliary leaks and strictures after laparoscopic cholecystectomy. Although cystic duct variation is quite common, duplication of cystic duct is an extreme rare variant; only 16 cases have been reported in literature. These variations increase risks of ductal injury, need for open conversion and postoperative complication.

Aim & Objective: The aim of presenting this case report is that the congenital abnormalities of the extra-hepatic biliary duct system are usually the most frequent variations of the human body. However, a double cystic duct is extremely rare and poses a challenge for surgeons during an operation. Diagnosis of this condition is usually confirmed during laparoscopic cholecystectomy. Awareness among the surgeons regarding this anatomic anomaly could help in avoiding converted open cholecystectomy and reduce the risk of complications.

Discussion: Presence of variations especially DCD during laparoscopic cholecystectomy is of great challenge for laparoscopic surgeons. Variation in the anatomy of cystic duct is not uncommon. DCD is an extremely rare variant. It is usually more common among female. In our case a 33 yr old female had presented with typical symptoms and signs of acute cholecystitis with cholelithiasis and it was only at the time of performing laparoscopic cholecystectomy that the Double Cystic Ducts were identified coming from a single gallbladder. Patient had an uneventful post-operative recovery period. To aid in the diagnosis the surgeon can use ultrasound, MRCP, ERCP. None of these tools are 100% sensitive and only in little more than 50% of the cases the diagnosis is made preoperatively. The use of intraoperative cholangiogram confirms the diagnosis and helps to identify both cystic ducts.

Conclusion: In conclusion, Double cystic duct is a very rare variant of the cystic duct variation. It is of great importance for a laparoscopic surgeon to be aware of all the possible anatomic variations of gallbladder, bile ducts, cystic ducts, the blood supply around the biliary system and one should use radiological imaging tools to aid in such diagnosis pre-operatively.

Fluorescent Image Guided Robotic Gastroctomy for Management of Cancer

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The advent of robotic surgery has shed light to overcome limitations experienced in conventional laparoscopic surgery. The unparalleled level of dexterity offered by endowrist function, the stable platform and enhanced ergonomics have contributed to wider application of minimal access surgery in more complex procedures. The use of indocyanine green (ICG) have been increasingly popular for intra-operative angiographic assessment of lymphatics and blood vessels.

An eight-three year old gentleman with background history of cholecystectomy, hypertension, diabetes and ischaemic heart disease with stenting done in 2015 was referred to us for newly diagnosed carcinoma of stomach. He initially presented with tarry stool and anaemia with haemoglobin 6.1g/dL. Oesophagogastroduodenoscopy (OGD) showed 6cm ulcerative lesion spanning from 3cm distal to esophagogastric junction (OGJ) at lesser curve side of stomach, there was a 3cm Borrmann type I lesion located at antrum. Biopsies of both lesions came back to be adenocarcinoma. Endoscopic ultrasound (EUS) showed T3 lesion. Staging contrast CT abdomen and pelvis showed no distant metastasis, however, there is incidental finding of 6.1cm infrarenal abdominal aortic aneurysm. Endoscopic vascular stenting (EVAR) was performed one month prior gastrectomy.

In this operative video, we demonstrate the use of indocyanine green (ICG) to ensure the completeness of lymph node harvest; the superb dexterity the robotic arms increase precision in dissection especially in supra pancreatic area and allows easy fashioning of intra-corporeal esophagastrectomy.
Biliary cysts are dilatations of different parts of a biliary tree. They account for approximately 1% of all benign biliary diseases. Biliary cysts occur more commonly in female and Asian populations. They usually occur in children, however, in approximately 20% of cases they are diagnosed in adults. In most patients, total cyst excision with Roux-Y hepaticojejunostomy is the treatment of choice. But this method is not anatomical and physiological, the biliary alkaline secretion is deviated from the duodenum, it is violating the digestive process and its regulation. Using the interposition of a pediculated jejunal segment between the biliary tract and duodenum was reported by many authors with good results. Recently we presented a new method for reconstruction of the biliary tract using isolated jejunal conduit interposition of variable diameter as a potential alternative for hepaticojejunostomy.

**Case report:** A 38-year-old woman came to the clinic with complaints of recurrent abdominal pain. She had no jaundice and the biochemical tests were normal. Ultrasound revealed cystic transformation of the common bile duct, which was confirmed when performing CT and MRCP. Magnetic resonance cholangiogram showed a type I biliary cyst 3×3×8 cm in size involving the proximal bile duct and the pancreatic portion of the distal common bile duct.

At surgery, the technique was as follows: a midline incision was preferred. The gallbladder and biliary cyst was isolated from the hepatoduodenal ligament and removed. Afterwards, we created the jejunal conduit of a variable diameter. It was built from a jejunal loop segment removed 30–40 cm under the Treitz angle. The bowel loop was proximally and distally sectioned. The proximal part of the jejunum segment remains original during 3-5 cm and then the diameter is reduced to 1 cm, proportional to the biliary tract. For this, anastomeroscopic part of the intestinal wall of the distal part of the graft was resected longitudinally, and the free edges of the intestinal wall were sewn together so that the diameter of the graft 1 cm was obtained. For a build the jejunal graft we used a single-layer continuous suture but the end part of the graft we stitched by interrupted suture. It was made to have the opportunity to resect the overlapping graft portion if it might be necessary. The graft was transported to the supramesocolic compartment by opening the transverse mesocolon. The silicone perforated catheter of 3 mm diameter was inserted through the jejunal graft. The end-to-end anastomosis between the hepatic duct and the wide end of jejunal graft was performed by continuous sutures of resorbable monofilament suture 5.0 (PDS, Ethicon Inc). The distal anastomosis was performed between the jejunal graft end the common bile duct.

**Results:** The patient developed small bile leakage from proximal anastomosis in the postoperative day 3. This complication was successfully treated by placed endoscopic stent. The patient was discharged 2 weeks after the operation. The patient have been observed 2 years after surgery with good result.

**Conclusion:** This new technique is reliable and might be recommended as an alternative method for restoring the continuity between the bile duct and intestinal tract in cause of major bile duct injury and biliary stricture.

**Keywords:** Biliary cysts, surgery

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The robotic assisted laparoscopic surgery may provide complete TME that enhancing survival when face with narrow pelvic cavity and bulky tumor, which is considered difficult for rectal cancer surgery. In addition, daVinci Xi is equipped with a near infrared fluorescence system (FireFly), it is applied to visualization of intestinal blood flow of anastomotic site and lymph flow of lateral lymph node.

**Objective:** The aim of this study is to evaluate the efficacy of Navigation Surgery using ICG in Robotic-Assisted Rectal Cancer Surgery.

**Patient and Methods:** From April 2018 to June 2019, we enrolled patients who underwent robotic rectal surgery with ICG navigation. (1) 3.0 ml of ICG solution (2.5mg/ml) was injected intravaneously just before the formation of the anastomosis, and the blood flow was evaluated by FireFly. (2) For lateral lymph node dissection (LLND), 0.1-0.3ml of ICG solution(2.5mg/ml) was injected near tumor submucosa. The feasibility of ICG navigation in LLND was evaluated.

**Results:** (1) All of 66 cases, the evaluation of the blood flow distribution of intestinal wall was clearly achieved. After ICG injection, median total time to visualize the blood flow was 16 (6-51) seconds. No revision of the intestinal transection point was observed. Anastomotic leakage occurred in 4 cases. (2) LLND combined with ICG fluorescence was performed in 13 patients, and fluorescence observation of lateral lymph nodes was possible in all cases.

**Conclusion:** The robotic rectal surgery with ICG navigation might contribute to the prevention of anastomotic leakage and might improve the quality of lymphadenectomy.

**Keywords:** Biliary cysts, surgery
An insulinoma is a rare pancreatic neuroendocrine tumor. It produces an excessive amount of insulin which results in hypoglycemic symptoms. The enucleation is the most common surgical treatment for this tumor. However, if the tumor is large or close to main pancreatic duct, anatomical resection is preferred. Minimally invasive approach such as laparoscopic distal pancreatectomy with spleen preservation has been shown many studies that it is safe for any insulinoma was localized at body or tail of pancreas. Splenic vessels preservation has been recommended to reduce risk of a post-operative splenic infarction and infectious complications. However, its technique is challenging.

Objective: This video demonstrates the operative technique of laparoscopic splenic vessels preservation distal pancreatectomy and successful tumor localization for insulinoma at tail of pancreas.

Materials and Methods: We presented a 39-year-old woman who presented with recurrent hypoglycemia for 2 years. Her blood glucose was 38 mg/dl when she had symptoms and they improved after administration of gluconate. Moreover, her serum insulin and C-peptide were 45.27 uU/ml and 4.97 mg/ml, respectively. Abdominal CT scan revealed a 1.1×0.9 cm, arterial enhancing nodule, at the pancreatic tail. Laparoscopic splenic vessels preservation distal pancreatectomy was performed successfully using intraoperative ultrasound and indocyanine green to localize the tumor and splenic vessels.

Results: The operative time was 150 minutes and the blood loss was 25 ml. No pancreatic leak was detected. The patient was discharged home uneventfully with normal blood glucose on postoperative day 5.

Discussion and Conclusion: Laparoscopic splenic vessels preservation distal pancreatectomy is safe and feasible. The standardization of surgical steps as well as adequate tumor localization are the key of success.

Keywords: Insulinoma, laparoscopic distal pancreatectomy, spleen preservation, intraoperative ultrasound.

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A 30-year-old lady presented with abdominal pain and subsequent workup revealed a 10 cm mixed solid-cystic mass arising from tail of pancreas. Solid pseudopapillary neoplasm was suspected initially based on Computer Tomography (CT) and Magnetic Resonance Imaging (MRI). The patient underwent robotic spleen-preserving distal pancreatectomy with intra-operative indocyanine green fluorescence. Final pathology showed epithelial cyst in intra-pancreatic accessory spleen. Post-operative course was uneventful.

Discussion and Conclusion: Epithelial cyst in an intra-pancreatic accessory spleen is a rare entity with limited reported cases. Pre-operative diagnosis can be difficult since there is no well-defined criteria. It should be considered as one of the possibilities for cystic lesions in pancreatic tail. This case illustrates the merits of robotic system to aid dissection with its magnified view. With the aid of indocyanine fluorescence, visible vasculature can be preserved which enable preservation of the spleen and may result in less peri-operative infection, blood loss and length of hospital stay. Thus we conclude that robotic distal pancreatectomy is safe and effective even for large pancreatic neoplasms.

Keywords: Robotics, pancreatocystectomy, pancreatic neoplasms

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Keywords: Insulinoma, laparoscopic distal pancreatectomy, spleen preservation, intraoperative ultrasound.
Accidental mechanical failures of auto-suture devices happened sometimes and these failures often causes disastrous surgical results such as major artery bleeding or tearing some major tissue. However, there are not abundant materials in the literature dealing with these device failures and, technically, how to rescue these device errors to help surgeon conquer such problems.

Objective: Here we present a video of when surgeon encountering mechanical failure to result in the fired clip cannot be “off-the-hook” during ligating middle colic artery. We further divide the proximal end of vessel and secure the artery with two Hemolok and divided the vessel successfully with the broken clip left with the specimen to come out of patient’s body cavity altogether.

Procedure described: During dissecting middle colic artery in laparoscopic right hemicolectomy, we used Lapro-clip (12mm, Covidien) for distal and proximal vascular control. Unfortunately, after fire the first proximal clip, we cannot let go the clip and withdraw the handle. Therefore, we tried several maneuvers to get the clip off the hook. 1) Use a grasper to close the tip of clip and try to remove it from the head of handle. 2) Push the button of clip and head of handle to trigger the separation between the clip and the handle. 3) Try to grasp the handle to remove both of them altogether and this time it worked. Then, after consulting an experienced senior surgeon, we decided to dissect further proximal end of middle colic artery and applied two more Hemolok to secure the vessel. Then we used endo-scissors to divide the vessel and completed the procedure without any complications. Before the end of resecting terminal ileum, we also applied another Lapro-clip (using the same handle) to the mesentery and this time it seemed to work very well without any difficulty. The mechanical failure seemed to appear randomly.

Discussion & Conclusion: As a surgeon, we all have the possibility of facing different kinds of medical device errors without any preparation. But there are enough chapters in the literature to show us how to rescue the emergent condition without jeopardizing patient’s life and our reputation. Therefore, we tried several maneuvers to get the clip off the hook. 1) Use a grasper to close the tip of clip and try to remove it from the head of handle. 2) Push the button of clip and head of handle to trigger the separation between the clip and the handle. 3) Try to grasp the handle to remove both of them altogether and this time it worked. Then, after consulting an experienced senior surgeon, we decided to dissect further proximal end of middle colic artery and applied two more Hemolok to secure the vessel. Then we used endo-scissors to divide the vessel and completed the procedure without any complications. Before the end of resecting terminal ileum, we also applied another Lapro-clip (using the same handle) to the mesentery and this time it seemed to work very well without any difficulty. The mechanical failure seemed to appear randomly.

Keywords: Mechanical failure, auto-suture, laparoscopic surgery

V-0016 Double Portal Vein Reconstruction Techniques for Different Portal Vein Anatomical Variants, in Patients Who Underwent Right Lobe Living Donor Liver Transplantation

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Introduction: In Egypt, living donor liver transplantation (LDLT) is the only chance to rescue patients with end-stage liver disease, because we are not allowed to use cadaveric donors. A higher incidence of vascular variations especially Portal vein (PV) variations has been reported with the RL grafts as compared with the left lobes.

Objective: We analyze the surgical techniques and the outcome of double PV reconstruction for different PV anatomical variants in patients with underwent right lobe liver (RL) LDLT in our gastrointestinal surgical center, Mansoura University.

Materials and Methods: Between 2004 and 2018, 630 LDLTs were performed with RL grafts in mansoura gec center. double PV reconstruction was done in 35 cases and one stoma in 22 cases. After approval of institutional review board (IRB), we did this retrospective study that analyzed the technique and outcome of double PV reconstruction in LDLT.

Results: The double PV reconstruction techniques performed included, two stage reconstruction (Double Anastomosis to the bifurcation of the recipient portal vein) (n = 8), One stoma with back wall venoplasty (n = 17), One stoma without venoplasty (n = 22), and Y shaped interposition autologous PV graft (n = 10). There was no donor mortality. In a median follow-up of 51 months, 8 recipients had PV complications, 4 of these complication had been occurred with using Y shaped autologous interposition PV graft.

Conclusion: Double portal vein in RL lobe graft is not a contraindication for LDLT with comparable results. double PV anastomosis with RT and LT portal vein branches of recipient is the best technique.

V-0015 How to Rescue A Mechanical Failure of Lapro-Clip in Dividing Middle Colic Artery During Laparoscopic Right Hemicolectomy

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Introduction: Accidental mechanical failures of auto-suture devices happened sometimes and these failures often cause disastrous surgical results such as major artery bleeding or tearing some major tissue. However, there are not abundant materials in the literature dealing with these device failures and, technically, how to rescue these device errors to help surgeon conquer such problems.

Case description: Here we present a video of when surgeon encountering mechanical failure to result in the fired clip cannot be “off-the-hook” during ligating middle colic artery. We further divide the proximal end of vessel and secure the artery with two Hemolok and divided the vessel successfully with the broken clip left with the specimen to come out of patient’s body cavity altogether.

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Discussion & Conclusion: As a surgeon, we all have the possibility of facing different kinds of medical device errors without any preparation. But there are enough chapters in the literature to show us how to rescue the emergent condition without jeopardizing patient’s life and our reputation. Therefore, we tried several maneuvers to get the clip off the hook. 1) Use a grasper to close the tip of clip and try to remove it from the head of handle. 2) Push the button of clip and head of handle to trigger the separation between the clip and the handle. 3) Try to grasp the handle to remove both of them altogether and this time it worked. Then, after consulting an experienced senior surgeon, we decided to dissect further proximal end of middle colic artery and applied two more Hemolok to secure the vessel. Then we used endo-scissors to divide the vessel and completed the procedure without any complications. Before the end of resecting terminal ileum, we also applied another Lapro-clip (using the same handle) to the mesentery and this time it seemed to work very well without any difficulty. The mechanical failure seemed to appear randomly.

Keywords: Mechanical failure, auto-suture, laparoscopic surgery
P-0001

Anatomical Variations of The Biliary Tract and Risk of Surgical Injury during The Cholecystectomy

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Introduction: Surgical lesions of the biliary tract at the beginning of the laparoscopic era were 1.5%, nowadays with accumulated surgical experience are between 0.08 - 0.3%. Currently, Strasberg’s concept of critical view of safety is today the paradigm for achieving a safe cholecystectomy. However, the intraoperative conditions and the presence of anatomical variations of the biliary tract are the main factors to achieve this objective. Between 53 - 63% of the cases the biliary anatomy is modally. There are multiple variations of the main bile duct and the cystic duct described and classified in the literature, which increase the risk of biliary surgical injury and which are linked to two critical points, anatomical misidentification and non-performance of intraoperative cholangiography (IOC) or its misinterpretation.

Objective: Analysis of surgical injuries produced in the context of anatomical variations of the bile duct.

Materials and Methods: Between January 2005 and December 2018, 7543 cholecystectomies were performed in the Hospital Maciel of Montevideo, Uruguay. Eighteen cases of variations of the biliary tract were detected (0.23%), among which 3 surgical biliary lesions were detected. All linked to the same anatomical variation: the end on upper edge of the cystic duct of the right lateral biliary duct (seg. VI - VII). Two of them cases were treated by ligation and the third with a double percutaneous drainage + bilhar transhepatic us-guided and permanent. In all of the cases IOC was performed but in once was misinterpreted. There was no mortality or long-term complications up to 22 months of follow up.

Discussion and Conclusion: The intraoperative diagnosis of BV variations is difficult and theligature of the right lateral duct is usually associated by cholangitis and or abcess; therefore, the hepatocicoyenostomy diversion is recommended, but requires experience in HPB surgery. This brief series shows that ligation duct is feasible with the consequent functional exclusion of the affected sectors with minimally invasive management, with a good long term outcomes.

Keywords: Biliary tract, bille duct anatomy, bile duct injury

P-0002

Simple Hepatic Cyst. Surgical Treatment

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Background and Objective: Most patients with simple hepatic cysts (SLC) are asymptomatic and require no treatment. When the cysts become large and cause symptoms, such as pain, treatment is warranted. We’ll present results of the laparoscopic surgery for the solitary simple hepatic cyst.

Methods: Six patients (four female and two male, mean age of 53.5 +/- 7.6 years old), complaining of continuous pain in right subcostal region, were operated on. Pre-operative diagnoses for all the patients was made by echography and computerized tomography or magnetic resonance imaging. The solitary cysts were described as anechoic, ovoid or circular areas, well limited with minute edges and pronounced posterior echo. Computed tomography proved less sensitive than liver ultrasound and nuclear magnetic resonance than showing round or oval fluid images without internal septa. The average size of the cysts in patients from our research was of 22.2 +/- 3.1 cm, all cases presenting cystic lesion in the right hepatic lobe. Laparoscopic surgery involved the wide cyst fenestration (“unroofing”), excising portion of the wall that extends to the surface of the liver, referred for histopathology, and filling remaining cavity with epiplon pedicle flap.

Results: The final histopathology demonstrated a SLC in all the patients. No complication was observed. The medium period for postoperative hospitalization was 3 days (2-4). All six cases became asymptomatic and at 1-5 years showed normal aspect of the liver.

Conclusion: Laparoscopic fenestration of simple hepatic cysts is an efficient method for therapeutic approach of simple hepatic cyst.

P-0003

A Short Course/Single Dose Preoperative Antibiotics in Gastrointestinal and Hpb Surgeries - A Prospective Analysis

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Introduction: Use of antibiotics in perioperative period is common practice to prevent septic complications and surgical site infections. More and more evidences are emerging that short course perioperative antibiotics are equally effective in preventing surgical site infections. Being part of our study to prospectively study our protocol of short course perioperative prophylaxis in preventing of surgical site infections.

Materials and Methods: We prospectively evaluated our protocol of single dose pre operative antibiotics for All gastrointestinal and Hpb Surgeries. We give 48 hours post operative prophylaxis in grade 4 surgeries or until septic shock resolve. Surgical site infections were defined as any culture positive drainage from surgical wound. Surgical categories were decided according to CDC protocol. We also evaluated factors associated with surgical site infections. Statistical evaluation was done using SPSS version 23 (IBM). P value less than 0.05 was considered as significant.

Results: We evaluated 229 patients operated between april 2016 to February 2019. Mean age was 54 years. 134 patients were males and 95 were females. 3 surgeries were grade 1, 122 were grade 2, 79 were grade 3 and 25 were grade 4. Over all SSI rate was 8.7%. Which is comparable to published data. Over all mortality rate was 6.7% and other grade 3 and grade 4 morbidity rate was 5.08%. On univariate analysis ASA grade (p value <0.001), open surgeries (< 0.001) and Grade of surgeries (p < 0.001) were significantly associated with SSI. On multivariate analysis only HBOC grade of surgery were independently predicting surgical site infections. (p= 0.025) 95 percent confidence interval 0.01 to 1.45, odds ratio 2.26. SSI was significantly associated with other grade 3 and grade 4 complications (p<0.001) but not associated with mortality rates.

Conclusion: Short course or single dose prophylaxis is feasible in preventing Surgical site infection and can reduce hospital cost and antibiotics resistance. Grade of surgery independently predict Surgical Site Infections.

P-0004

Extrrafascial Transfissural Approach with Finger Fracture Technique Approach for Liver Resection. Old is Still Gold?

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Background: We evaluated our protocol of extrrafascial transfissural approach for liver resection with intrrafascial approach that we use in case of donor hepectomy.

Materials and Methods: We use extrrafascial transfissural approach with fingeure fracture technique for liver resection in case of liver resection and intrrafascial approach with clamp crush technique in case of donor hepectomy. Major hepectomy defined as resection of 2 more adjacent segments. We compared these two technique with regard to blood loss, operative time, morbidity and mortality. We also evaluated over all factors responsible for 90 days mortality. Statistical analysis was done using SPSS version 23 (IBM). Categorical factors were evaluated using chi square test and numerical factors were analyzed using Mann Whitney U test. Multivariate analysis was done using logistic regression method.

Results: We evaluated 23 liver resections done in last one year. 16 liver resections were done using extrrafascial transfissural approach for various liver tumors and 7 living donor hepectomies were done using intrrafascial technique with clamp crush methods. Mean age of patients was 50.75 years. 13 patients were males and 10 were females. Mean blood loss was 273.9 ml and mean operative duration was 184.7 minutes. 19 were major resections, 4 minor liver resections. All minor liver resection were in transffissural approach however there was no statistical significant difference between them. Being live liver doners patients in intrrafacial group were younger than extrrafascial group (p=0.01). There was no statistical significant difference in blood loss, blood product requirement, morbidity in hospital and 90 days mortality in both the groups. However extrrafascial transfissural with finger fracture technique was associated with significant less operative time (168.13 minutes vs 222.86 minutes) (p=0.006), 90 days mortality (p=0.034), higher grade 3 morbidity (p=0.018) and blood loss (p=0.008). However in multivariate analysis no factor independently predicted mortality.

Conclusion: Extrrafascial transfissural approach significantly reduces operative time, without affecting morbidity and mortality in liver resection.
P-0005
Morbidity and Mortality Analysis of Gastro Intestinal and Hepatobiliary Surgery in A Tertiary Centers in Western India
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Objective: Aim of our study to evaluate morbidty and 90 days mortality of gastrointestinal and hepatobiliary surgeries in a tertiary center in western India.
Materials and Methods: All the gastrointestinal surgeries performed between april 2016 to march 2019 in our institution has been analyzed for morbidity and mortality. We also evaluated factors responsible for morbidity and mortality.Statistical analysis was done using SPSS version 23.(IBM).Categorical data were analysed using chi square test and numerical data analyzed using Mann whitney U test. Multivariant analysis was done using logistic regression method. P value less then 0.05 was considered significant.
Results: We performed 231 gastrointestinal and hepatobiliary surgery between april 2016 to march 2019. Mean age of patients were 51.38 years, 139 patients were males and 92 were females. 120 were open surgeries and 105 were laproscopic surgeries. 11 were upper gastro intestinal surgeries (stomach and esophagus), 26 were small intestinal surgeries, 130 were HPB surgeries, 39 colorectal and 25 hernia surgeries. Mean ASA score was 2.39, mean operative time was 107.73 minutes, mean CDC grade of surgery was 2.56. 38 were emergency surgeries and 193 were elective surgeries, 20 patients developed surgical site infection and 13 patients developed complications other than SSI. Over mortality rate was 14.2% and over all mortality rate was around 9.09%. Mortality rates in elective surgery was 5.2 percent and emergency surgery was 28.9 percent. On univariate analysis conventional care patients (20.2 % in ERAS vs. 25.001 %) Complications other than SSI (p=0.022), Open surgeries (p<0.001), CDC grade of surgery (<0.001), Operative time (p<0.001), high ASA scores (p<0.001) and more blood products used (p<0.001). On multivariate analysis use of more blood products were only factors indepedently predicted mortality. (P= 0.028, Odds ratio 1.67, 95 percent confidence interval 1.056- 2.65). On univariate analysis morbidity rates were associated with open surgeries, luminal,grade of surgery, ASA grade,operative time and blood products used. On multivariate analysis blood products used indepedently predicted morbidity. (p=0.004, odds ratio 1.91, 95 percent confidence interval 1.23-2.97).
Conclusion: Morbidity and mortality were indepedently associated with increased blood product used and blood loss.

P-0006
Enhanced Recovery after Surgery (ERAS) Protocols is Externely Beneficial in Liver Surgeries – A Meta Analysis
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Background: Enhanced recovery after surgery (ERAS) programmes aim to improve postoperative outcomes. This metaanalysis aims to evaluate the impact of ERAS programmes on outcomes following liver surgery.
Methods: EMBASE, MEDLINE, PubMed and the Cochrane Database were searched for studies comparing outcomes in patients undergoing liver surgery utilizing ERAS principles with those in patients receiving conventional care. The primary outcome was occurrence of 30 days morbidity and mortality. Secondary outcomes included length of stay, functional recovery, readmission rates, time to pass flatus,blood loss and hospital costs.
Results: Ten articles were included in the metaanalysis. Overall 30 days morality rates were 0.65% in ERAS group while 0.97% in standard group (p=0.979) 30 days morbidity rates were significanly low in ERAS group compared to conventional care patients (20.2 % in ERAS vs. 25 % in non ERAS) (p <0.001 odds ratio 0.20 95% confidence interval 0.120-0.287). Hospital stay, readmission rates, time to pass flatus, time to complete recovery and hospital costs were also significantly reduced due to ERAS protocols. On univariate analysis morbidity and mortality, operative time and blood products used were the only factors indepedently predicted morbidity and mortality. (P<0.001 odds ratio 0.20 95% confidence interval 0.961-15.607) indepedently predicted acute kidney injury. Acute kidney injury was also significantly associated with other morbidity and mortality. ( p=0.011 and <0.0001 respectively)
Conclusion: Postoperative acute kidney injury was associated with significant morbidity and mortality in gastrointestinal and hepatobiliary surgery. On univariate analysis acute kidney injury was associated with open surgery (p =0.012), CDC grade of surgery (p=0.009), increased use to blood products (p=0.005),higher ASA grade (p<0.0001), increased operative time (p=0.001). On multivariate logistic regression analysis increased operative time (p=0.027, odds ratio 1.006, 95 % confidence interval 1.001-1.012) and higher ASA grade (p =0.05, odds ratio 3.873, 95% confidence interval 1.061-13.567) indepedently predicted acute kidney injury.

P-0007
Post Operative Acute Kidney Injury of Gastro Intestinal and Hepatobiliary Surgery in A Tertiary Center in Western India
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Objective: Aim of our study was to evaluate incidence and causative factors for acute kidney injury in gastrointestinal and hepatobiliary surgeries.
Materials and Methods: All the gastrointestinal surgeries performed between april 2016 to june 2019 in our institution have been analyzed for acute kidney injury. Acute kidney injury defined according to acute kidney injury network classification. Categorical variables were evaluated by chi square test and continuous variables by Mann Whitney U test. Statistical analysis was done using SPSS version 23. P=0.05 was considered significant.
Results: We performed 272 gastrointestinal and hepatobiliary surgery between april 2016 to june 2019. 9 patients (3.3%) was defined as having acute kidney injury according to acute kidney injury network classifications.

P-0008
Pre Operative Fitness Score Accurately Predicts Uneventful Post Operative Course in Gastrointestinal and Hepatobiliary Surgery
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Background: Gastrointestinal and Hepato-pancreatico-biliary surgery is always associated with one of the highest morbidity and mortality rates among various subspecialities. Aim of our study to analyse if we can acuratly predict uneventful post operative course pre operatively in these patients so that we can always associated with one of the highest morbidity and mortality rates among various subspecialities. We retrospectively evaluated patients who have undergone gastrointestinal and hepatobiliary surgery at our institute in last 3 year and analyzed 90 days mortality and morbidity among these patients. We described any 90 day morbidity (grade3-4 clavien dindo classification) and mortality as an “event”. We performed univariate and multivariate analyses for factors predicting an “event”. Then based on pre operative factors that predicted an “event” we formulated a score and then evaluated sensitivity, specificity, positive predictive and negative predictive value of that score and also evaluated ROC curve and again performed univariate and multivariate analysis of an “event” to check weather the score developed by us indepedently predicted the outcome or not. Statistical analysis was done using SPSS version 23. Chi square test was done for categorical values, Mann whitney U test for continuous variables. Multivariate analysis was done using binary logistic regression method.
Results: Total 263 patient operated for gastrointestinal and HPB surgeries between april 2016 to may 2019 were evaluated retrospectively for any 90 days morbidity and mortality “event”. Total 45 (17%) event occurred. On univariate analysis CDC grade, ASA score,Operative time,Blood products used, emmergency surgeries and open surgeries predicted an event. We developed score based on pre operative factors like ASA score grater than 2, CDC grade of surgery grater than 2, open surgery and emergency surgeries included in the score. Each variable was given 1 point. We proposed score grater than 2 was associated with 90 day event, This score had sensitivity of 77.78%, specificity of 81.65%. low positive predictive value of 46.67% but very high negative predictive value of 94.68%, AUROC showed AUROC of 0.797 (p < 0.001, 95 % confidence interval 0.721-0.874). Pre operative fitness score and operative time indepedently predicted an “event” on multivarious analysis. (p<0.001 and <0.001 respectively, Odds ratio 0.106 and 1.007 respectively, 95 % confidence interval of odds ratio 0.044-0.253 and 1.001-1.012 respectively)
Conclusion: Pre operative fitness score accurately predicts uneventful post operative course in gastrointestinal and hepatobiliary surgery.
P-009
Laparoscopic vs Open Pancreaticoduodenectomy Metaanalysis of PLOT, PADULAP and LEOPARD-2 Trials
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Objective: Aim of this meta-analysis was to review and do meta-analysis of PLOT, PADULAP and LEOPARD-2, widely discussed RCTs comparing laparoscopic vs open pancreaticoduodenectomy.

Materials and Methods: EMBASE, MEDLINE, PubMed and the Cochrane Database were searched for randomised control trials comparing outcomes in patients undergoing pancreaticoduodenectomy with those undergoing open pancreaticoduodenectomy. The primary outcome was occurrence of 30 day morbidity and mortality. Secondary outcomes included length of stay, blood loss, R1 margin status, size of tumor, type of tumor, lymph node retrieval, post pancreatic haemorrhage, pancreatic leak, biliary leak, gastric duodenal leak, delayed gastric emptying, and operating time. Systematic review and meta-analysis were done according to MOOSE and PRISMA guidelines.

Results: Three recently published randomized control trials PLOT trials, PADULAP trial and LEOPARD-2 trial were selected for meta-analysis.

P-010
Efficacy and Safety of Ursodeoxycholic Acid in the Prevention of Gallstone Formation after Gastroectomy: A Multicenter, Randomized, Double-blind, Placebo-Controlled Study (PEGASUS-D Study)
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Objective: This study was to evaluate the efficacy and safety of ursodeoxycholic acid (UDCA) in the prevention of gallstone formation after gastroectomy in patients with gastric cancer.

Materials and Methods: This study was a prospective, randomized, double-blind, placebo-controlled trial. Patients with cancer undergoing gastroectomy were randomly assigned to UDCA 300 mg, UDCA 600 mg, or placebo groups at a ratio of 1:1:1. UDCA and placebo were administered daily for 52 weeks. Gallstone formation was assessed with abdominal ultrasound every 3 months for 12 months by independent evaluators. The primary endpoint was the proportion of patients developing gallstones within 12 months after gastroectomy.

Results: A total of 521 patients were recruited from 12 institutions. The full analysis set included 465 patients (mean age, 56.1 ± 10.8 years; male, 66.9%) consisting of 151, 164 and 150 in the UDCA 300 mg, UDCA 600 mg, and placebo groups, respectively. The proportion of patients developing gallstones within 12 months after gastroectomy was 8/151 (5.3%), 7/164 (4.3%) and 25/150 (16.7%) in the UDCA 300 mg, UDCA 600 mg, and placebo groups, respectively. As compared to the placebo group, odds ratios for gallstone formation were 0.27 (95% CI, 0.12-0.62; P=0.002) in UDCA 300 mg and 0.20 (95% CI, 0.08-0.50; P=0.001) in the UDCA 600 mg group. No statistically significant differences in adverse drug reactions among the three groups were detected.

Discussion and Conclusion: UDCA administration prevents gallstone formation after gastroectomy in patients with gastric cancer (PEGASUS-D ClinicalTrials.gov number, NCT02490111).

Keywords: Cholelithiasis, gastroectomy, stomach neoplasms, ursodeoxycholic acid

P-011
Lymph Node Ratio as Valuable Predictor in Pancreatic Cancer Treated 1st R0 Resection and Adjuvant Treatment
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Objective: This study aimed to investigate the prognostic value of AJCC 8th edition N stage, lymph-node ratio (LNR), and log odds of positive lymph nodes (LODDS) in resected pancreatic cancer.

Methods: Between January 2005 and December 2017, there were 351 patients with pancreatic cancer treated with R0 resection and adjuvant therapy at Seoul National University Hospital. Relationships between the three LN parameters and overall survival (OS) and recurrence-free survival (RFS) were evaluated. Each multivariate-adjusted LN parameter was internally validated by bootstrap-corrected Harrell’s C-index. LODDS, RFS and OS were analyzed with the log-rank test and multivariate-adjusted models (all p<0.05). When internally validated, LNR showed the highest discrimination ability in predicting OS and RFS (each C-index=0.65). LNR also showed the highest C-index in subgroup analysis, classified by adjuvant therapy modality. LNR and the AJCC 8th edition N classification system were significantly associated with loco-regional recurrence (p=0.026 and p=0.027, respectively).

Conclusion: LNR, which showed the best prognostic performance and significant relationship with loco-regional recurrence, can help further stratify the patients and establish an active treatment plan.

Keywords: Pancreatic cancer, adjuvant therapy, lymph node metastasis, prognosis
P-0012
Surgical Loupe At 4.0x Magnification in Pancreaticoduodenectomy: Does It Affect The Surgical Outcomes? A Propensity Score Matched Study

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Background: There is paucity of data about the impact of using magnification on rate of pancreatic leak after pancreaticoduodenectomy (PD).

Objective: The aim of this study is to show the impact of magnifying surgical loupes 4.0x-16 on technical performance and surgical outcomes of PD.

Materials and Methods: This is a propensity score matched study. Thirty patients underwent PD using surgical loups at 4.0x magnification (Group A) and sixty patients underwent PD using the conventional method (Group B). The primary outcome was postoperative pancreatic fistula (POPF). Secondary outcomes included operative time, intraoperative blood loss, postoperative complications, mortality, and hospital stay.

Results: The total operative time was significantly longer in loupe group (P=0.0001). The operative time for pancreatic reconstruction was significantly longer in loupe group (P=0.0001). There were no significant differences between both groups regarding hospital stay, time to oral intake, total amount of drainage and time of NG removal.

Univariate and multivariate analysis demonstrated three independent factors of development of POPF included pancreatic duct < 3 mm, BMI > 25, and soft pancreas.

Conclusion: Surgical loupes 4.0x added no advantage in surgical outcomes of PD as regards improvement of postoperative complications rate or mortality rate.

Keywords: Pancreaticoduodenectomy, loupe, pancreatic fistula

P-0013
Early Versus Late Cholecystectomy after Clearance of Common Bile Duct Stones by Endoscopic Retrograde Cholangiopancreatography: A Prospective Randomized Study

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Introduction: The time interval between endoscopic retrograde cholangiopancreatography (ERCP) and laparoscopic cholecystectomy (LC) is a matter of debate.

Objective: This study was planned to compare early LC versus late LC.

Materials and Methods: This is a prospective randomized study on patients who are presented with concomitant gallbladder and common bile duct stone in the period between May 2013 and April 2015. The study population was divided into two groups; group (A) managed by early LC within three days after ERCP, and group (B) managed by late LC one month after ERCP. The primary outcome is the conversion to open surgery. Secondary outcomes will include operative difficulties, signs of inflammation, degree of adhesions, blood loss, postoperative morbidity, recurrent biliary symptoms including recurrent CBDS, acute cholecystitis, and biliary pancreatitis and hospital stay.

Results: No significant difference between both groups as regards the conversion rate, the degree of adhesion, cystic duct diameter, and intraoperative common bile duct injury or bleeding. Recurrent biliary symptoms were significantly more in delayed LC group in 7 (12.71%) patient versus 1 patient in early LC (P=0.03).

Discussion and Conclusion: LC after ERCP and ES is more difficult, it must be operated by an experienced laparoscopic surgeon to reduce the conversion rate and decrease the morbidity rate. No significant difference between both groups as regards the conversion rate. Recurrent biliary symptoms were significantly more in delayed LC while waiting LC. Postoperative morbidity was significantly more in delayed LC.

Keywords: Laparoscopic cholecystectomy, ERCP, CBD stone

P-0014
Predictors of Long Term Survival after Hepatic Resection for Hilar Cholangiocarcinoma: A Retrospective Study of 5-Year Survivors

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Background: Although the results of surgical treatment for hilar cholangiocarcinoma (HC) were dismal, recent studies have reported improved outcomes using aggressive surgical approaches.

Objective: to determine predictors of long term survival after resection of (HC) by comparing patients surviving > 5 years with those who survived < 5 years.

Materials and Methods: This is a retrospective study of patients with pathologically proven HC who underwent surgical resection between January 2002 and April 2013. Patients were divided into two groups according to their survival: Patients surviving less than 5 years and those who survived > 5 years.

Results: There were 34 (14%) long term survivors (5 year survivors) among the 243 patients. Five year survivors were younger at diagnosis than those surviving less than 5 years (mean age, 50.47 ± 4.45 vs 55.93 ± 5.25, P=0.001). The level of CA 19-9 was significantly higher in patients surviving < 5 years (395.71 ± 31.43 vs 254.06 ± 42.19, P = 0.0001). Univariate analysis demonstrated nine variables to be significantly associated with survival > 5 year, including young age (P = 0.001), serum CA19-9 (P = 0.0001), non-cirrhotic liver (P = 0.02), major hepatic resection (P = 0.001), caudate lobe resection (P = 0.006), well differentiated tumour (P = 0.03), lymph node status (P = 0.008), R0 resection margin (P = 0.0001) and early postoperative liver cell failure (P = 0.02).

Discussion and Conclusion: Liver status, resection of caudate lobe, lymph node status, R0 resection and CA19-9 were demonstrated to be independent risk factors for long term survival.

Keywords: Hepatic resection, hilar cholangiocarcinoma, recurrence

P-0015
Factors Associated with Positive Brush Cytology During Endoscopic Retrograde Cholangiopancreatography in Patients with Biliary Stricture

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Objective: Bile duct brush cytology during Endoscopic Retrograde Cholangiopancreatography (ERCP) is the standard method of sampling a biliary stricture. We aimed to determine the factors affecting positive brush cytology.

Methods: Data were collected by retrospectively reviewing the medical records of 65 consecutive patients with indeterminate biliary stricture on imaging who underwent brush cytology at our institution from March 2017 to May 2019. We analyzed the relationship of age, sex, final diagnosis, stricture length and location, maximum diameter of the upstream dilated bile duct, serum total bilirubin, carcinoembryonic antigen, and carbohydrate antigen 19-9 with the yield of positive brush cytology.

Results: The final diagnosis was benign stricture in 2 cases and malignancy in 63 cases (42 bile duct cancer, 18 pancreatic cancer, and 3 gallbladder cancer). The cytopathological diagnoses of malignancy were negative in 21 patients with malignancy (21.5%), 14 atypical cells (21.5%), 11 suspicious of malignancy (16.9%), 26 malignancy (40.0%). There were no factors associated with the four cytopathological results. When patients with atypical cells were included in the positive cytology according to the final diagnosis, type of malignancy and grade of cellular differentiation were significant indicators of positive diagnosis by brush cytology (P = 0.004 and 0.038, respectively). The maximum diameter of the upstream bile duct and the stenosis tented be toward longer in the positive cytology when the location of stricture was extrahepatic bile duct (P = 0.057).

Conclusion: Our results showed good diagnostic yields of brush cytology during ERCP for biliary stricture when atypical cells included as malignant results. Predictors of positive yield include type of malignancy and grade of cellular differentiation. Upstream bile duct dilatation tended to have a higher probability of the positive cytology.
Gastrointestinal perforation (GIP) is one of the most serious complications occurring after liver transplantation (LT), especially in pediatric patients. This study aimed to determine the risk factors affecting mortality in pediatric patients with GIP after LT.

**Materials and Methods:** GIP developed in 37 (10%) of 370 pediatric patients who underwent LT at our institute. Patients were divided into two groups: alive (n = 22) or dead (n = 15), and both groups were compared in terms of demographic and clinical parameters using univariate and multivariate analysis.

**Results:** There was no statistically significant difference between groups in either demographic or clinical parameters, except for perforation site (P = 0.001) and median follow-up (P = 0.001). Stomas arose in 17 (45.9%) patients: 76% of patients with stomas and 45% of those without survived (P = 0.052). Kaplan-Meier analysis indicated that patients with stomas had a significantly higher overall survival (P = 0.029) and that patients with duodenal and colonic perforation had a significantly lower overall survival. Multivariate analysis showed that re-perforation was an independent risk factor for mortality (P = 0.035; OR: 17.674; 95% CI for OR: 1.233-253.32).

**Conclusion:** Although there are many options for management of GIP, including primary repair, resection plus anastomosis, and resection plus end or loop ostomy, gastrointestinal diversion is still the best option.

**Keywords:** Gastrointestinal diversion, gastrointestinal perforation, mortality, pediatric liver transplantation, re-perforation

**P-0016**

**Determination of Risk Factors Affecting Mortality in Patients with Gastrointestinal Perforation After Pediatric Liver Transplantation**


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**Objective:** Gastrointestinal perforation (GIP) is one of the most serious complications occurring after liver transplantation (LT), especially in pediatric patients. This study aimed to determine the risk factors affecting mortality in pediatric patients with GIP after LT.

**Materials and Methods:** GIP developed in 37 (10%) of 370 pediatric patients who underwent LT at our institute. Patients were divided into two groups: alive (n = 22) or dead (n = 15), and both groups were compared in terms of demographic and clinical parameters using univariate and multivariate analysis.

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**Conclusion:** Although there are many options for management of GIP, including primary repair, resection plus anastomosis, and resection plus end or loop ostomy, gastrointestinal diversion is still the best option.

**Keywords:** Gastrointestinal diversion, gastrointestinal perforation, mortality, pediatric liver transplantation, re-perforation

**P-0017**

**Evaluation of Effect of Adipose-Derived Stem Cells on Liver Regeneration in Dogs after Seventy Percent and Ninety Percent Hepatectomy**

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**Introduction:** Liver transplantation is the only hope for patients with liver cirrhosis. The purpose of this study is to test the role of transplanted fresh and cultured adipose-derived stem cells in enhancing the regenerative capacity of the liver.

**Materials and Methods:** The study is designed to evaluate the impact of adipose-derived stem cells on the regenerative capacity of the liver through comparison of liver regeneration in dogs and mice after 70% and 90% hepatectomy with utilization of cultured adipose-derived stem cells, fresh adipose-derived stem cells and without adipose-derived stem cells. Evaluation will be held 6 months after hepatectomy taking into consideration morphological, pathological, functional and volumetric changes of the liver.

**Results:** The study showed a significant (P<0.05) increase of liver regeneration in experimental animals on the level of morphological, volumetric and pathological changes on 2nd examination. Transplanted animals demonstrated a significantly higher liver regeneration rate compared with the control group.

**Conclusion:** Adipose-derived stem cells transplant had a significant impact on liver regeneration process in animals. This can have multiple clinical implications, however further clinical trials are required.

**Keywords:** FOXM1, HCC, biomarker, sorafenib-resistant

**P-0018**

**Kellyclasia with Spray Diathermy vs Harmonic Scalpel, Mansoura Experience**

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**Introduction:** Living donor liver transplantation is an established technique for management of ESLD. Various techniques of parenchymatous transection were established ranging from Kellyclasia to sophisticated equipment.

**Objective:** Evaluation of Kellyclasia with spray diathermy vs harmonic scalpel as liver transection method.

**Materials and Methods:** From 6/2018 to 2/2019, 56 cases were done in mansoura gastroenterology surgical center, Egypt. Donors, 34 males, 22 females. divided into two groups (nonrandomized). Group A: 25 cases Kellyclasia with spray and group B: 31 harmonic.

**Results:** Hepatectomy duration (group A 49.5+18 min — group B 55 min + 15). blood loss (group A 400+216 ml — group B 296+146 ml). hospital stay (group B 10.9+7 days — group A 10.4+4.5 days), bile leak 12.9% group B VS 8% GROUP A. Collection 9.7% B and 16% A. Internal hemorrhage occurred in one case group B.

**Conclusion:** Kellyclasia with spray diathermy is comparable to harmonic scalpel without any superiority although there is difference in cost in preference of Kellyclasia.

**Keywords:** FoxM1, harmanic scalpel, Mansoura experience

**P-0019**

**Expression of FOXM1 Predicts Prognosis and Sorafenib Efficacy in Patients with Hepatocellular Carcinoma**

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**Background:** Hepatocellular carcinoma (HCC) is the fourth leading cause of cancer-related death globally. Effective prognostic biomarkers and powerful target-therapeutic drugs are needed for improving treatment of HCC. FOXM1 is a key transcription factor associated with HCC progression.

**Methods:** The expression pattern of FOXM1-related pathways in HCC from the TCGA dataset was analyzed using the Gene Set Enrichment Analysis (GSEA). After determining the differentially expressed genes signature, we evaluated the expression of FOXM1 in TCGA and KMUH datasets. Overexpression of FOXM1 was associated with larger tumor size, advance stage, and higher grade. The overexpression of FOXM1 was the most significant independent prognostic factor for OS and DFS. Furthermore, the high expression of FOXM1 predicted the worst OS of sorafenib-treated patients with HCC.

**Conclusion:** We suppose that the expression of FOXM1 could be a reliable biomarker to predict sorafenib response and prognosis of HCC patients. FOXM1 is a potential therapeutic target for HCC.

**Keywords:** FOXM1, HCC, biomarker, sorafenib-resistant
Distal pancreatectomy with celiac artery resection (DPCAR) is a procedure for resectable pancreatic body cancer. It is believed that considerable reduction of liver arterial blood supply after DPCAR may cause severe liver ischemia. Decision to reconstruct common hepatic artery (CHA) or left gastric artery (LGA) during DPCAR has to be justified.

Objective: To assess events after DPCAR: Primary points: liver arterial supply, arterial blood flow intensity alteration through the pancreaticoduodenal artery (PDA).

Secondary points: morbidity, 90-days mortality, pancreatic fistulas B/C, OS, DFS.

Patients and Methods: Among 32 CA resection 2 procedures were excluded. Arterial anatomy, diameters of CHA, PDA and gastroduodenal (GDA) arteries were registered before and after 30 DPCARs by CT. ICG (30) and ICG–gastroscopy (5) were used for making decision on CHA or LGA reconstruction.

Results: Arterial blood flow in the liver parenchyma was preserved in all cases. There was no need in CHA reconstruction in any case. GDA blood flow intensity increased in 1-2 times after DPCAR, depending mainly on arterial anatomy type; Gastric ischemia was revealed in 4 and liver ischemia in 0 cases. R0-resection was achieved in 26 (87%) and R1-R15% of cases. Chemotherapy (FOLFIRINOX, gemcitabine+Abraxane) was neoadjuvant (9). Morbidity-50%, B/C fistulas-6(20%), mortality- 2(6,6%).

Conclusion: DPCAR is safe and oncologically justified radical procedure for highly selected patients; IUS is a reliable method for intraoperative assessment of liver arterial blood supply during DPCAR; Gastric ischemia is more frequent event than liver ischemia after CA occlusion. ICG gastroscopy can be the option for making decision on reconstruction of LGA; as CHA reconstruction, so as its preoperative occlusion are unnecessary procedures during DPCAR.

Therapeutic Strategy for Intractable Biliary Stricture after Living Donor Liver Transplantation

Introduction: Biliary stricture (BS) is a severe complication of living donor liver transplantation (LDTL), which is difficult to treat.

Objective: We present our newly introduced treatment plan for intractable BS after LDTL.

Materials and Methods: We performed a retrospective analysis on 14 treated cases for BS after LDTL. These cases previously failed first treatments with endoscopic retrograde cholangiography (ERC), percutaneous transhepatic biliary drainage (PTCD), or double balloon enteroscopy (DBE).

Results: BS was divided into two groups based on the method for reconstructing the bile duct during LDTL (duct-to-duct, DD: 10 cases (71.4%) and hepaticojejunostomy, HJ: 4 cases (28.6%).) Stricture type was classified as stenosis (8 cases) and complete obstruction (6 cases). The rate of internal drainage was significantly lower and hospitalization duration was significantly longer with HJ than with DD. Stenosis with DD was treated with ERC alone. Conversely, complete obstruction with DD needed PTCD as the first approach and rendezvous ERC as the second. HJ with successful internal drainage needed metal stent insertion as the first approach and stent extraction by rendezvous DBE as the second.

Discussion and Conclusion: BS after LDTL with HJ reconstruction is difficult to treat. Appropriate procedures should be chosen based on the types of strictures and biliary reconstruction methods.

Expression Pattern of Cancer-Associated Fibroblasts is an Independent Prognostic Marker in Pancreatic Ductal Adenocarcinoma

Introduction: Cancer-associated fibroblasts (CAFs) are major components of the fibrotic stroma in pancreatic ductal adenocarcinoma (PDAC). However, the clinical significance of these markers is still unknown.

Objective: To investigate the clinical role of CAFs by using two CAFs’ markers.

Materials and Methods: Between January 2009 and December 2016, 143 consecutive patients were treated for PDAC. The median expressions rate of α-SMA and vimentin were 17.0% and 18.1%, respectively and patients were classified according to the cut-off values. α-SMA low (SMA low) group (n=43) (P=0.018). We classified to SMA high (VIM high) group (n=24) was significantly poor OS than vimentin low (VIM low) group (n=43) (P=0.018). We classified to SMA high (SMA high) group (n=25) (P=0.048). The other hand, vimentin high (VIM high) group (n=24) was significantly poor OS than vimentin low (VIM low) group (n=43) (P=0.018). We classified to SMA high and VIM low group (n=14) and the other pattern (n=53), then the propensity score was used to match the cases (14 vs. 28 cases). SMA high and VIM low pattern (P=0.001) and neural invasion (P=0.036) were significantly associated with low survival. Multivariate analysis with SMA low and VIM low pattern was the independent poor prognostic factor (P=0.033, hazard ratio; 2.345, 95% confidence interval: 1.074-5.124).

Conclusion: Each CAFs have different clinical role, and the pattern of the CAFs markers may become a prognostic factor for PDAC.

Keywords: Pancreatic ductal adenocarcinoma, cancer-associated fibroblasts, mesenchymal marker expression
A Study of Risk Factors of Postoperative Cholangitis after Pancreatoduodenectomy Associated with Perioperative Bacterial Culture

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Introduction: Postoperative cholangitis can occasionally occur after pancreatoduodenectomy (PD). Treatment may be challenging and recurrence may be frequent.

Objective: We evaluated the risk factors of postoperative cholangitis following PD.

Materials and methods: We performed PD on 50 patients between November 2015 and August 2018. Postoperative cholangitis developed in 8 of the 50 patients. We performed the following tests: intraoperative bile culture, postoperative drain fluid culture, postoperative drain tube culture. Cholangitis and non-cholangitis groups retrospectively compared.

Results: No significant difference was noted in age (p=0.99), gender (p=0.09) and disease (p=0.67). Additionally, no differences were observed regarding the presence or absence of the following aspects: preoperative biliary drainage (p=0.17), presence of bacteria in the intraoperative bile culture (p=0.94), positivity for drain tube infection (p=0.18), bacterial strain from intraoperative bile culture (p=0.1), and bacterial strain from postoperative drain tube culture (p=0.06). Furthermore, no differences were identified in the occurrence of pancreatic fistula (p=0.91) and duration of postoperative hospital stay (p=0.43).

Discussion and Conclusion: The mechanism underlying the occurrence of cholangitis may differ for cholangitis with duodenal papilla or postoperative cholangitis without duodenal papilla. Despite the absence of stomal stricture or local recurrence, cholangitis may occur because the rise in the intraluminal pressure of the intestinal tract directly influences an increase in the bile duct’s intraluminal pressure. Presently, such a pathological condition has not been clarified. In the present study, the relationship between perioperative bacterial infection and postoperative cholangitis after PD was identified.

Keywords: Postoperative cholangitis, pancreatoduodenectomy, bacterial infection

A Case of Distal Pancreatectomy with En-Bloc Celiac Axis and Gastroduodenal Artery Resection for Locally Advanced Pancreatic Body Cancer

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Introduction: Distal pancreatectomy with en-bloc celiac axis resection (DP-CAR) is performed to treat locally advanced cancer of the pancreatic body/tail. The point of DP-CAR is that the hepatic blood flow is maintained through the collateral arterial pathway via pancreaticoduodenal arcades from the superior mesenteric artery (SMA) despite the celiac axis (CA) resection.

Objective: Herein, we report a case of DP-CAR combined with resection of the gastro-duodenal artery (GDA) that is usually required to be preserved.

Materials and methods: A 75-year-old man was referred to our hospital because his ultrasonography suggested a pancreatic tumor. We diagnosed locally advanced pancreatic body cancer and decided to treat as a borderline resectable tumor. Computed Tomography (CT) revealed that the tumor was in contact with the root of splenic artery (SA), the common hepatic artery (CHA) and the GDA. CT also showed anomalous CA. The CA and the SMA originating from a common trunk (celiacomesenteric trunk), but the left gastric artery (LGA) arising directly from the aorta. After neoadjuvant chemotherapy and radiotherapy, we performed DP with en-bloc CA and GDA resection after preoperative coeliac embolization for the CHA and GDA.

Results: We were able to achieve R0 resection, and the postoperative course was uneventful.

Discussion and Conclusion: In this case, despite GDA resection, hepatic blood flow could be maintained because of anomalous CA. Therefore, DP-CAR combined with GDA resection is believed to be a worthwhile surgical option for the disease. We achieved the operability of locally advanced pancreatic body cancer including the GDA via preoperative arterial blood flow alteration.

Keywords: DP-CAR, locally advanced pancreatic cancer, anomalous celiac axis

A Case of Intraductal Papillary Neoplasms of the Bile Duct with Rapidly Progressive Multicentric Recurrence

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Introduction: Knowledge on the pattern of recurrence and prognosis of IPNB is limited. We report a case of IPNB with rapidly progressive recurrence in the remnant intrahepatic bile duct.

Case presentation: A 72-year-old man was diagnosed with IPNB in the hepatic duct of segment 3 that had spread to the left hepatic duct. The patient underwent left hepatectomy, total caudiobectomy, and extrahepatic bile duct resection with biliary reconstruction. Histologically, the tumor was IPNB with noninvasive adenocarcinoma with a negative surgical margin. Although dilatation of B8 and bile lumen elevation were observed beginning at 7–10 months postoperatively, there was no evidence of recurrence. At 17 months postoperatively, the recurrent tumor diffusely spread throughout the remnant intrahepatic bile duct. Internal drainage stents were placed within the intrahepatic bile ducts with relapsed IPNB to relieve jaundice, and a course of chemotherapy was considered. However, the patient did not receive any therapies up to his death at 21 months postoperatively because of rapid disease progression.

Conclusion: According to a literature review, some cases of multicentric IPNB have shown rapidly progressive recurrence and poor prognosis. We should consider multicentricity of IPNB even a few months after curative resection, and narrow examinations should also be considered.

Keywords: Intraductal papillary neoplasms of the bile duct, multicentricity, recurrence

A Case of Total Pancreatectomy and Islet Cell Auto-Transplantation for Painful Chronic Pancreatitis

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Introduction: Chronic pancreatitis accompanies with persistent severe pain which often impairs patients’ quality of life. Total pancreatectomy (TP) is one of the treatments for such chronic pancreatitis, however, patients after TP need postoperative large amounts of insulin replacement therapy.

Case presentation: Herein, we report a 38-year-old male patient who underwent TP and islet cell auto-transplantation for painful chronic pancreatitis. He suffered from severe back pain for alcoholic chronic pancreatitis and he could not take enough oral intakes due to the severe pain except for the elemental diet even with the opioid usage, and then referred to our hospital. Fray’s operation was not indicated because main pancreatic duct was not dilated. After the multidisciplinary team discussion, he was indicated for the TP and islet cell auto-transplantation. Operative duration including a purification of islet cells and implantation of the islet cells was 13 hours 42 min and estimated blood loss including ascites was 1798 ml. A total of 159583 IEQ (3602 IEQ/kg) of the islet cells were successfully extracted. Postoperative course was uneventful and soon after operation, he got relief from severe pain. Now he is followed in outpatient clinic. After 10 months from the operation, his serum C-peptide level is 0.54ng/ml and 20U of daily insulin is administrated. The technique of TP and islet cell auto-transplantation will be shown in the presentation.

Keywords: Chronic pancreatitis, total pancreatectomy, islet cell auto-transplantation
Pancreaticojejunostomy Using Two Layers End-To-Side Invagination Method without Stenting for Soft Pancreas

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Introduction: Pancreaticojejunostomy using invagination method is not acceptable technique in Japan.

Objective: We present a pancreaticojejunostomy technique of two layers invagination anastomosis (end-to-side anastomosis) without pancreatic duct stenting for soft pancreas.

Methods: This study included 49 patients, 31 men and 18 women, average age 66.6 years, who underwent pancreaticoduodenectomy with soft pancreas at our hospital. We determined the soft pancreas as under 2mm diameter of main pancreatic duct with soft parenchymal tissue. Invaginated end-to-side pancreaticojejunostomies were performed for all patients without pancreatic stenting tube. In the first place, the posterior outer layer encompasses the posterior wall of the remnant pancreas and the jejunal seromuscularis separately using 0-0 non-absorbable sutures. And then the anterior outer layer encompasses the posterior wall of the remnant pancreas and the jejunal seromuscularis separately using 0-0 non-absorbable sutures. The inner layer encompasses the capsular parenchyma of the pancreas and the jejenum through all layers of the bowel continuously using 4-0 absorbable sutures. Postoperative pancreatic fistula (POPF) was evaluated using an international study group (ISGPF2016) definition.

Results: There was no mortality in any of the 49 patients. Sixteen patients (32.7%) did not develop POPF. Biochemical leakage: 26(53.1%), grade B: 7(14.2%). All of the POPF patients healed with conservative therapy. The average post-operative stay was 29.9 days and 23.7 days in the no POPF patients, 30.9 days in the biochemical leakage patients, 35.8 days in the grade B patients. None of the patients developed postoperative intra-abdominal bleeding and abscess. One patient delayed delayed gastric emptying.

Discussion and Conclusion: The incidence of fistula has been considerably decreased by the technique of invagination anastomosis (end-to-side anastomosis) without stenting. This technique is safe and easy for young surgeons compare with duct-to-mucosa anastomosis.

Preoperative Diagnosis of Pancreatic Cancer Using FDG-PET

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Introduction: Pancreatic cancer is the 4th most common cause of cancer death in Japan. The accurate diagnosis of pancreatic cancer is important for determining the management strategy. Fluodeoxyglucose-positron emission tomography (FDG-PET) is widely used in cancer screening in Japan.

Objective: The purpose of this study was to examined the usefulness and limitations of FDG-PET in resected pancreatic cancer cases.

Materials and Methods: We conducted a retrospective study of the cases of 41 patients with resected pancreatic cancer, who underwent FDG-PET imaging before surgery. We compared standardized uptake values (SUVmax) and various clinicopathological factors and assessed for their ability to independently predict postoperative tumor recurrence using Cox proportiona hazards model. We also examined the ability of FDG-PET to diagnose lymph node metastasis.

Results: SUVmax values were significantly different in tumor diameter, nerve plexus infiltration, lymph node metastasis, curative resection status and CA19-9 level. Univariate analysis revealed that SUVmax (p=0.034) and N factor (p=0.023) were significantly associated with overall survival. In multivariate analysis, SUVmax (p=0.049) independently predicted overall survival. Kaplan-Meier analysis revealed that patients with low SUVmax had a significantly better prognosis than those with higher SUVmax. The diagnosis ability of lymph node metastasis by FDG-PET was 17.6 % in sensitivety and 100 % in specificity.

Discussion and Conclusion: Although it is not enough for the diagnosis of lymph node metastasis, FDG-PET is useful for predicting the prognosis of resected pancreatic cancer patients.

Hepatic Resection for Isolated Stomach Cancer Liver Metastases: A Single-Center Experience

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Objective: The objective of this study was to investigate outcomes of selected patients with stomach cancer liver metastasis (SCLM) without extrahepatic metastases after hepatic resection.

Methods: Patients whose imaging findings did not show extrahepatic disease were selected for hepatic resection. If R0 resection was available and the operative risk was low in preoperative tests, the patients underwent hepatic resection.

Results: Between 2011 and 2016, seven patients underwent hepatic resection for SCLM. All patients received hepatic resection to achieve an R0 resection. Minor liver resection was performed in all patients. Long-term survival was showed two patients with single lesion and HER 2 negative patients. The 5-year overall survival and disease-free survival rates after hepatic resection were 38.1% and 28.6%.

Conclusion: Hepatic resection for isolated SCLM may be considered as one of the multimodality treatments. However, it has only limited benefit and patients should be strictly selected. It has long-term survival benefit in patients with single metastases and HER2 negative hormonal status.

Keywords: Stomach cancer liver metastasis, hepatic resection, HER2
Clinical Features of Octogenarians Received Hepatectomy-Single Center's Experience

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Background: Hepatectomy is effective but invasive treatment for hepatic malignancy, which is sometimes difficult to perform for octogenarians. Objectives: We clarified clinical features of octogenarians with hepatic malignancies received hepatectomy.

Patients and Methods: From 2005, 32, 12, and 2 octogenarians suffered from hepatocellular carcinoma (HCC), colonic metastatic tumor (Meta) and cholangiocellular carcinoma (CCC), respectively. We have compared them clinically and analyzed the risk factors of survival. Moreover, we have compared between 32 HCC octogenarians and 173 young HCC patients aged less than 80 year. All octogenarians have resectable liver tumor and liver function of Child-Pugh status A or B, in addition, no serious comorbidities, no serious dementia, a performance status of 0-1, and the will to receive hepatectomy.

Results: Average of indocyanine green retention test, blood loss, operating time, and post-operative hospital stay of each tumor groups are 15.7±10.8/16.0 ± 7.0, 773±372/3542 ml. 288/286/358 min, and 19/26/22 days, respectively. Large hepatectomy i.e. wider than subsegmentectomy was performed for 59.4% of HCC, 58.3% of Meta, and 100% of CCC groups. Clavien-Dindo grade 3–4 morbidity rate was 28.1% of HCC, 41.7 % of Meta, and 30% of CCC. The overall survival rate was 78.8% of HCC, 30.1% of Meta, and 0% of CCC. The 57.6% of all octogenarians died of non-cancer related reasons. The risk factors of survival were presence of procedures in addition to hepatectomy, and complications. In comparison including clinical factors, perioperative curses and prognosis between octogenarians and young patients of HCC, there were no significant differences except for associated rate of liver cirrhosis.

Conclusion: Octogenarians selected according to our criteria had relative good perioperative courses. However, prognosis of them was not always sufficient. It is important to select feasible procedures not inducing complications.

Keywords: Octogenarian, hepatectomy, HCC.

Liver Recurrence has Poor Prognosis than Other Type of Recurrence after Surgery in Pancreatic Cancer Patients

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Pancreatic cancer is known as a poor prognostic cancer, has high rate of recurrence even though performed curative surgery. The aim of this study is to evaluate which type of recurrence have worse prognosis after surgery in pancreatic cancer patients.

99 pancreatic cancer patients were enrolled who performed pancreatic resection in our hospital from August 2006 to December 2016 in this study. The average age of patients was 70.2, 62 patients were male, and 37 patients were female. The postoperative recurrence was occurred in 68 patients (68.7%), such as a local recurrence is in 28 patients, liver metastasis is in 21 patients, lung metastasis is in 9 patients, lymph node metastasis is in 10 patients, pleural or peritoneal dissemination is in 15 patients, and bone metastasis is in 3 patients (overlapped recurrence is in 16 patients).

When compared disease free survival and overall survival with other type of recurrence, liver recurrence has significantly poor prognosis (7.9 vs 15.3 months, p=0.001, 17.1 vs 31.7 months, p=0.006, respectively). Furthermore, multivariate regression revealed that tumor size (≥28.8mm) (Odds ratio 11.906, 95%CI=2.021-70.125, p=0.006) and vein invasion (Odds ratio 4.020, 95%CI=1.323-12.209, p=0.014) were independent prognostic factors in liver recurrence.

In conclusion, liver recurrence has poor prognosis than other type of recurrence. Carefully follow up is required in the case of large size of tumor and vein invasion, also should consider aggressive adjuvant chemotherapy after surgery.
P-0036 Pancreaticoduodenectomy in Elderly Patients

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Background: Advance of surgical procedure and perioperative management have made safety in hepatic-biliary-pancreatic surgery. However, pancreaticoduodenectomy (PD) is still high-risk procedure, and PD in elderly patients are controversial.

Methods: We evaluated the patients who underwent PD from March 2013-Oct 2018 retrospectively. Twenty-nine elderly patients (≥75 y.o.) and 63 younger patients (<75 y.o.) were enrolled in the study, and short-term and long-term outcome between both groups were evaluated.

Results: The median age was 80 in elderly; and 66 in younger group(p=0.001). There was no significant difference in sex between both groups(p=0.851). The diagnosis was similar in both groups (elderly: 36 pancreatic cancer (57.1%), 13 distal cholangiocarcinoma (20.6%) younger: 12 pancreatic cancer(41.4%), 8 distal cholangiarcinoma (27.6%)). Another patient characteristic had no significant difference. There was no significant difference in the operation time (elderly: 547 min, younger: 547 min; p=0.176) and operative blood loss (elderly: 860 g, younger: 1010 g; p=0.715) between both groups. And we could not find significant difference between the frequency of postoperative complications, such as fever, postoperative anemia, digestive tract disorder, leakage of duodenal stump, atelectasis, pneumonia, and wound infection in 7 (16%) elderly patients and 4 (6.3%) younger patients(p=0.409). Median hospital stay was 16.0 (13-23) days respectively between both groups(p=0.273). There was no significant difference in medium observation period (1.0 (1-3) months, p=0.942). There was no significant difference in 3-year survival rate (94% elderly, 90% younger; p=0.409), 5-year survival rate (90% elderly, 85% younger; p=0.282), and 10-year survival rate (85% elderly, 80% younger; p=0.328).

Conclusion: We could perform PD in elderly patients safely, but the patient’s selection is important.

P-0037 Prognostic Significance of Nutritional and Inflammatory Markers in Patients with Unresectable Pancreatic Ductal Adenocarcinoma Treated with Chemotherapy

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Background: Recently, several nutritional and inflammatory markers have been reported to be involved in cancer progression.

Objective: The aim of this study is to evaluate whether nutritional and inflammatory biomarkers such as the modified Glasgow prognostic score (MGPS), neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio, the systemic-immunoe inflammation index (SII) controlling nutritional status (CONUT) score, prognostic nutritional index, and the lymphocyte-to-monocyte ratio (LMR) could predict the prognosis in patients with unresectable pancreatic ductal adenocarcinoma (UR-PDAC) who underwent chemotherapy as first-line therapy, using disease-specific survival as the primary outcome.

Methods: All UR-PDAC patients were retrospectively evaluated between January 2011 and December 2018 at Toyama University Hospital. Baseline clinicopathological characteristics and pre-treatment laboratory values such as absolute neutrophil, lymphocyte and platelet counts, C-reactive protein, albumin and CA19-9 levels, were collected.

Results: In total, 143 patients diagnosed as UR-PDAC, 143 patients who underwent chemotherapy were enrolled in this study. There were significant relationships between survival and chemotherapy regimen, elevated mGPS, elevated NLR, elevated SII, decreased PNI, decreased LMR, decreased serum cholinesterase level, and low CONUT score (p=0.003, p<0.001, p=0.001, p=0.033, p=0.001, p=0.007, and p<0.001, respectively, by log-rank test). The median survival time of patients with metastatic lesions was significantly shorter than that of patients with no metastatic lesion. Local advanced PDAC (13.4 vs 19.7 months respectively, p=0.019). There was no significant difference in survival in pre-treatment CA19-9 level and tumor location. Multivariate analysis using Cox regression model revealed that chemotherapy regimen, with or without distant metastasis and CONUT score were independent prognostic factors.

Conclusion: Chemotherapy regimen, with or without distant metastasis and pre-treatment CONUT score may predict clinical outcome in patients with UR-PDAC undergoing chemotherapy as first-line therapy.

P-0038 Long-Term Outcomes of Choledochoduodenostomy for Choleclochoolithiasis

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Introduction: In cases of choleclochoolithiasis where endoscopic stone removal is difficult, bilo-enteric anastomosis may be performed to lower the risk of recurrence. In choleclochoadenocarcinoma (CD), potential complications may include cholangitis, recurrent choleclochoolithiasis and carcinogenesis. The purpose of the present study is to investigate long-term outcomes of patients who underwent CDD.

Materials and Methods: From January 2001 to February 2015, 45 patients (mean age 74.8 (56-94) years, male in 26) underwent open CDD for choleclochoolithiasis. These patients comprised technically difficult endoscopy in 43 and simultaneous surgery for gastric cancer in two patients. The former 43 cases consisted of Roux-en-Y reconstruction following total gastrectomy in 13, distal gastrectomy in 11 (8-1 reconstruction in one, Bilroth reconstruction in three and Roux-en-Y reconstruction in 7), anatomical difficulties such as periampullary diverticulum in 10 and built-up stones in 9 patients. Anastomotic methods consisted of side-to-side anastomosis in 43 and end-to-side anastomosis in two patients. The mean anastomotic diameter was 16.6 (8-25) mm, mean operative time was 207 (55-366) minutes, mean intraoperative blood loss was 258 (<10-1328) mL, and median postoperative hospital stay was 13.0 (7-40) days. The mean observation period was 4.0 (0.5-13.2) years. We evaluated perioperative complications and long-term outcomes after CDD for choleclochoolithiasis.

Results: Perioperative complications included wound infection in 7 (16%) patients and fracture due to a fall and delirium in one patient each; none of these were fatal. Medium- to long-term complications included cholangitis in 6 (13%), of whom three patients (total gastrectomy for choleclochoadenocarcinoma (23), and two patients) in one (repetitive 7 to 24 times, mean 12.6 times). Two of the three patients with cholangitis after total gastrectomy experienced early recurrence of choleclochoolithiasis (at 2 and 8 months post-surgery, respectively). The patient with recurrent choleclochoolithiasis at 2 months post-operation was bedridden with hypervagia. Two cases of intestinal obstruction were successfully treated by conservative treatment (at 3 months and 8 years after operation, respectively). At a long-term follow-up, none developed cholangiocarcinoma, and two deaths were confirmed, neither of which was associated with cholangiocarcinoma.

Conclusion: CDD is safe and effective for elderly patients with unresectable locally advanced PDAC treated with chemotherapy, with or without palliative resection of the pancreas can be an effective and safe alternative to the Whipple procedure in combination with arterial resection for LAUPC patients and SMA involvement.

P-0039 The Irreversible Electroporation of The Locally Advanced Unresectable Pancreatic Cancer

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Introduction: The standard treatment for patients with locally advanced unresectable pancreatic cancer (LAUPC) is chemotherapy with the median overall survival (OS) 12-15 months. Superior mesenteric artery (SMA) resection for LAUPC patients is a rare and unsafe procedure with poor long-term results. Considering the absence of metastasis, local therapy could be an alternative to systemic chemotherapy.

Objective: To improve the results of treatment for LAUPC patients, using the irreversible electroporation (IEP).

Materials and Methods: N.N. Blokhin National Medical Research Center of Oncology, 7 patients were treated with IEP for LAUPC. Perioperative treatment was routinely used; one patient could not receive both an adequate pre- and postoperative therapy due to side effects. The median duration of preoperative therapy was 4 months (2-12). Two patients showed partial response and four developed stabilization after the induction chemotherapy. The median tumor size was 40mm (32-65) before any treatment and 37mm (22-65) before IEP.

Results: two patients had pancreatic necrosis after IEP (28.6%). One died on the 21st day. Autopsy showed no evidence of tumor in the site of IEP. The median follow up was 25 months after IEP and 30 months after the start of treatment. The median progression free survival (PFS) after IEP was 7 months, the median OS was not reached. The median PFS after the start of treatment was 14 months, the median OS was reached. 3-year PFS and 3-year OS after start of treatment were 14.3% and 57.1%, respectively.

Conclusion: IEP is the effective local destruction method for the LAUPC patients. Additional therapy is recommended. IEP of residual tumor with palliative resection of the pancreas can be an effective and safe alternative to the Whipple procedure in combination with arterial resection for LAUPC patients and SMA involvement.
Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) is a treatment modality of peritoneal surface malignancies with efficacy reported in many trials. However, discrepancies in the indication criteria, extent of the surgical procedure, HIPEC regimens and toxicity evaluation represent a problem when comparing this method with other approaches in malignancies. The therapeutic approach and prognosis vary depending on the histological type, primary, extent of peritoneal involvement, and of course the patient condition and associated comorbidities.

**Materials and Methods:** We describe initial experience with CRS/HIPEC using different chemotherapy regimens (oxaliplatin, cisplatin, mitomycin C and doxorubicin) in Comprehensive Oncology Centre Olomouc. We have evaluated our set of 100 patients operated for PC in our centre between 2017-2020 retrospectively.

**Results:** A perioperative mortality of 2% and perioperative morbidity of 26% according to Clavien-Dindo was observed. Interestingly, all these patients underwent HIPEC with oxaliplatin 460 mg/m². The median duration of admission to hospital was 5 days in the intensive care unit (range 2-23 days) and 12 days in the surgical ward (range 1-21 days). In 75% patients the hospital admission did not exceed 2 weeks generally.

**Conclusion:** These results are consistent with the published results of large centres performing this treatment modality mainly due to preoperative preparation of patients and pre-treatment and post-treatment management of HIPEC/CRS/CRC oncologists and anesthesiologists with the many with the wealth of experience and enthusiasm. Evaluation of the efficacy in terms of time to progression and 1-year survival (OS) is limited by the short follow-up period. CRS/HIPEC performed in COC Olomouc is a safe method with low perioperative mortality.

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**P-0040**

Starting A New Centre for Cytoreductive Surgery and HIPEC in The Czech Republic and Rationale for A Nation-Wide Management Strategy

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**Introduction:** Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) is a treatment modality of peritoneal surface malignancies with efficacy reported in many trials. However, discrepancies in the indication criteria, extent of the surgical procedure, HIPEC regimens and toxicity evaluation represent a problem when comparing this method with other approaches in malignancies. The therapeutic approach and prognosis vary depending on the histological type, primary, extent of peritoneal involvement, and of course the patient condition and associated comorbidities.

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**Acknowledgement:** This work was supported by the Ministry of Health of the Czech Republic, Grant. No. NV18-03-00130.

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**P-0041**

Intraoperative Endoscopic Retrograde Cholangiopancreatography: A Useful Tool in The Hands of The Hepatobiliary Surgeon


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**Introduction:** ERCP is done mainly by physicians and radiologists, and rarely by surgeons. The wide use of laparoscopic surgery and the advances in technology and training made ERCP and intraoperative US important aids in the hands of experienced hepatobiliary surgeons.

**Objective:** To evaluate The Efficacy of Intraoperative Endoscopic Retrograde Cholangio-Pancreatography (ERCP) combined with Laparoscopic Cholecystectomy (LC) for patients with Gall Bladder Stones (GS) and Common Bile Duct Stones (CBDS).

**Materials and Methods:** Patients treated for GS with CBDS were included. LC and intraoperative Transcystic Cholangiogram (TCC) were performed in most of the cases. Intraoperative ERCP was done for cases with proven CBDS.

**Results:** Eighty patients who had GS with CBDS were included. LC was successful in all cases. Intraoperative TCC revealed passed CBD stones in 4 cases so intraoperative ERCP was performed only in 76 patients. Intraoperative ERCP showed dilated CBD with stones in 64 cases (84.2%) where removal of stones was successful; passed stones in 6 cases (8.2%) and short stricture with small stones present in two cases (2.6%) which were treated by removal of stones with stent insertion; long stricture lower 1/3 CBD in one case (1.3%) which was treated by open hepatocojunoanastomosis; and one case (1.3%) was proved to be ampullary carcinoma and whipple’s operation was scheduled.

**Conclusion:** The Hepatobiliary surgeon should be trained on ercp as the third hand to expand his field of therapeutic options in dealing with biliary pathologies.

**Keywords:** Obstructive jaundice; endoscopic retrogradecholangio pancreatography; gall stones, ercp, laparoscopic cholecystectomy

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**P-0042**

Laparoscopic Bile Duct Clearance without Choledochoscopy

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**Introduction:** Laparoscopic common bile duct exploration (LCBDE) is a safe, efficient, and cost-effective option for the management of common bile duct (CBD) stones. Most surgeons prefer the use of flexible choledochoscopy at LCBDE, but it is a fragile, delicate, and expensive instrument.

**Objective:** To Evaluate The Efficacy Of Intraoperative Endoscopic Retrograde Cholangio-Pancreatography (ERCP) Combined With Laparoscopic Cholecystectomy (LC) For Patients With Gall Bladder Stones (GS) And Common Bile Duct Stones (CBDS).

**Materials and Methods:** A retrospective review of all patients who underwent LCBDE in the Mansoura Gastroenterology surgical center between March 2007 and September 2014 was performed. Patients with gallstones and concomitant CBD stones were included. After the initial assessment, all patients fulfilling the criteria of enrollment underwent magnetic resonance cholangiopancreatography, and only patients with magnetic resonance cholangiopancreatography or endoscopic retrograde cholangiopancreatography evidence of CBD stones were included.

Cholecodochoscopy was not used in any patient, and we depended on flexible choledochoscopy guided CBD exploration in all LCBDE.

**Results:** A total of 290 patients were assessed for LCBDE: 76 patients were excluded; 11 patients were not completed laparoscopically due to negative intraoperative cholangiography (n=7) and conversion to laparotomy (n=4); the remaining 203 patients were analyzed. LCBDE succeeded in 16 of the 203 (7.9%) cases, with a success rate of 92.1%.

The median operative time was 79 minutes, and the median hospital stay was 2.4 days. Complications were bile leakage (n=4), mild pancreatitis (n=2), wound infection (n=2), port hernia (n=1), and internal hemorrhage (n=1).

**Conclusion:** Results of fluoroscopic and choledochoscopic guided CBD exploration are comparable in terms of the success/lack rate, the morbidity and mortality, the operative time, and the length of hospital stay. LCBDE under fluoroscopic guidance may be as safe and efficient as with choledochoscopic guidance.

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**P-0043**

Postoperative Outcome after Major Liver Resection in Jaundiced Patients with Proximal Bile Duct Cancer without Preoperative Biliary Drainage

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**Introduction:** The need for routine use of preoperative biliary drainage (PBD) before major liver resection in jaundiced patients has recently been questioned.

**Objective:** Our aim was to present our experience of patients with proximal bile duct cancer who undergo major liver resection without PBD and compare these results with patients without biliary obstruction who underwent major liver resection.

**Materials and Methods:** Eighty-six consecutive jaundiced patients underwent major liver resection without PBD. The postoperative outcome was compared to the control group, which was the same size and matched.

**Results:** Fifty-nine jaundiced patients (69%) and 22 non-jaundiced patients (25%) received blood transfusion (p = 0.04). Fifty-three patients (62%) in the jaundiced group and 17 (19%) in the non-jaundiced patients experienced postoperative complications (p = 0.003). A statistically significant difference could not be detected for mortality (6 vs. 2%) and transient liver failure (10 vs. 3%). Those patients who underwent extended right hemihepatectomy (with future liver remnant <50%) express high morbidity (55 vs. 24%; p = 0.04) and mortality (23 vs. 8%; p = 0.001) compared to the non-jaundiced patients.

**Conclusion:** Major liver resection without PBD leaving a liver remnant of more than 50% is safe in jaundiced patients. However, transfusion requirement and morbidity are higher in jaundiced patients than in non-jaundiced patients.

**Keywords:** Preoperative biliary drainage, hepatic resection, liver resection in jaundiced patients, hilar cholangiocarcinoma
P-0045
Tailored Pancreatic Reconstruction after Pancreatoduodenectomy: A Large Single-Center Experience
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Introduction: Pancreatic reconstruction following pancreatectoduodenectomy (PD) is still debatable. Ideally, pancreatic reconstruction after PD should reduce the risk of postoperative pancreatic fistula (POPF) and its severity if developed with preservation of both exocrine and endocrine pancreatic functions. It must be tailored to control the morbidity linked to the type of reconstruction.

Objective: evaluation of the proper pancreatic reconstruction technique and its impact on morbidity and mortality rates.

Materials and Methods: patients who underwent PD in our center from January 1993 to December 2015. Patients were categorized into three groups depending on the presence of risk factors of postoperative complications: low-risk group (absent risk factor), moderate-risk group (presence of one risk factor) and high-risk group (presence of two or more risk factors).

Results: A total of 892 patients underwent PD for resection of peripancreatic tumor. BMI>25 kg/m², cirrhotic liver, soft pancreas, pancreatic duct diameter <3 mm, and pancreatic duct location from posterior edge <3 mm are risk variables for development of postoperative complications. POPF developed in 128 (14.3%) patients. Delayed gastric emptying occurred in 164 (18.4%) patients, biliary leakage developed in 65 (7.3%) and pancreatitis presented in 20 (2.2%). POPF in low-, moderate- and high-risk groups were 26 (8.3%), 65 (15.7%) and 37 (22.7%) patients, respectively. Postoperative morbidity and mortality were significantly lower with pancreaticogastrostomy (PG) in high-risk group, while pancreaticojunostomy (PJ) decreases incidence of postoperative seatorrhoea in all groups.

Conclusion: Selection of proper pancreatic reconstruction according to the risk factors of patients may reduce POPF and postoperative complications and mortality. PG is superior to PJ as regards short-term outcomes in high-risk group but PJ provides better pancreatic function in all groups and therefore, PJ is superior in low- and moderate-risk groups.

P-0046
Doublecortin-Like Kinase 1 Expression in Carcinogenesis and Gene Suppression by Rnai in Intrahepatic Cholangiocarcinoma
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Introduction: Doublecortin-like kinase (Dclk1) is a specific marker for tumour which is rarely found in normal intestinal tract. Although several studies have reported correlation between expression level of Dclk1 and carcinogenesis in many neoplasms, it has not been known in cholangiocarcinoma.

Objective: To explore the Dclk1 expression and its functional significance in intrahepatic cholangiocarcinoma.

Materials and Methods: Dclk1 expression in normal epithelium (NE), biliary intraepithelial neoplasia (BilIN)1~3, and intrahepatic cholangiocarcinoma (ICC) were investigated immunohistochemically using 20 specimens of intrahepatic cholangiocarcinoma. The molecular effects of Dclk1 were investigated by gene silencing using RNAi (Dclk1-targeting (siDclk1) and no-targeting (NT)). The human ICC cell lines HuCCT1 and HuH28 were transfected with these siRNAs by lipofection, then used for assays. Student's t-test was used to determine significant differences.

Results: Positive ratio of Dclk1 expression in cytoplast of ICC was higher than NE, and equally among BilIN1~3. NE: BilIN1:BilIN2:BilIN3:ICC=62%:91%:97%:100%:95%, P<0.05). To determine whether cell proliferation in ICC cell lines is regulated by Dclk1, the cell proliferation was assessed using a WST-1 assay. The proliferation of the siDclk1-treated cells was significantly inhibited compared to the NT-treated cells (Absorbance: HuCCT1: 1.29±0.14 vs. 1.82±0.20, HuH28: 1.37±0.15 vs. 1.67±0.32, P<0.05). To examine the role of Dclk1 in the migration of ICC cells, we performed wound healing assay. The migration of the siDclk1-treated cells was significantly inhibited compared to the NT-treated cells (recovery rate: HuCCT1=61.8±22.2% vs. 91.3±8.1%, HuH28=63.1±15.7% vs. 90.9±1.0%, P<0.05). In cell invasion assay, the invasion of the siDclk1-treated cells was significantly inhibited compared to the NT-treated cells (Absorbance: HuCCT1:0.15±0.04 vs. 0.26±0.003, HuH28: 0.129±0.04 vs. 0.193±0.1, P<0.05).

Discussion and Conclusion: Dclk1 was highly expressed in early stage of ICC carcinogenesis. Human ICC growth was suppressed in vitro by siRNA silencing of Dclk1, indicating Dclk1 may be molecular target for ICC therapy.

Keywords: Intrahepatic cholangiocarcinoma, biliary intraepithelial neoplasia, doublecortin like kinase 1
Optimal Surgical Strategy for Early Ampullary Carcinoma Based on A Pathological Examination Following Resection
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Background: Pancreatoduodenectomy (PD) is considered to be the standard treatment for early (Tis-T1) ampullary carcinoma (AC). Partial resection (PR), such as transduodenal papillectomy (TDP) and endoscopic papillectomy (EP), has been proposed as standard therapy for ampullary tumors because of difficulties in diagnosis of the invasion depth.

Objective: The aim of this study was to evaluate patients pathologically after resection of AC and to investigate whether PR is acceptable for early AC.

Methods: Between January 1985 and December 2018, 101 patients with AC were enrolled. The results of preoperative evaluations following the 8th edition of the UICC TNM classification and treatment outcomes were examined in 40 patients with early AC (PD: 27, PR: 13, Tis: 2, T1a: 18, T1b: 20) and in 69 patients treated with PR (TDP: 5, EP: 11). In addition, the lymphatic vessel distribution in the ampulla of Vater was investigated immunohistologically by staining with D2-40 as a lymphatic vessel-specific marker.

Results: The 5-year survival rate was 100% in the Tis-T1a patients and 87.4% in the T1b patients, respectively. On pathological examination, 10.0% (Tis-T1a: 0%; T1b: 20.0%) were lymph node metastasis (+), 20.0% (Tis-T1a: 0%; T1b: 50.0%) were lymphovascular invasion (+), 5.0% (Tis-T1a: 0%; T1b: 10.0%) were microvascular invasion (+), and 0% were perineural invasion (+). For the tumor differentiation, papillary or well differentiated tumors were found in all Tis-T1a patients, but were moderate in 35.0% of the T1b patients. On immunohistological examination, abundant capillary lymphatic vessels were present in the mucosa on the outer layer of the sphincter of Oddi. In the 16 patients treated with PR, the final pathological diagnosis was T1a in 12, PT1 in 1, and PT2 in 3, and the 4 non-T1a patients all died of distant recurrence.

Discussion and Conclusion: For Tis-T1a AC, PR accompanied by LN dissection may not be necessary because LN metastasis is rare. For T1b AC, PR may be considered because LN metastasis and lymphovascular invasion are absent. However, abundant lymphatic capillaries were found in the mucosa of the ampulla of Vater, which suggests the presence of an established microenvironment for tumor metastasis. Therefore, careful follow-up is necessary after PR in patients with Tis-T1a AC.

Keywords: Early ampullary carcinoma, optimal surgery, ampullectomy, pancreatoduodenectomy, lymphatic vessels of the ampulla

Cancer-Positive Margins Can Affect Severe Complications after Aggressive Surgery for Perihilar Cholangiocarcinoma
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Introduction: Extensive hepatobiliary resection for perihilar cholangiocarcinoma (PHC) is the most effective treatment for acquiring negative margins. However, this procedure is more complex and difficult to perform compared with simple hepatectomy and can lead to severe postoperative complications.

Objective: The aim of this study was to identify risk factors for severe complications after extensive hepatobiliary resection for PHC.

Methods: Of 143 consecutive patients with PHC, 109 underwent major hepatobiliary resection with biliary reconstruction between January 1999 and December 2018. Fatal complications (FC) and 3 severe complications: biloma; infectious complications, hepatic insufficiency (IC, and HI occurred in 23 (21.1%), 47 (43.1%), and 22 (20.2%). The following were risk factors in univariate analysis, while, male (p=0.042) and right side tumors (p=0.036) were independent risk factors and a cancer-positive margin (p=0.036) were associated with severe complications after extensive hepatobiliary resection for PHC. Incomplete surgical resection in addition to excessive surgical stress may lead to hypercycokyninemia and worst postoperative hepatic insufficiency.

Keywords: Perihilar cholangiocarcinoma, postoperative complications, biloma, infectious complications, hepatic insufficiency

Application of In-Stent Radiofrequency Ablation for The Reopening of Occluded Biliary Metal Stents
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Background: Endobiliary radiofrequency ablation (RFA) is regarded as an effective local ablation therapy and has been tried to restore occluded biliary self-expandable metal stent (SEMS) in malignant biliary obstruction. We aim to evaluate the feasibility and efficacy of in-stent RFA for occluded SEMS.

Materials and Methods: Fifteen patients with malignant biliary obstruction and occluded SEMS were retrospectively included. All patients underwent temperature controlled RFA (80°C, 7-10 W, >120 seconds) using ELRA catheter (STA-Arm, Goryou, Korea) through the occluded SEMS followed by additional stent placement.

Results: Twenty-three sessions of in-stent RFA were performed on 15 patients: age (median, range: 69, 46–93), sex (6 male), diagnosis (pancreatic cancer 3, bile duct cancer 8, GB cancer 2, Ampulla of Vater cancer 2). The overall technical and clinical success rate were 87% (20/23) and 78% (18/23), respectively. There were two complications, including typanocostoma (n=1) and early SEMS occlusion by sludge (n=1, 134 after RFA). Total of 12 (52%) sessions were technically successful without RFA interruption. In 8 (35%) sessions, repeated RFA was accomplished for preplanned duration despite early interruption of RFA (total RFA time > 120 s) and RFA was failed in 3 (13%) sessions due to early RFA termination caused by unintentional contact between RFA electrode and occluded SEMS mesh. The risk of failed/early interruption of in-stent RFA was significantly higher in the secondary SEMS revision than in the primary SEMS revision (OR: 1.2–14.07). In 15 patients who underwent in-stent RFA, median(range) time of second SEMS patency and survival after RFA was 111 days (9-260) and 184 days (9-361), respectively.

Conclusion: A promising treatment of in-stent RFA can be safely applicable for tumor in/overgrowth of SEMS. But caution should be taken that tumor interruption may occur due to contact between occluded SEMS and RFA electrodes.
Hepatectomy Through The Upper Midline Incision Represents A Well-Balanced Approach Even in Right-Sided Hepatocellular Carcinoma: A Propensity-Matched Analysis

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Background: While laparoscopic hepatectomy has become an increasingly common approach for liver cancer treatment, open hepatectomy is still necessary in cases such as giant tumor, liver cirrhosis, re-hepatectomy, and others. Especially for right-sided liver cancers, the inverted L-shaped incision and Mercedes incision accompanied by large body-wall destruction are standard. There are, however, a few reports based on a midline incision as references. We have basically selected the upper midline incision for minimal invasion in open hepatectomy. In this study, we examined whether this approach would be useful and safe in patients with right-sided liver cancer.

Methods: The outcomes of patients who underwent hepatectomy for right-sided liver cancer through an upper midline incision (n=57) versus through the conventional inverted L-shaped incision (n=160) as a historical control were retrospectively collected and analyzed before and after one-to-one matching, based on a propensity score analysis.

Results: The pain score on the visual analogue scale was significantly lower after hepatectomy through the midline incision than after hepatectomy through the inverted L-shaped incision (p<0.01) both before and after one-to-one matching. Postoperative outcomes including operative time and blood loss were comparable between the two groups. On the other hand, among patients with high BMI and giant liver tumors, the inverted L-shaped incisions was still selected.

Conclusion: In patients with right-sided liver cancer, hepatectomy through the upper midline incision is safe and may result in less postoperative pain.

Synchronous Cholecystitis and Appendicitis from Salmonella Enteritis in A 13-Year-Old Male

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Objective: We present a case of a 13-year-old male recent return from overseas travel who presented with acute right upper quadrant pain, Murphy’s sign positive, and diarrhea, with a normal white cell count of 8 and elevated CRP of 205 with normal liver function tests. Originally thought to be more likely to be appendicitis given the rarity of cholecystitis, after laparoscopic exploration of the left intra-hepatic duct and the Kehr drains were pulled out. After 6 months, the patient was asymptomatic and another MRCP did not show any sign of stenosis neither any biliary dilatation.

Discussion and Conclusion: In case of severe cholecystitis, major bile duct injuries still can occur, regardless surgeon’s skills. Roux-en-Y hepatojejunostomy remains the best choice for repair. Iatrogenic injuries of the hepatic duct confluence are very challenging and hepatobiliary surgical expertise is mandatory to manage them.

Keywords: Hepatobiliaryanastomosis, cholecystectomy, bile duct injury

Surgical Management of Hepatic Duct Confluence Injury during Delayed Cholecystectomy for Recurrent Cholecystitis

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Objective: Laparoscopic cholecystectomy is one of the most common procedures in gastrointestinal surgery but has been reported to cause twice as much bile duct injury compared to open cholecystectomy. If a bile duct injury occurs, the reconstruction can either be done in the same operative time or delayed if the lesion is not seen or because of the surgeon’s lack of hepatobiliary experience. Here we report a case of hepatic duct bifurcation injury during laparoscopic cholecystectomy for recurrent cholecystitis.

Materials and Methods: A 62-year-old female referred for repeated episodes of cholecystitis and an elective cholecystectomy was planned 2 months after the latest episode. Nevertheless, the patient experienced a new episode of cholecystitis 7 days before the scheduled cholecystectomy. Conservative treatment was initially started, but, finally, laparoscopic cholecystectomy had to be planned as the patient did not recover. Given the inflammatory state of the gallbladder and the hepatic pedicle, conversion to laparotomy was necessary. Because of tight adhesions between the gallbladder, an accessory bile duct from S1 and the common hepatic duct, an injury at the level of the portal bifurcation occurred (Strasberg E4). The injury was managed intraoperatively with a hand-sewn Roux-en-Y hepatojejunostomy, leaving the left and right hepatic ducts intact. An accessory bile duct from S1. Finally, 3 Kehr drains were placed in each bile duct to prevent anastomotic stenosis.

Results: The patient recovered uneventfully. Six weeks after surgery, MRCP showed a slight dilatation of the left intra-hepatic duct and the Kehr drains were pulled out. After 6 months, the patient was asymptomatic and another MRCP did not show any sign of stenosis neither any biliary dilatation.

Conclusions and Discussion: We present a case of a 62-year-old female referred for repeated episodes of cholecystitis and an elective cholecystectomy was planned 2 months after the latest episode. Nevertheless, the patient experienced a new episode of cholecystitis 7 days before the scheduled cholecystectomy. Conservative treatment was initially started, but, finally, laparoscopic cholecystectomy had to be planned as the patient did not recover. Given the inflammatory state of the gallbladder and the hepatic pedicle, conversion to laparotomy was necessary. Because of tight adhesions between the gallbladder, an accessory bile duct from S1 and the common hepatic duct, an injury at the level of the portal bifurcation occurred (Strasberg E4). The injury was managed intraoperatively with a hand-sewn Roux-en-Y hepatojejunostomy, leaving the left and right hepatic ducts intact. An accessory bile duct from S1. Finally, 3 Kehr drains were placed in each bile duct to prevent anastomotic stenosis.

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Pancreatitis is a major complication of ERCP. Nafamostat

A case report

From January 2016 to April 2019, a total of 1,797 patients with

Intrahepatic cholangiocarcinoma, lymph node metastasis,

Gastrointestinal stromal tumors (GIST)

Of 56 patients with ICC admitted to our institute,

Gastrointestinal stromal tumor, CD 117 expression, primary

of Surgeons, Gastroenterologists and Oncologists

The 31

GISTs typically present with upper gastrointestinal bleeding with vague abdominal

lesions are also commonly identified at the time of diagnosis which

immunohistochemically by the expression of CD117. The most common

are the most commonly occurring mesenchymal tumor in the intestinal

diagnosis for a hepatic mass

hepatic GIST as a disease entity and include it in the differential

of hepatocellular carcinoma but was further diagnosed to have GIST

on one such occasion wherein the patient presented with symptoms

liver serves as the primary origin of the tumor. This is a case report

been known to metastasize to the liver from the stomach or small

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Objective: Pancreatitis is a major complication of ERCP. Nafamostat

mesylate (Futhan) and Urinastatin (Ulistin) are commonly used to

prevent and treat pancreatitis in Korea. However, there is no comparative

study to evaluate efficacy of these two drugs. The aim of our study is a

comparison of the efficacy of Mesilate and Urinastatin for PEP prevention

Methods: From January 2016 to April 2019, a total of 1,797 patients who underwent ERCP were analyzed. Patients received continuous infusion of 500 mL of 5% dextrose solution with 50 mg of nafamostat mesylate (1,175 patients) or with 150,000 unit of Urinastatin (622 patients). Serum amylase and lipase levels were checked before ERCP, and 4 and 24 hours after ERCP, and when clinically indicated. Patients usually present within a few hours with severe epigastric pain, often radiating to the back, nausea and mild fever with raised pancreatic enzyme levels. Pancreatitis is diagnosed if two of the following three criteria is present; pain consistent with acute pancreatitis, raised serum amylase or lipase levels more than three times normal and (or) typical imaging findings. The incidence of PEP ranges from 3 to 10%. Patient-related risk factors include previous history of PEP, suspected sphincter of Oddi dysfunction, female sex, younger patient age, normal serum bilirubin levels, history of acute recurrent pancreatitis, pregnancy, and cannabis use. Procedure related factors, such as difficult cannulation (multiple attempts or duration > 5–10 min) and large-balloon dilatation of the papilla of an intact biliary sphincter (especially for short duration (< 1 min) significantly increase the risk of PEP.

Results: There was a significant difference in the incidence of PEP between the Nafamostat mesylate and Urinastatin groups (4.0851% vs 2.0900%, respectively; OR : 0.501295, 95% CI : 0.2694 to 0.9323, Z statistic : 2.181, P value : 0.0292).

Conclusion: Urinastatin prophylaxis is more effective in prevention of post-ERCP pancreatitis compared to Nafamostat mesylate.

P-0056
Primary Hepatic Gastrointestinal Stromal Tumor (Gist) with Duodenal Invasion Presenting as Hepatocellular Carcinoma: A Case Report

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Introduction: Gastrointestinal stromal tumors (GIST) have long been known to metastasize to the liver from the stomach or small intestines. There have been however a handful of cases wherein the liver serves as the primary origin of the tumor. This is a case report on one such occasion wherein the patient presented with symptoms of hepatocellular carcinoma but was further diagnosed to have GIST through histopathologic and immunohistochemical confirmation.

Objective: To document and acknowledge the incidence of primary hepatic GIST as a disease entity and include it in the differential diagnosis for a hepatic mass

Materials and Methods: A case report

Results: N/A

Discussion and Conclusion: Gastrointestinal stromal tumors (GIST) are the most commonly occurring mesenchymal tumor in the intestinal tract and are diagnosed with certain histopathologic characteristics and immunohistochemically by the expression of CD117. The most common site of origin of the primary tumor is documented to be the stomach, followed by the small intestine then the colon and the rectum. Synchronous lesions are also commonly identified at the time of diagnosis which most commonly metastasize to the liver or into the peritoneum. Gastric GISTs typically present with upper gastrointestinal bleeding with vague abdominal pain, while hepatic involvement is usually asymptomatic until the size of the tumor is large enough to cause compressive symptoms. Diagnosis can be made with either an MRI or with CT scan with IV contrast though it is not confirmatory of GIST. Though hepatic metastasis is already recognized pathophysiology of GIST, to the point of being considered as a prognostic factor, there have been documented cases of isolated, primary hepatic GIST which is regarded as a rare occurrence. Regardless however whether the hepatic involvement is a primary or a metastatic disease, treatment with tyrosine kinase inhibitors (TKI) and complete surgical resection are the only accepted treatment options that have been shown improved overall survival rates for diagnosed cases. The hallmark of cases identified with a primary hepatic GIST presented with compressive symptoms due to the tumors size and would have otherwise been asymptomatic. In this case report, pre operatively the patient was assessed to have hepatocellular carcinoma due to the CT scan findings and symptomatology. Intraoperatively, the tumor was already invading the second portion of the duodenum and histopathologic and immunohistochemical studies indeed confirmed that it was a primary hepatic GIST. It is important to document such rare cases and recognize its existence so as to guide future physicians in the differential and work up of a liver mass.

Keywords: Gastrointestinal stromal tumor, CD 117 expression, primary hepatic GIST

P-0057
Survival Analysis and Prognostic Factors for Intrahepatic Cholangiocarcinoma With or Without Lymph Node Metastasis after Radical Surgery

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Introduction: Intrahepatic cholangiocarcinoma (ICC) is a devastating cancer and surgical resection is the only curative treatment. However, it is well-known that the patients with lymph node (LN) metastasis has a poorer prognosis regardless of curative resection.

Objective: The aim of this study was to identify prognostic factors and explore treatment strategy of ICC.

Materials and Methods: Of 56 patients with ICC admitted to our institute from June 2000 to May 2019, 31 patients except for intraductal growth type who underwent surgical resection were subjects of this study. Results: The 5-year disease-specific survival (DSS) rate was 41.4% in all patients. Univariate analysis revealed that LN metastasis (P=0.002), microvascular invasion (P=0.019), and R1/R2 operation (P=0.004) were significantly associated with DSS. These 3 factors such as LN metastasis (risk ratio (RR)=3.45; P=0.024), microvascular invasion (RR=3.06; P=0.038), and R1/R2 operation (OR=22.6; P=0.034) were also found to be independent factors for DSS in multivariate analysis. Focusing on LN metastasis as one of the strongest predictors for DSS, a total of 31 patients were divided into positive LN (N=11) and negative LN (N=20) groups. In the positive LN group, adjuvant chemotherapy was the only significant factor for DSS in univariate analysis (P=0.002). In the negative LN group, allogenic blood transfusion (ABT) (P=0.002) and microvascular invasion (P=0.002) were significantly associated with DSS in univariate analysis, however, no independent factor was found in multivariate analysis.

Discussion and Conclusion: ICC with LN metastasis had a worse prognosis in spite of radical surgery. The patients with LN metastasis can need to receive systemic chemotherapy in addition to surgery. Moreover, ABT and microvascular invasion which can lead to distant metastases were poor prognostic factors of ICC without LN metastasis. Meticulous hepatectomy to avoid ABT may also improve long-term survival for ICC.

Keywords: Intrahepatic cholangiocarcinoma, lymph node metastasis, allogenic blood transfusion, microvascular invasion
P-0058

Short-Term Results of Neoadjuvant Chemotherapy Using Gemcitabine+S-1 for Pancreatic Cancer

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Objective: Several clinical trials on efficacy of preoperative treatment for pancreatic ductal adenocarcinoma (PDAC) are still ongoing. Awaiting the results, many institutes have adopted preoperative treatments especially for borderline-resectable (BR) PDAC. In our hospital, we also have started neoadjuvant chemotherapy using gemcitabine+S-1 (NACGS) for PDAC with BR-portal vein invasion or suspicious. Here we report short-term results of our cases.

Methods: Between October 2015 and November 2017, patients with PDAC with BR-portal vein invasion or suspicious, who underwent NACGS followed by pancreaticoduodenectomy (PD), were recruited. Tumor shrinkage rate or histological effect (RECIST) by NACGS were retrospectively reviewed. One cycle of the regimen was as follows; gemcitabine was administered on Day1, 8, and S-1 for 14days as of Day1, followed by 1week washout period. Standard regimen was 2cycles, while dose and cycle were modified case by case.

Results: Five patients (1male and 4females, average age: 64.2) were eligible. In all cases, size of the tumor shrank. The median rate of tumor shrinkage was 45%. All patients underwent PD with radical resection (R0). Three cases needed portal vein (PV) resection to obtain R0, whereas PV invasion was histologically confirmed in only one patient. Histological effects by NACGS were observed in all cases. All patients are still alive without recurrence.

Conclusion: NACGS should be introduced to treatments for PDAC with BR-portal vein invasion or suspicious in terms of tumor shrinkage and histological efficacy, which may lead to R0 resection.

Keywords: Gemcitabine, S-1, neoadjuvant chemotherapy, pancreatic cancer

P-0059

Does Measurement of Fecal Calprotectin Levels Help Distinguish Intestinal Tuberculosis, Crohn’s Disease, and Ulcerative Colitis?

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Background: The differentiation of tuberculosis, Crohn’s disease, and ulcerative colitis is often difficult even when endoscopy is performed. We wanted to know if the measurement of fecal calprotectin could be helpful in differentiating these three diseases.

Methods: We recruited 2 intestinal tuberculosis patients, 10 Crohn’s disease, and 15 ulcerative colitis patients for the investigation of ASCA, ANCA, QuantiFERON-TB, C-reactive protein (CRP), fecal calprotectin.

Results: Intestinal tuberculosis patients had normal mean CRP (0.375 mg/l), normal faecal calprotectin (11.5 mg/g), ASCA positivity (50%), ANCA positivity (0%), QuantiFERON-TB positivity (100%). Crohn’s disease patients had normal mean CRP (0.47 mg/l), elevated faecal calprotectin (468.89 mg/g), ASCA positivity (77.78%), ANCA positivity (0%), QuantiFERON-TB positivity (0%). Ulcerative colitis patients had slightly elevated median CRP (1.05 mg/l), the highest levels of faecal calprotectin (913.12 mg/g), ASCA positivity (0%), ANCA positivity (25.0%), QuantiFERON-TB positivity (8.33%).

Conclusion: The combination of faecal calprotectin and ANCA may be useful in the differential diagnosis of intestinal tuberculosis, Crohn’s disease, and ulcerative colitis.

Keywords: Intestinal tuberculosis, Crohn’s disease, ulcerative colitis, calprotectin

P-0060

Evaluation of Neoadjuvant Chemotherapy with Modified FOLFOLX6 (Combination Chemotherapy of Infusional 5-FU/L-Leucovorin and Intermittent Oxaliplatin) with Bevacizumab/Cetuximab in Patients with Advanced Lower Rectal Cancer

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Introductory: Preoperative chemoradiotherapy with total mesorectal excision (TME) is the recommended standard therapy for patients with locally advanced rectal cancer. However, some reports have shown increased frequency of bowed movements, incontinence, urgency, and emptying difficulties in irradiated patients. Therefore, it is necessary for aggressive preoperative chemotherapy to obtain local control and to avoid a postoperative defecation function disorder.

Objective: The safety and utility of preoperative chemotherapy with modified (m) OPTIMOX1 plus bevacizumab/cetuximab were evaluated in patients with advanced rectal cancer with factors contraindicative of curative surgery.

Materials and Methods: From June 2007 to December 2018, 26 advanced lower rectal cancer patients with factors contraindicative of curative surgery with total mesentric excision were eligible for this study. Neoadjuvant chemotherapy consisting of modified OPTIMOX1 (mFOLFOX6: a 2-hour infusion of leucovorin isomer dl-LV (200 mg/m2), followed by a 5-fluorouracil (5FU) bolus (400 mg/m2) and 46-hour infusion (2,400 mg/m2) with oxaliplatin (85 mg/m2), and SL5FU2 alternating administration) plus bevacizumab (5 mg/kg) or cetuximab (500 mg/m2) was administered.

Results: Adverse events seen with chemotherapy consisted of grade 3 thromboembolic event in 1 patient, primary tumor perforation or a fistula to adjacent organs in 2 patients, and diarrhea in 1 patient, but there were no cases of delayed administration or dosage reduction due to grade 3 neurotoxicity. The surgical procedures were anus-preserving resection in 18 patients (69.2%). A positive radial margin was confirmed in 8 patients (30.8%). Upon comparing the clinical and postoperative histological stages, primary tumor and node downstaging was achieved in 38.5% and 73.1% of the patients, respectively.

Discussion and Conclusion: These findings suggest the potential utility of neoadjuvant chemotherapy consisting of modified OPTIMOX1 plus bevacizumab/cetuximab prior to permitting radical resection or anus-preserving surgery in patients with highly advanced rectal cancer.

P-0061

Safety and Effectiveness of FOLFOXIRI for Metastatic Colorectal Cancer

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Background: FOLFOXIRI (folinic acid, 5-fluorouracil, oxaliplatin and irinotecan) has been reported a promising efficacy as first-line systemic chemotherapy for metastatic colorectal cancer (mCRC). We aimed to examine efficacy and safety of FOLFOXIRI in patients with mCRC.

Materials and Methods: An institutional database was utilized to identify mCRC patients treated with FOLFOXIRI retrospectively.

Results: From May 2015 to January 2019, a total of 34 patients were included (Median age: 56). Ten (29%) subjects had RAS mutations and 19(56%) had RAS wild-type, and between patients with RAS mutation and patients with RAS wild-type, there were no molecular-targeted drugs. Twenty-three patients (68%) were included (Median age: 56). Ten (29%) subjects had RAS mutations and 19 (56%) had RAS wild-type. Twenty-three patients (68%) were treated with FOLFOXIRI plus bevacizumab, 6 patients (18%) were plus cetuximab and 5 (15%) were without molecular-targeted drugs. The most common metastatic site was liver (58.8%), lymph node (31.2%), lung (25%) and peritoneal dissemination (25%). Twenty-three patients (67.6%) preceded surgical resection of primary tumor before chemotherapy. The overall response rate (ORR) was 53% and the disease control rate (DCR) was 85%. Median follow-up period was 15 months (interquartile range, 3-68months). The median progression-free survival (mPFS) was 13.8 months (interquartile range, 1-36months). The mPFS was not significantly different between patients with RAS mutation and patients with RAS wild-type, and between patients with right-sided colon cancer and patients with left-sided colorectal cancer, respectively. Serious adverse events (grade 3 or worse) were reported in 12 patients (35%). Seven (21%) were neutropenia, but there were only two incidences of febrile neutropenia (6%).

Conclusion: FOLFOXIRI therapy was effective and well tolerated in patients with mCRC.
Factors of Preoperative Colonoscopy that Affect The Detection of Synchronous Adenoma in Colorectal Cancer Patients

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Objective: Despite thorough preoperative screening, approximately 19-30% of synchronous polyps are detected after colon cancer surgery. Remnant synchronous lesions might require additional colonoscopy procedure or surgery. The purpose of this study was to investigate the factors of preoperative colonoscopy that can affect the detection of synchronous lesions in the colon in patients who have undergone surgery for colorectal cancer.

Methods: From January 1, 2012 to December 31, 2016, we retrospectively analyzed 1147 colorectal cancer patients, who underwent colectomy and colonoscopy. In all, 518 patients underwent colonoscopy before and after surgery. Index colonoscopy was defined as the last endoscopy performed before surgery. Follow up colonoscopy was performed one year after surgery. The effects of bowel preparation, index colonoscopy, adenoma, and physician and patient factors on postoperative PMR, AMR and AAMR were analyzed. An Aronchick scale “Excellent” or “good” was defined as optimal bowel preparation.

Results: The overall rate of missed adenomas was 25.7% (95% confidence interval, 22.2-29.8%). On comparing the optimal and non-optimal groups, the post-operative PMR, AMR (11% vs 49%, and 5.9% vs 35.2%, p <0.01), AAMR (3.0% vs 4.6%, p = 0.272), and size of the polyps (3.2 ± 0.55 vs 4.9 ± 0.23mm, p = 0.017) were higher in the non-optimal bowel preparation group. Based on the optimal group, we found more number of synchronous adenomas in the fair group (OR 5.72) and poor group (OR 11.39). On univariate analysis, the patients’ age and withdrawal time (p <0.01) also influenced AMR. Physicians with more than 10 years’ experience in colonoscopy had lower ADR than those with less experience, but there was no statistically significant difference. Multivariate analysis showed that age and preoperative bowel preparation influenced postoperative AMR.

Conclusion: Higher age of the patient and non-optimal bowel preparation at index colonoscopy, have a negative effect on lowering the postoperative AMR.

Keywords: Synchronous, adenoma, preoperative, colonoscopy

The Efficacy of Adjuvant Chemotherapy According to The Risk Classification of Recurrence Based on The Systemic Inflammatory Markers in Patients with Metastatic Liver Tumor from Colorectal Cancer

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Background: Although complete resection of metastatic liver tumor from colorectal cancer(CRC) is the only potentially curative treatment, surgery alone is not enough, because the recurrence rate after hepatectomy is high. Therefore, in clinical practice, adjuvant chemotherapy has been performed after resection of metastatic liver tumor from CRC. However, the evidence for the efficacy of adjuvant chemotherapy after hepatectomy is not sufficient. In the previous reports, it has been reported that adjuvant chemotherapy after resection of metastatic liver tumor from CRC is effective only in patients with a high risk of recurrence. The purpose of this study is to classify the risk of recurrence by using the systemic inflammatory markers, which have been reported to be associated with the clinical outcomes in patients with various types of malignancies, and to evaluate the efficacy of adjuvant chemotherapy according to the risk of recurrence.

Materials and Methods: We retrospectively reviewed the medical records of 119 patients with simultaneous and metachronous liver metastases from CRC who underwent potentially curative surgery between 1996 and 2017. Preoperative blood samples were obtained within 2 weeks before hepatectomy. The C-reactive protein-to-albumin ratio (CAR) were calculated from the blood samples by dividing the serum C-reactive protein level by the serum albumin level. The optimal cut-off value of the CAR was determined according to the ROC curve analysis, and then the patients were classified into the high-CAR group and the low-CAR group. We examined the relationship between the CAR and the relapse-free survival after hepatectomy, and evaluated the efficacy of adjuvant chemotherapy according to the risk of recurrence.

Results: The cut-off value of the CAR was set at 0.0471 based on the ROC curve analysis. The relapse-free survival rates were significantly better for the low-CAR group than for the high-CAR group. The efficacy of adjuvant chemotherapy after hepatectomy was not recognized in the low-CAR group with low risk of recurrence, whereas the relapse-free survival rates were significantly better for the patients who were treated with adjuvant chemotherapy after hepatectomy in the high-CAR group with high risk of recurrence.

Conclusion: The preoperative systemic inflammatory markers were useful as a prognostic marker in patients with metastatic liver tumor who were treated with potentially curative resection. Furthermore, it was suggested that adjuvant chemotherapy after hepatectomy may be effective for the prevention of recurrence in the group of high inflammatory markers with high risk of recurrence.

The Bladder-Sparing Strategy with Anti-EGFR Antibody for Colorectal Cancer with Urinary Bladder Involvement.

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Involvement of the urinary bladder by colorectal cancer (CRC) is occasionally observed and total or partial cystectomy is performed for en bloc resection. However, because the diagnostic accuracy for the pathological invasion is approximately 40-50%, and total cystectomy for all patients with suspected bladder invasion might represent excessive treatment. We have thus adopted a preoperative chemotherapy with anti-EGFR antibody for RAS-wild CRC tumors involving the bladder treatment. We have thus adopted a preoperative chemotherapy with anti-EGFR antibody for RAS-wild CRC tumors involving the bladder. However, because the diagnostic accuracy for the pathological invasion is approximately 40-50%, and total cystectomy for all patients with suspected bladder invasion might represent excessive treatment. We have thus adopted a preoperative chemotherapy with anti-EGFR antibody for RAS-wild CRC tumors involving the bladder, and R0 resection was achieved in all cases without total cystectomy. In conclusion, the patients achieved good surgical and quality of life results. The bladder-sparing strategy with anti-EGFR antibody can be considered for appropriately selected patients with urinary bladder involvement, although long-term outcome studies are necessary.
A Rare Case of Endometriosis Lesion in Caecum Causing Acute Small Bowel Obstruction

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Introduction: Endometriosis in bowel is rare condition, about 3-37% of endometriosis cases. Most of bowel endometriosis rising in the rectosigmoid (90% of bowel endometriosis). Incidence of caecal endometriosis is very low (<5% of bowel endometriosis) and almost never causing acute small bowel obstruction. The aim of this paper is to show that although bowel obstruction caused by caecal endometriosis is difficult to diagnose as it is rare, and may require laparotomy to make definite diagnosis, but it should be considered in infertile female patient.

Case Report: 37 years old woman infertile woman with intestinal obstruction with pre-operative diagnosis total acute small bowel obstruction caused by right colonic mass, with sepsis as the complication. Before the acute small bowel obstruction she complained of chronic right lower quadrant pain with chronic constipation alternate with chronic diarrhoea, symptoms that happened both in bowel endometriosis and colorectal malignancy. She also complained of chronic pelvic pain and dysmenorrhoea. She has been married for 10 years with no child. The patient was never diagnosed with endometriosis and never seek medical attention for the infertility and the chronic pelvic pain. The patient underwent Abdominal CT Scan, with result: massive small bowel obstruction, and caecal mass that causing acute small bowel obstruction. Diagnosis of Acute small bowel obstruction due to right colonic mass was made and emergency exploratory laparotomy was performed the patient.

Intervention: During the laparotomy, mass at caecum and ileocaecal that mass at ileocaecal and caecal mass. The histopathology also confirmed with the immunohistochemistry, in which positive ER, PR, CD 10 and CD7 was found the ileocaecal and caecal mass. In the second operation, reanastomosis of the ileum was done 3 months after the first operation. The chronic pelvic pain was decreased dramatically after the first and second operation.

Conclusion: In conclusion, although bowel obstruction caused by caecal endometriosis is an extremely rare cause of intestinal obstruction but it should be considered as a cause in infertile female patient.

Keywords: Endometriosis, caecum, bowel obstruction

Clinicopathological Analysis of High-Risk Rectal Neuroendocrine Tumors Sized ≤10 mm

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Background: The current published guidelines recommend local endoscopic resection for rectal neuroendocrine tumors (NETs) ≤10 mm as a safe therapeutic option given their low risk of metastasis. However, rectal NETs with high-risk features (grade ≥2, presence of lymphovascular invasion, and margin involvement) should be considered for total mesorectal excision (TME).

Methods: Between 1998 and 2017, 16 patients (11 men and 5 women; median age, 58 years (range, 37-78 years)) who underwent surgical resection of rectal NETs sized ≤10 mm with high-risk features were enrolled in this retrospective study (grade ≥2, 3 patients; lymphovascular invasion, 10 patients; margin involvement, 5 patients). Among them, 15 patients underwent endoscopic resection before radical surgery.

Results: The median tumor size was 7 mm (range, 4.5-10 mm). Lymph node metastasis was observed in 5 patients (31%). In patients with lymph node metastasis, the median tumor size was 9 mm (range 4.5-10 mm), lymphovascular invasion was observed in 3 patients (60%). The tumors were classified as Grade 1 (n=4) and N/A (n=1).

Conclusion: Lymph node metastasis was highly observed in high-risk rectal NETs. Conventional endoscopic resection are appropriate. We have to keep in mind that lymph node metastasis may occur even in small rectal NETs sized ≤10 mm.

Multiple Endoscopic Assisted Vacuum Therapy (E-VAC) for Chronic Pre-sacral Collection Following Low Anterior Resection Anastomotic Leak

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Anastomotic leak is a well-documented complication following ultra-low anterior resection. We present the case of a 74 year-old female who presented with systemic signs of infection (fever of 38 and raised inflammatory markers of CRP 122) secondary to abscess formation of his complex pre-sacral collections. The collections developed due to a chronic anastomotic leak of his ultra-low anterior resection with loop ileostomy for T2N1M0 rectal adenocarcinoma which had adjuvant pre-operative radiotherapy two years prior to presentation. As the patient was not septic and did not have signs of acute abdomen, a decision was made to pursue endoscopic assisted vacuum therapy for source control as an alternative to long term antibiotic therapy alone or major operative management with resection. Colonoscopy revealed two collections of pus at the low anterior resection anastomotic site divided by a septum. The pus-filled cavities were washed, foam placed into them and placed endoscopically closed with E-VAC therapy at 125mmHg using a 12Fr NG tube stitched to the foam and connected to the VAC suction device. Clinically the patient was afebrile from day 1 post first E-VAC procedure with CRP down trending to single digits within 5 days of instituting vacuum therapy. Twice weekly vacuum changes under colonoscopic guidance progressively decreased the size of the presacral cavity via secondary intention healing confirmed under direct colonoscopic vision. The patient was discharged 1-month post admission with a significantly smaller presacral cavity. This case study demonstrates that E-VAC can also be applied for multiple chronic defects simultaneously for source control of infection preventing the need for major surgery.

Endoluminal Vacuum Therapy Assisted Management of Rectal Perforation Secondary to Colonic Irrigation

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Colonic perforation secondary to colonic irrigation is a rare complication reported in literature with only sparse case reports as the highest level of evidence. We present the case of a 54-year-old female who presented to the emergency department eight days after attending a colonic irrigation retreat, where she underwent 3 sessions of colonic irrigation using coffee beans and water over the course of 5 days. She complained of significant lower abdominal pain with guarding and considerably raised inflammatory markers as well as deranged liver function tests in addition to an acute kidney injury. Computed tomographic imaging revealed an extensive extraperitoneal rectal perforation necessitating an emergency Hartmann’s procedure with formation of an abacran stoma. She underwent twice daily gentle warm saline flushes through the distal abacran stoma in an attempt to gently remove distal fecal content. On day 6 post op, she underwent flexible sigmoidoscopy which revealed a 1cm perforation, 12 cm from anal verge, leading into a faeces-containing presacral cavity. This cavity was washed out, faeces and necrotic tissue debrided, and discharged home. She re-presented two days later with rectal bleed with a CT Angiogram showing a superior rectal bleed amenable to angioembolisation. She underwent angioembolisation with resolution of her rectal bleed and subsequently discharged home with an uneventful post-operative course. Although rarely reported, colonic perforation is a noteworthy adverse effect of colon irrigation and surgeons should be vigilant about this possibility in patients having recently undergone colonic irrigation presenting with abdominal pain.
Faecal DNA Screening in Colorectal Carcinoma: Its Relevance and Significance

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Background: Colorectal cancer (CRC) is the third commonest cancer worldwide. Although CRC is considered to be 90% curable if detected early, the majority of patients present with advanced stage disease. The early detection of colorectal cancer with effective screening is essential for reduction of mortality. Colorectal screening can be divided into 2 broad categories: 1) Biological sample based tests like faecal, blood, urine tests 2) Colon structure based & image based tests including flexible sigmoidoscopy, colonoscopy, CT Colonography & Double contrast Barium enema. Faecal DNA testing is a non-invasive screening technique for colorectal cancer where the genetic and epigenetic alterations which point towards colorectal cancer or pre-cancerous state can be detected early on thus reducing the morbidity and mortality of such patients. The present paper examines the rationale and potential of fecal DNA testing as an alternative and adjunct to other CRC screening tests.

Objective: To establish the sensitivity and specificity of Faecal DNA test as compared to colonoscopy and faecal occult blood test. To study the efficacy in diagnosing patients of colorectal carcinoma when stool DNA test is used either with or without other screening tests. To determine whether Faecal DNA test can be established as a standard non-invasive screening test for colorectal cancer.

Methods: After well informed consent a total of 100 patients visiting Gastro-medicine and Gastro-surgical clinic of Hamidia Hospital were chosen to participate in the studies out of which 50 patients were taken as cases with lower GI symptoms and other 50 were chosen as control who had either no or mild lower GI symptoms and they were subjected to Faecal immunochromatographic test (FIT) immunochromatographic faecal occult blood test (iFOBT) and their stool samples were collected with proper storage technique protocol and subjected to DNA extraction using DNA extraction kit. The extracted DNA was further send for mass-array to detect key mutations found in the early stages of colon carcinogenesis including k-Ras, APC, p53, aberrant NDRG4, BMP3 methylation, B-actin as well as epigenetic changes such as microsatellite instability (MSI). The 50 control patients had consented for a routine colonoscopic examination along with the other 50 patients who were taken as cases.

Results: It was found that faecal DNA testing had higher sensitivity as compared to immunochemical faecal occult blood test (iFOBT). FOBT had a sensitivity of 70% and specificity of 86% and a positive predictive value of 83%. Whereas faecal DNA test had shown to have a higher sensitivity of 92% and specificity of 82% and its positive predictive value was 82%. Faecal DNA test though having higher sensitivity had a lower specificity than FOBT. But it is not affected by the proximal location of tumours as compared with colonoscopy & iFOBT. It is non-invasive and doesn’t require any bowel preparation. But it was found that the specificity was low. The number of false positives were quite high. Therefore it cannot be used as a single standard non-invasive screening technique. It needs to be used in conjunction with other screening tools such as FOBT & colonoscopy. In contrast colonoscopy was found to have a sensitivity of 92% comparable with Faecal DNA test and specificity of 96%.

Conclusion: Faecal DNA test and FOBT should be used as parallel screening tests rather than in series because though faecal DNA test has a greater sensitivity than FOBT, its specificity is lesser as compared with FOBT. Faecal DNA is an effective screening method and may significantly decrease disease burden by early detection. Faecal DNA testing offers multiple advantages as a screening tool. It is a noninvasive test with a sensitivity approaching 90% and a specificity of 82% being the most accurate till date.

Keywords: Colorectal carcinoma, immunochromatographic faecal occult blood test (iFOBT), faecal dna test, sensitivity, screening.

A Colorectal Cancer Liver Metastasis and Hepatocellular Carcinoma That Occurred in Synchronism to A Normal Liver: A Case Report

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The patient was an 83-year-old man who visited our hospital because of bloody stool. As a result of colonoscopy and computed tomography (CT) examinations, descending colon cancer and multiple liver tumors in S4/S8, S3, and S5 were detected. Contrast-enhanced CT examination showed no enhancement effect on the liver tumors, so the tumors were diagnosed as metastases from the descending colon cancer. The stent was inserted in the descending colon tumor because of the presence of an intestinal obstruction. Extended left bisectionectomy of the liver was performed while waiting for improvement of the intestinal edema after stent insertion. The S3 and S5 tumors were diagnosed as metastatic tumors from the descending colon cancer. However, the S4/S8 tumor showed proliferation of atypical liver cells with a fibrotic capsule and was thus diagnosed as moderately differentiated hepatocellular carcinoma. Only few reports have described hepatocellular carcinoma and metastatic liver cancer occurring simultaneously in the liver without chronic liver disease. We did not think of the possibility of hepatocellular carcinoma because the patient was diagnosed as having colon cancer by colonoscopy, having an abnormal elevation of serum carcinoembryonic antigen level and no early enhancement effect of the liver tumor on contrast-enhanced CT examination. We report a case of simultaneous duplication of the liver metastasis of colorectal cancer and hepatocellular carcinoma based on the existing literature.

Waist Circumference, Body Mass Index, and Colorectal Cancer Risk According to Diabetes Status: A Population-Based Cohort Study in Korea

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Objective: We investigated the relationship of BMI and waist circumference with the risk of Colorectal cancer (CRC) using a population-based cohort database and to explore the relationship of CRC with diabetes status.

Methods: Retrospective data (age >20 years) on anthropometric variables, blood parameters of fasting sugar, lipid levels, and blood pressure were collected from the National Health Insurance Corporation database between 2009 and 2012. Cox regression models were used to estimate hazard ratio (HR) and corresponding 95% confidence intervals (95% CI).

Results: Of the 23 121 360 people studied, 120 579 were diagnosed with CRC after a median follow-up period of 5.4 years. Both waist circumference and BMI were associated with increased risk of CRC, regardless of age or sex. After mutual adjustment, only waist circumference was significantly associated with increased risk of CRC (HR 1.275, 95% CI 1.205–1.349). When the risk of CRC was compared according to diabetes status among people with the same waist circumference range, risk of CRC was higher for those with worse diabetes status.

Conclusions: Waist circumference, rather than BMI is associated with CRC risk in the Korean population. In addition, the risk of CRC is gradually higher in those with worsening diabetes, even if their waist circumferences are within the same range.

Keywords: Waist circumference; body mass index; colorectal cancer; diabetes.
P-0072
Co-Infection of TB Colitis with CMV Colitis in Immunocompetent Patient

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There were some case reports who has intestinal co-infection of tuberculosis and CMV in HIV patients as immunocompromised person. But immunocompetent host also can be co-infection with tuberculosis and CMV together. Here, we reported a case of Co-infection of tuberculosis and CMV colitis who has any other medical disease. She was transfer from other hospital to our hospital OPD(out patient department) with CMV colitis. Her chief complaint was abrupt severe abdominal pain at periumbilical area. They did abdominal CT, colonoscopy and biopsy of T-colon colitis, and figured out it was CMV colitis as pathology. So we treated her ganciclovir 2 weeks, but unfortunately, it wasn’t work. At that time she came our hospital, we did laboratory study again. Laboratory studies showed a slightly elevated CRP (5.95), ESR (28), little dropped Hemoglobin (11). Abdominal CT was done, suspected mild dilatation of T-colon with no significant transition point. We Re-did colonoscopy and biopsy, there was a geographic huge longitudinal ulcer at T-colon (AV 50~55cm). At that time ANCA, ASCA were negative, so we rolled out of ulcerative colitis or Crohn’s disease. Therefore we thought it could be TB colitis, started with HERZ(isoniazid, ethambutol, rifampicin, pyrazinamide) as TB colitis. After 3 months later, we did follow-up colonoscopy and biopsy, found out that the colitis was improved. But she failed of eyesight as a side-effect of ethambutol, so we discontinue ethambutol, consulted with ophthalmologist. After all she gets better now, expecting follow up colonoscopy next month (June, 2019) when TB 1 year medication will be ended.

**Keywords:** CMV colitis, TB colitis, coinfection, immunocompetent patient

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**Fig 1. A.B:** Colonoscopy (2018.07.04) revealed tuberculosis and CMV colitis. C.D.: Follow up colonoscopy (2018.10.31) showed colitis improved after TB medication.

**Fig 2.** outside abdominal CT (2018.05.23) revealed CMV colitis and showed mild dilatation of T-colon, mild diffuse wall thickening, mild form of intestinal pseudo-obstruction, possibly.

P-0073
Management of A Deep Postanal Abscess Using An Intersphincteric Approach

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**Introduction:** Anorectal abscesses are one of the commonest anorectal problems encountered by surgeons. They are usually cryptoglandular in origin. When the involved gland originates from the posterior midline and traverses the conjoint longitudinal muscle into the deep postanal space, a deep postanal abscess results. Deep postanal abscesses are almost invariably associated with a fistula-in-ano. Although it is generally agreed that drainage of the abscess cavity is necessary, the adequate management of the fistula is still under debate.

**Objective:** To present a case of a deep postanal abscess associated with a posterior anal fistula, that was treated by abscess drainage and ligation of intersphincteric fistula tract (LIFT).

**Materials and Methods:** Here, we present a case of a 70-year-old male patient with a deep postanal abscess.

**Results:** The patient presented to the emergency department complaining of perianal pain. Inspection of the perianal region showed no alterations. On rectal examination, a bulging of the posterior wall of the rectum could be felt. A CT scan showed an abscess located in the deep postanal space. Surgical treatment was proposed to the patient. The patient was positioned in prone jackknife position. A fistula was identified, with its internal orifice located in the posterior midline. No external orifice could be identified. Transanal drainage of the abscess was performed. The intersphincteric tract of the fistula was identified and ligated. The anococcygeal ligament was sectioned next to the external anal sphincter and the postanal space was curetted. Approximation of the internal and the external sphincter muscles and the skin was performed. There were no postoperative complications. Patient was discharged home at the second postoperative day.

**Conclusion:** The intersphincteric approach in the treatment of deep postanal abscesses allows for drainage of the abscess, and ligation and resection of the fistula tract, while preserving the integrity of the anal sphincter.

**Keywords:** Deep postanal abscess, anal fistula, ligation of intersphincteric fistula tract (LIFT)

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P-0074
Randomize Control Trial Botulinum Toxin Injection for Analgesic Effect after Hemorrhoidectomy

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**Background:** Hemorrhoid is common disease in surgical practice but only a few number of patient need surgical treatment. The most common concern of patient is postoperative pain. This study evaluated the efficacy and safety of an interphincteric injection of botulinum toxin for pain relief in post hemorrhoidectomy.

**Objective:** study result of botulinum toxin type A in pain reduction after hemorrhoidectomy.

**Methods:** Overall 82 patients, 39 patients were randomized into botulinum toxin injection group. Preoperative grading were grade III 37 patients and grade II 2 patients. Patients received an intersphincteric injection of 0.5 ml of a solution containing 30 units botulinum toxin (BTX). The data in postoperative were collected pain score in visual analog score (VAS), analgesic used, hospital stay and complication.

**Results:** The VAS were lower in BTX group at 12 hours and 24 hours postoperative phase. VAS at 12 hours 4.435 ±2.149 vs 6.232 ±2.307 (p < 0.001), VAS at 24 hours 2.265±2.079 vs 3.744±2.361 (p < 0.001). In BTX group have a shorter time to return to daily activity than control group (3 vs 2 days, p-0.007). No difference in immediate and delay complication in both group.

**Conclusion:** Postoperative hemorrhoidectomy need a multimodalities for pain reduction. Botulinum toxin is one kind with have some benefit in postoperative pain reduction.
P-0075
Result of Aspiration with Antibiotic in Perianal Abscess at Rajavithi Hospital

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Background: Perianal abscess is the common disease in anorectal surgery. Incision and drainage is standard of care but some patient aware to surgery due to anesthesia and risk sphincter injury. Aspiration and antibiotic is alternative method for treatment abscess. An example in breast abscess, showed a good result but in perianal abscess is a limited in study.

Objective: To study the result of aspiration with antibiotic in perianal abscess with 6 months postoperatively follow up.

Materials and Methods: A retrospective case match study of 16 patients who had undergone aspiration with antibiotic in perianal abscess. The healing rate, recurrence perianal abscess and incidence of fistula in ano was study.

Results: The patients who undergone aspiration and perianal abscess had a one case failure but remain didn’t have recurrence perianal abscess and fistula in ano in 6 Months follow-up.

Conclusion: Aspiration with antibiotic perianal abscess have a good result for treatment perianal abscess. It can be an alternative method for treat perianal abscess but need further study in the future

Keywords: Perianal abscess, aspiration, antibiotic, fistula in ano

P-0076
Laparoscopic Resection of Splenic Cystic Echinococcosis with Spleen Preservation

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Introduction: Cystic hydatic disease, or cystic echinococcosis is an important parasitic zoonosis in South America, Asia and Africa., caused by Echinococcus granulosus. The disease can develop in any organ, but most frequently affect the liver and lungs. Isolated splenic involvement is rare (0.5-4%). Total splenectomy was the treatment of choice for many years, although splenectomy is associated with higher incidence of sepsis and thrombosis. The mayor risk in conservative treatment is recurrence (0-18%). In recent years the conservative treatment of spleen has demostrated to be a feasible, safe technique and without recurrence.

Objective: The aim of this work is to present a safe technique using laparoscopic approach for the treatment of cystic echinococcosis of the spleen.

Materials and Methods: This is a case report of a female patient who was diagnosed with splenic cystic echinococcosis after a CT- Scan. The patient underwent a coordinated laparoscopic surgery with spleen preservation. All the cyst could be removed in the operation. The patient was discharge after 48hs, with negative serology and abendazole treatment.

Results: Spleen preservation has been demonstrated in recent years to be safe and preserves the immune function of the spleen with no recurrence in lastest series. The laparoscopic approach brings all the benefits of a mini-invasive technique

Conclusion: There is no consensus regarding the selection of surgical procedure because of the low frequency of this disease involving the spleen. Considering its benign nature, conservation of the spleen in favorable cases; using the laparoscopic approach, is a feasible technique with low complications.

Keywords: Spleen, hydatic cyst, laparoscopic surgery.

P-0077
Jejunal Hemorrhagic Diverticula

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Objective: Acquired diverticula of the jejunum and ileum are an uncommon entity. Massive gastrointestinal hemorrhage from jejunal diverticula is extremely rare. We report a case of massive rectal hemorrhage from a jejunal diverticulum.

Methods: A 78-year-old man was admitted in emergency room after an episode of massive rectal bleeding. The initial hemoglobin level was 10.2 g/dL. We performed an upper endoscopy, normal, and a colonoscopy, that revealed blood signs and non-hemorrhagic diverticula. The rectal bleeding recurred three times, all while investigating the origin of bleeding, with episodes of hypotension, tachycardia and severe drop of hemoglobin level. Abdominal CT angiography and conventional mesenteric angiography were both unsuccessful to localize any hemorraghic focus. A double balloon enteroscopy showed a hemorrhagic jejunal diverticulum six centimeters beyond the Treitz angle and the patient was submitted to an urgent videolaparoscopy. Six diverticula were found from the first, localized at enteroscopy, in an extension of 20 cm of jejunum. A 30cm enterectomy and primary anastomosis were performed. The patient received a total of four units of packed red cells.

Results: Post-operative period was uneventful, and the patient was discharged at the 7th day, with a hemoglobin level at 8.9 g/dL. receiving oral diet. The residual anemia gradually subsided and, eighteen months after, patient no more bleeding and his small bowel barium examination reveals no changes.

Conclusion: Double balloon enteroscopy can be protagonist to identify the hemorrhagic jejunal diverticulum. Surgical resection of the involved intestine and primary anastomosis is the treatment of choice.

P-0078
Comparison of Different Thyroid Imaging Reporting and Data System by Computerized Ultrasound Features

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Introduction: Different guidelines of Thyroid Imaging, Reporting, Data System (TI-RADS) have been published to determine whether fine-needle aspiration cytology (FNAC) and/or surgery is required. We will focus on nodules size larger than one and smaller than two centimeter, for management of the nodule of this size varied. With the computer-aided detection (CADe) technology, this study aims to evaluate and compares the different guidelines on treatment of thyroid nodules. Then, novel guideline using the CADe technology are proposed to reduce unnecessary procedures under reasonable sensitivity.

Materials and Methods: From July 2008 to December 2015, 369 patients with 422 nodules size between one and two centimeter were recruited, which were surgically resected and pathologically proven. (a total of 422 nodules: 191 benign and 231 malignant nodules). Eight guidelines, i.e., ACR(2017)[1], AACE (2016)[2], Russ(2016)[3], Seo et al (2016) [4], ATA(2015)[5], BTA(2014)[6], Kwak et al.(2013)[7] and Kwak et al.(2011)[8], were evaluated with sonographic features computed by a USEFDA-cleared CADe software device (AmCADUT Detection)[10]. This CADe device quantifies and visualizes six sonographic features: hypoechochogenicity, echogenic foci, heterogeneous texture, irregular margin, anechoic area, and taller-than-wide features, to assist physicians making their diagnostic decisions with structural reports. The novel guidelines for recommendation of FNAC were proposed using the quantified sonographic features.
Results: For the 422 nodules, three guidelines, Kwak et al. (2011), Kwak et al. (2013), Russ (2016) and AACE (2016), had the sensitivity greater than 90% (0.95-1.0), with the specificity stretching from 0.01 to 0.18. Although the sensitivity of Seo(2015) and BTA(2014) are 0.89 and 0.88 respectively, but they have the specificity of 0.30 and 032 respectively. Novel guideline was proposed and tested. If either one of US features including hypochoegnity, microcalcifications and taller than wide was present, then sensitivity is 0.92 and specificity is 0.24.

Conclusion: The CADe device is an effective tool to assist physicians in following the TI-RADS guidelines. With the proposed novel guideline, it is shown that 81% of patients with malignant nodules could be successfully identified and proceed to FNAC under acceptable specificity for further treatment.

P-0079

Median Arcuate Ligament Syndrome: Two Case Reports and Review of Literature
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Introduction: Median Arcuate Ligament (MAL) syndrome is a rare condition in which a fibrous diaphragmatic arcuate ligament causes compression and stenosis of the celiac trunk. Its prevalence is 2/100000 and it mostly affects young to middle-age adults. Symptomatically it’s characterized by clinical triad: postprandial epigastric pain, weight loss and vomiting. The gold standard to diagnose this condition is, actually, angio-CT and has to be done when other more common causes are excluded. For the 422 nodules, three guidelines, Kwak et al. (2011), Kwak et al. (2013), Russ (2016) and AACE (2016), had the sensitivity greater than 90% (0.95-1.0), with the specificity stretching from 0.01 to 0.18.

Objective: To present two case reports treated in our institution.

Materials and Methods: We present two case reports treated in our institution.

Results: Case Report 1: Female, 48 years-old, presented with chronic epigastric pain, nausea and weight loss. Physical examination, laboratory blood tests and endoscopic study were normal. Abdominal doppler ultrasonography showed significate stenosis (>50%) of celiac trunk, respiratory dependent as well as the angio-CT. The patient was submitted to laparoscopic surgery sectioning MAL that was uneventful. She experienced an important improvement in her complaints; Case Report 2: Male, 68 years-old, with post-prandial chronic epigastric pain. Physical examination, laboratory blood tests and endoscopic study were normal. Angio-CT showed celiac trunk with high origin with acute descendent angle associated to reminiscent dilatation. Angiography showed significate celiac trunk stenosis, respiratory dependent as well as the angio-CT. The patient was submitted to an uneventful laparoscopic surgery. He reported pain improvement, but still requiring analgesics. So, he underwent an angiography that didn’t show any stenosis, excluding the needling of endovascular treatment.

Discussion and Conclusion: MAL syndrome is a rare condition which clinical presentation is unspecific. Diagnosis should be considered when excluded other diseases. Because of the potentially treatable pathology that greatly affects the quality of life, a high suspicion index is primordial.

Keywords: Median arcuate ligament, celiac trunk, stenosis, angio-CT
The Usefulness of The Contrast Medium Marking for The Gastrointestinal Stenting

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Introduction: Marking is important for the gastrointestinal stent placement. Especially stenting in the lower esophagus and rectum requires accuracy because stent migration in the esophagus causes gastroesophageal reflux and in the rectum influences the method of surgical resection. Stenting using markings outside of the body, for example putting injection needles on the skin, often becomes inaccurate due to body movements and breathing. Regarding gastrointestinal marking with endoscopic clips placed outside of the stent, there is a risk for later perforation of the gastrointestinal tract. If a normal-sized endoscope cannot pass through the stricture, endoscopic marking at the caudal side of the gastrointestinal tract is difficult. The author suggests a new marking method for accurate stenting.

Objective: The water-soluble contrast medium ‘iopamidol’ has been used for endoscopic injection sclerotherapy and is considered to be safe even if injected into the submucosa of the gastrointestinal tract. The author used iopamidol injected into the submucosa as a marker for stenting through a fluoroscope. 120 patients with unresectable malignant stricture of the esophagus, a portion of the small intestinal tract underwent stent placement using iopamidol. 43 patients had cancer of the esophagus, 14 had stomach cancer, 5 had duodenal stenosis due to stomach cancer, 48 had colon cancer, and 10 had rectal cancer.

Methods: Iopamidol (62.14%, 20 ml of 1A) was used as a water-soluble contrast medium. First, a small bulge with saline was made by the thin endoscope and needle under the mucosa to prevent injection of iopamidol outside of the gastrointestinal tract. Then, 2-3 ml of iopamidol was injected into the bulged area with confirmation by fluoroscopy. Iopamidol was injected to mark the proximal and distal side of the stenosis.

Results: Marking and stenting were possible in all cases with the contrast medium marking method. Iopamidol injected in the proximal and distal side of the stricture showed the endoscopist the length of the stricture through the fluoroscope and helped for accurate stent placement. Accidental injection of iopamidol did not occur. A thin endoscope made it possible to mark the distal side of the stenosis. In the future, slightly more contrast medium should be injected because it fades over time and becomes difficult to recognize.

Conclusion: Marking by injection of the water-soluble contrast medium ‘iopamidol’ into the submucosa was useful for gastrointestinal stent placement.

Analysis of Recurrence Rate and Risk Factors after Endoscopic Resection of Gastric Epithelial Dysplasia

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Background and Objective: Endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are widely used for gastric epithelial dysplasia. However, histological examination of the resected lesions after endoscopic treatment for dysplasia (low grade/high grade) revealed that the final diagnosis may be upgraded. To evaluate the long-term prognosis after endoscopic procedure of gastric epithelial dysplasia, we investigated whether there was a difference in recurrence rate according to treatment modality and evaluated the risk factors associated recurrence of dysplasia.

Methods: From January 2011 to December 2015, we compared the risk factors of recurrence and recurrence rates of 599 patients and 306 patients treated with EMR and ESD for Gastric epithelial dysplasia, respectively.

Results: The en bloc resection rate (32.2% vs. 100%, p<0.001) and complete resection rate (94.8% vs. 99.0%, p=0.003) were significantly lower in the EMR group compared with the ESD group. The recurrence rate was significantly lower in the ESD group (1.3%) than in the EMR group (4.2%) (P=0.026), if the size was greater than 2 cm (p=0.002) or has a redness (p<0.05). There was a statistically significant increased in the risk of recurrence, regardless of lesion location or histologic grade. and the recurrence rate was significantly lower in cases of complete resection and ESD (P<0.05).

Conclusion: The complete resection rate was significantly high and recurrence rate was significantly lower in patients with gastric epithelial dysplasia treated with ESD. Therefore, lesions larger than 2 cm in size or generally showing redness may be treated with ESD because of the possibility of malignancy and recurrence.

Keywords: Gastric dysplasia, endoscopic treatment, recurrence

Reversing Home-Total Parenteral Nutrition to Enteral Nutrition: A 30 Years Experience

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Objective: Intestinal failure is a critical condition when there is insufficient bowel length or function to support daily nutrition needs. The standard treatment have been home-total parenteral nutrition (home-TPN), with generally good outcome. However there are still potential fatal complications, such as catheter related infection, venous thrombosis, and cholestasis related liver failure. To reverse from home-TPN to enteral nutrition (EN) is possible, but the data remain limited. The purpose of this study is to describe the 30 years experience of reversing home-TPN to EN in the NTUH, as well as the contributing factors.

Materials and Methods: Retrospective study of the single center database from National Taiwan University Hospital (NTUH) Nutrition Support Team (NST) was conducted. Patients treated with home-TPN between 1999 and 2018 were collected, and classified into the successful reversed or persisted home-TPN group. The demographic data including etiology of intestinal failure, residual small bowel length, and colon in continuity was reviewed. Representative biochemistry markers at two time points were examined: the initiation and the last data of the home-TPN period. The data was analyzed with SPSS software.

Results: 806 home-TPN treated adult cases were identified. 41 cases with benign disease and chronic intestinal failure treated with home-TPN >30 days were proposed to reversal at the NTUH NST meeting. After the waiting process, 17 cases (41%) reversed to EN successfully (independence of home-TPN >30 days), and 24 cases (59%) failed. Statistical analysis showed significant difference between the two groups in age, residual small bowel length, and renal function at both time points examined.

Discussion and Conclusion: Younger age, longer residual small bowel, and better renal function are factors contribute to greater possibility of reversing home-TPN to EN in benign chronic intestinal failure patients.

Keywords: Home-TPN, intestinal failure, reverse home-TPN, weaning off home-TPN
The So Called “No Gut Syndrome”: A Near-Total Enterectomy Due to Sporadic Mesenteric Desmoid Tumor Necrosis

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Objective: Intra-abdominal desmoid tumors are rare and locally aggressive fibromatoses often arising from the mesentery. Given the high rate of progression-free survival or spontaneous regression, initial non-operative strategy is usually preferred. Nevertheless, in around 10% of cases, the disease progresses and percutaneous drainage or derivative surgery may be necessary. Moreover, locations threatening the superior mesenteric vessels often make the tumor unresectable. We report a rare case of a locally aggressive mesenteric desmoid tumor complicated by necrosis and general peritonitis requiring urgent laparotomy and near-total enterectomy.

Methods: A 47-year-old female was referred for abdominal pain, postprandial heaviness and dyspepsia. Clinical examination showed a voluminous intra-abdominal mass. Computed tomography detected a 14-cm intra-abdominal tumor. Once admitted for further investigations, the tumor rapidly progressed towards acute abdomen requiring urgent laparotomy. Intraoperatively, the tumor rose from the mesentery, involving most of the small bowel, the ileo-caecal junction, and the superior mesenteric vessels at their origin. The lesion was resected, and internal and external perforation were performed. Given these intraoperative findings, a right hemicolectomy and a near-total enterectomy with a hand-sewn end-to-side duodeno-pancreatic anastomosis had to be performed.

Results: The patient recovered uneventfully and was discharged on parenteral nutrition on postoperative day 28. Pathology confirmed the R0 resection of a 7-cm desmoid fibromatosis. APC gene analysis was negative. At 7-months follow-up, the patient was asymptomatic with no signs of recurrence. Her BMI was stable at 23.6 kg/m². Bowel movements were from 3 to 4 per day. Parenteral nutrition was reduced to 700 Kcal per day as oral intake increased progressively.

Discussion & Conclusion: Aggressive mesenteric desmoid tumor complicated by necrosis and peritonitis is a rare but potentially life-threatening condition. Near total-enterectomy, if necessary, can be a lifesaving procedure. The “no gut syndrome” can be managed efficiently with a proper nutritional follow-up, maintaining a decent quality of life.

Keywords: Colorectal, enterectomy, desmoid tumor, case-report

Primary Splenic Diffuse Large B-Cell Lymphoma and Gastrointestinal Stromal Tumor in a Patient with Situs Inversus Incompletes

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Introduction: Primary splenic diffuse large B-cell lymphoma (PS-DLBCL) comprises less than 1% of non-Hodgkin’s lymphomas. It often presents with abdominal pain, a splenic mass, weight loss, and elevated lactate dehydrogenase (LDH). Patients will typically have ultrasound or computed tomography (CT) findings of splenomegaly with hypodense masses. PS-DLBCL has the ability to metastasize to hilar lymph nodes. Treatment generally consists of splenectomy, chemotherapy, and/or splenic irradiation. Gastrointestinal stromal tumors (GIST) arise from the smooth muscle interstitial cells of Cajal. They most often occur in the stomach and generally have a lower malignant potential than tumors found elsewhere in the gastrointestinal tract. CT or magnetic resonance imaging (MRI) is the preferred imaging modality for the evaluation of a GIST, and definitive diagnosis is made by biopsy. Surgical resection is the mainstay of treatment. Imitinib or sunitinib may be used as well on pathologic evaluation of size and mitotic activity.

Case Report: The patient is a 68-year-old female with situs inversus incompletes, who was ultimately diagnosed with PS-DLBCL and a GIST. The patient initially presented to the emergency department with...
In conclusion, we present a rare disease within a patient of Surgeons, Gastroenterologists and Oncologists.

The HCV virus may infect the lymphocytes directly. Alternatively, HCV virus causes chronic antigen stimulation resulting in chronic disease. Several recent studies have proposed an association of HCV with DLBCL. The exact mechanism remains unknown, however, a recent study using a national cancer database inquiry revealed an association between GIST and other malignancies, including non-Hodgkin's lymphomas. Final evaluation revealed her GIST to be 1.2 cm with 0 mitosis per high powered field (HPF). This is a low risk GIST (tumor <5 cm in size, <5 mitoses/50 HPF), and as such she will undergo active surveillance. Situs inversus with levoacardia, or situs inversus incompertus, has a reported incidence of 1:22,000, making it rarer than complete situs inversus. It is commonly associated with congenital heart disease. In addition, situs inversus with levoacardia is often associated with either aplasia or polysplenia. An omental splenule was incidentally discovered and resected in our patient.

Conclusion: In conclusion, we present a rare disease within a patient with an even rarer congenital condition. PS-DLBCL typically presents with abdominal pain, splenomegaly with a focal splenic lesion, and B symptoms. As an association has been shown between the two diseases, PS-DLBCL should be considered as a diagnosis in patients with splenomegaly and HCV. Finally, although PS-DLBCL may be diagnosed with biopsy, splenectomy appears to be both diagnostic and therapeutic for some patients.
**The Comparison of Quality of Life in Patients with Pilonidal Sinus Disease. Negative Pressure Wound Therapy Versus Standard Wound Dressings – A Randomized Pilot Study.**

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**Objective:** The aim of the study was to compare the quality of life among patients with a pilonidal sinus (PS) treated with negative pressure wound therapy (NPWT) or standard dressings after surgical excision.

**Methods:** 31 patients were randomly assigned to NPWT dressings (17 patients) or standard dressings (14 patients) after surgical excision of PS. Demographic data were recorded. In each individual we assessed: longitudinal as well as transversal dimension of the primary wound, number of dressings exchanges, number of visits in the Out-patient Clinic, number of days from the excision to restoration of daily activities, presence of postoperative complications, necessity of re-operation and depilation of the wound area. Quality of life was evaluated using the Dermatology Life Quality Index (DLQI).

**Results:** There were significant differences between: return to work duties (17.5 vs 12.0 days, p=0.000002), number of dressings changes (12.0 vs 5.0, p=0.000003), number of visits in the Out-patient Clinic (13.0 vs 6.0, p=0.000001). Group II had lower rate of postoperative problems in comparison to group I (35.71% vs 11.76%, p=0.02). In both groups, DLQI improved significantly after 12-months follow-up, but in group II DLQI was significantly lower than in group I (3.0 vs 0.0 points, p=0.002).

**Conclusion:** The time of return to normal daily activity was shorter in patients with PS treated with NPWT. The use of NPWT allowed to reduce the time of healing, and postoperative complications. Patients treated with NPWT dressings had a significantly lower DQLI score and higher quality of life, in comparison to patients treated with standard wound dressings.

**Keywords:** Pilonidal sinus, dermatology life quality index, negative pressure wound therapy

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**Comparison of The Effectiveness of The Treatment Using Standard Methods and Negative Pressure Wound Therapy (NPWT) in Patients Treated with Open Abdomen Technique**

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**Introduction:** Open abdomen is a technique in which the fascia is left open intentionally to avoid elevation of intra-abdominal pressure (IAP). According to WSACS (World Society on the Compartment Syndrome) the correct value of intra-abdominal pressure is 5-7 mmHg. The intra-abdominal hypertension (IAH) is recognized when pressure ≥ 12 mmHg. Aim of this study was to compare the results of treatment of the open abdomen using standard therapy and negative pressure wound therapy (NPWT).

**Materials and Methods:** The study included 37 patients hospitalized in the Department of General, Endocrinological Surgery and Gastroenterological Oncology and Department of Anesthesiology and Intensive Care of Poznan University of Medical Sciences in 2009-2012 and divided into two groups. Group I (n = 20) was treated by standard surgical procedures (laparostomia, repeated washing of the peritoneal cavity). Group II (n = 17) was treated with NPWT. The analyzed data included time of hospitalization and the clinical outcome (survival vs death), the presence of atmospheric enterocutaneous fistulas, cyclic quantitative determination of C-reactive protein level.

**Results:** Mortality was lower in the group treated with NPWT compared to the group treated with the standard procedures (3 vs 9). Number of fistulas during hospitalization decreased in the group treated with NPWT compared to the standard treatment (18% vs 70%). Decrease in CRP levels was also observed in the group treated with NPWT.

**Conclusion:** The use of NPWT in patients requiring treatment with open abdomen is reasonable because of the increase in patients survival, decrease in the amount of intestinal fistulas. It is necessary to train doctors in the use of this form of therapy in training workshops and in the clinical setting.

**Keywords:** C-reactor protein, negative pressure wound therapy, open abdomen
**P-0092**

**Effectiveness of Irreversible Electroporation Using Newly Developed Endoscopic Ablative Catheters in Gastrointestinal Tract: An in Vivo Animal Study**

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**Objective:** Irreversible Electroporation (IRE) is an ablation technique that induces apoptosis by applying an electric field. IRE has several advantages over other ablation techniques. For this reason, the IRE has already been used as an adjunctive treatment in many areas of tumor therapy and has confirmed its potential. The IRE seems to be a next-generation ablation technique that could replace RFA or be used for therapeutic purposes in gastrointestinal lesions. The present study investigates the feasibility of applying IRE therapy to gastrointestinal tract using newly designed endoscopic ablation catheters.

**Methods:** The IRE was performed using a generator in the esophagus, stomach, and duodenum under general anesthesia using its general anesthetized pig. Two types of endoscopic IRE catheters such as basket type, two-electrode type were used. The gap between the electrodes was about 1.0 cm. One, a basket-shaped catheter was used for the esophagus and duodenum. The other is two electrode catheters used for stomach. The voltage was applied from 500V to 2000V, and the number of pulses was fixed to 60. The pigs were euthanized after 24hr from experiment day. After the IRE ablation on tissue, histological evaluation of ablation was done to 500V in all tissues. The stomach caused necrosis of mucosa at 1000V and ulcers at 1500V and inflammation and vessel injury of all submucosa at 2000V. In the esophagus, sepsation of the layer was observed at 1000V, desquamation of layer and erosion of mucosa were seen at 1500V, and submucosa was induced at 2000V. In duodenum, erosion and necrosis were seen in mucosa at 5000V, inflammation in submucosa at 1000V, and perforation at 2000V.

**Conclusion:** Our newly designed catheters can be used to effectively ablate the esophagus, stomach, and duodenum. Further studies are needed for the protocol about IRE ablation suited for esophagus, stomach and duodenum.

**Keywords:** Endoscopy, irreversible electroproporation, esophagus, stomach, duodenum

**P-0093**

**Comparison of Adverse Drug Events Associated With Non-Opioid and Opioid Analgesic Use in Korea: A Nationwide Assessment**

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**Introduction:** For cancer patients, both non-opioids and opioids analgesics are given frequently, which are not free from inevitable adverse drug effects (ADEs).

**Objective:** To compare the patterns of ADEs associated with the use of non-opioid and opioid analgesics in Korea.

**Methods:** Analgesic ADE case records voluntarily reported to the Korea Adverse Event Reporting System from 2007 to 2016 were retrospectively reviewed. Cases with certain, probable/likely, and possible causality were included in the analysis. All reported ADEs were grouped using system-organ class. Logistic regression was performed to identify factors associated with the seriousness of analgesic ADEs.

**Results:** Overall, a total of 194,566 ADEs (32.2% for non-opioids and 67.8% for opioids) were included in this analysis. The most commonly reported ADEs were skin and appendage disorders for non-opioids (31.8%) and gastrointestinal disorders (59.5%) for opioids, respectively. Serious ADEs occurred in 6,102 (9.7%) and 3,326 (2.5%) cases of the non-opioid and opioid groups, respectively. The seriousness of ADEs was significantly associated with the year of report (odds ratio [OR] = 0.916), causality (OR = 2.504 for certain causality), males (OR = 1.423), advanced age (OR = 1.570), non-opioid analgesic use (OR = 4.182), and polypharmacy (OR = 1.009) (P < 0.001 for all). The most common serious ADEs were skin and appendage disorders (33.2%) for non-opioids and neurologic disorders (19.3%) for opioids, respectively.

**Conclusion:** In Korea, opioids cause ADEs more frequently compared to non-opioids. Serious events are more likely to occur with non-opioids compared to opioids. Patients treated with analgesics should be closely monitored in clinical practice considering the prevalence and seriousness of ADEs.

**Keywords:** Endoscopy, perforation

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**P-0094**

**Video Capsule Endoscopy: Indications and Results Cheikh Zayd Hospital Experience**

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**Introduction:** Endoscopic video capsule was launched in the year 2000, since then we are able to visualize the mucosa of the small intestine with a minimally invasive technique, very comfortable for patients, with very little complications and without the need for hospitalization.

**Objective:** To evaluate the contribution of ECV in the etiological diagnosis of iron deficiency anemia and Crohn’s disease. To appreciate its diagnostic profitability as well as its therapeutic impact.

**Materials and methods:** Monocentric retrospective study over a two-year period from January 2017 to May 2019. All patients who received VCE were included. Upper endoscopy / colonscopy was performed beforehand in all patients. Indications were unexplained externalized digestive bleeding (n = 15), iron deficiency anemia without externalized bleeding (n = 29), suspicion of Crohn’s disease: (n = 1), Peutz-jeghers surveillance (n = 3), unexplained abdominal pain (n = 2), unexplained diarrhea: (n = 2). The VCE used was the PillCam SB3 type. A gastroenterologist specialist interpreted the results.

**Results:** 52 patients were collected, there was a discreet female predominance (52%) with a sex ratio W / M at 1.1. The average age was 57.2 years. The lesions detected by VCE were dominated by angiodysplasia (n = 14, 37%), including small bowel angiodysplasia (n = 11.26%) and coeliac angiodysplasia (n = 2.18%) and stomatitis (n = 1, 2.6%), followed by gut tumors in 21% of cases (suspicions of GIST (n = 7), of carcinomatous lesion (n = 1), 2 cases of GIST and 1 case of pancreatic ectopia confirmed postoperatively, non specific microlith (n = 5, 13%), Crohn’s disease: (n = 4, n.11%), villous atrophy: (n = 2, 5%), small polyposic Jeger’s syndrome (n = 2.5%), hauptide polypl: (n = 1, 3%), Meckel’s diverticulum: (n = 1, 3%), lymphangectasia: (n = 1, 3%), the examination was normal in 23% of cases (n = 12). Failure of GVE progression due to gasparoses in 2 cases.

**Conclusion:** The diagnostic efficacy of VCE in our center for all indications combined was 73% and 70% in case of iron deficiency anemia which is comparable to the results reported internationally. However, data for other indications of VEC, especially in Crohn’s disease are still lacking. The VCE not only makes it possible to specify the digestive origin of iron deficiency anemia but can also contribute to its therapeutic management, whether medical, endoscopic or surgical.

**Keywords:** Endoscopy, perforation

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**P-0095**

**Clinical Features of Iatrogenic Perforation Associated with Endoscopy**

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**Objective:** Among complications associated endoscopic procedure, an iatrogenic perforation is the most feared adverse event. In the present study, we assess the incidence and clinical outcomes of endoscopic procedures.

**Materials and methods:** Between January 2010 and December 2017, a retrospective review of medical records of all patients with perforations from endoscopy was conducted in a single tertiary referral hospital.

**Results:** During study period, a total of 177,009 endoscopies were performed. There were 94 (0.053%) perforations. Four cases (4.3%) required surgery and two patients died (2.1%) because perforation is a direct cause. In upper endoscopy, there were 2,116,708 (0.002%) perforations in diagnostic endoscopies and 16,380 (0.421%) perforations in therapeutic endoscopies. In lower endoscopy, there were 6,40,635 (0.015%) perforations in diagnostic endoscopies and 56,7,954 (0.704%) perforations in therapeutic endoscopies. There were 14,7,911 (0.177%) perforations in ERCP. In most patients (89/94, 95%) were discharged after endoscopic clipping at the time of perforation or supportive caring without surgery and the average hospital length of stay was 8.3 ± 5.3 days. All 8 perforations in the diagnostic endoscopy were caused by training fellows who had 1 or 2 years of endoscopic experience. Two perforations in upper diagnostic endoscopy were upper esophageal perforation during intubation, one of them needed surgery and one was a terminal cancer patient and eventually died. Six perforations occurred in lower diagnostic endoscopy, 3 cases were during sigmoid colon passage and 3 cases were U-Turn in rectum.

**Conclusion:** In diagnostic endoscopy, the perforation rate is extremely low, but training fellow who has little experience with endoscopy needs attention during intubation in cases of upper endoscopy and sigmoid colon passage or U-Turn at rectum in cases of lower endoscopy. Furthermore, early surgical perforation replacement of the upper endoscopy can be fatal. Once perforation occurs, early detection is important.

**Keywords:** Endoscopy, perforation
Comparisons of Short Term Outcomes of Laparoscopic vs Open Gastrectomy for Gastric Cancer: A Metaanalysis of Randomised Control Trials

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Aim of study: Aim of this metaanalysis was to compare short term outcomes of laparoscopic and open gastrectomy for gastric cancer.

Materials and Methods: We searched for randomised control trials comparing outcomes in patients undergoing laparoscopic gastrectomies with those undergoing open gastrectomies. The primary outcome was occurrence of 30 day morbidity and mortality. Secondary outcomes studied included length of stay, blood loss, development of anastomotic leak and the consequent development of sepsis (0.4%). Neither suture nor fibrin glue was used for reinforcement in 6 laparoscopic group patients had undergone significantly less d2 gastrectomies and less number of lymphnode retrieval compared to laparoscopic group. (p<0.001), OR 0.652, (95% CI 0.461-0.974). Laporoscopic gastrectomies are associated with lesser overall morbidity, hospital stay and lesser blood loss without affecting mortality. However associated with more operative time, lesser rate of D2 gastrectomies and lesser number of lymphnode retrieval.

Conclusion: Laparoscopic gastrectomies are associated with lesser overall morbidity, hospital stay and lesser blood loss without affecting mortality. However associated with more operative time, lesser rate of D2 gastrectomies and lesser number of lymphnode retrieval.

How Does Clinicopathological Features Affect Survival after Gastrectomy for Gastric Cancer patients. Single Egyptian Center Experience

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Introduction: The aim of this study is to investigate the clinicopathological features and the significance of different prognostic factors which predict surgical overall survival in patients with gastric carcinoma.

Materials and Methods: This retrospective study includes 80 patients diagnosed and treated at gastroenterology surgical center, Mansoura University, Egypt between February 2009 to February 2013. Prognostic factors were assessed by cox proportional hazard model.

Results: There were 57 male and 23 female. The median age was 57 years (24-83). One, 3 and 5 years survival rates were 71 %, 69 % and 46% respectively. The median survival was 69.96 months. During the follow-up period, 13 patients died (16 %). Hospital morbidity was reported in 10 patients (12.5%). The median number of lymph nodes removed was 22 (4-41). LN involvement was found in 91% of cases. There were 8 cases of resection, depth of invasion, lymph node involvement and the number (>15) of retrieved LN, LN ratio and tumor differentiation predict survival. In multivariable analysis, tumor differentiation, curability of resection and a number of resected LN superior to 15 were found to be independent prognostic factors. Extended LN dissection does not increase the morbidity or mortality rate but markedly improves long term survival.

Keywords: Cancer stomach, prognostic factors, lymph node metastasis
P-0100
Is Nasogastric Tube Necessary Following Perforated Peptic Ulcer Repair? Egemen Cicek, Egemen Ozdemir, Muflat Sansal, Cemalettin Aydin, Cuneyt Kayaalp
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Introduction: Although surgical interventions reduced in the elective treatment of peptic ulcer, perforated peptic ulcer (PPU) is still a disease requiring emergency surgical treatment. Nasogastric tube (NGT) is used in the early postoperative period after most abdominal surgical procedures like PPU repair. The aim of this study is to examine the necessity of NGT after PPU repair.

Materials and Methods: Total 189 patients treated for PPU between 1999 and 2017 were included. Only patients undergoing primary repair by open omentopexy were included and patients with malignancy, definitive ulcer surgery (vagotomy/drainage or gastrectomy), or laparoscopic repair were excluded. There was no age limit for inclusion. Selection of NGT use was left to the surgeon choice. The patients with and without NGT were compared in terms of preoperative, intraoperative and postoperative results.

Results: The patients with NGT (n=154) and without NGT (n=35) were similar in terms of age, gender, time to hospital admission morbidity, ASA score, and preoperative laboratory tests. There was no difference between the groups in terms of intraoperative data (ulcer diameter, perforation site and duration of surgery). While there was no difference between the two groups in terms of morbidity and mortality, beginning to oral intake (4.3±1.4 vs. 3.7±0.9, p=0.03) and the length of hospital stay (8.1±3.8 vs. 6.6±2.1, p=0.04) were longer in the NGT group. No patient in the without-NGT group had any problem due to the omitting NGT and no patient in this group required a NGT placement.

Conclusion: Routine use of NGT was not required in the patients undergoing open omentopexy repair for PPU. NGT use following PPU repair caused delay on starting oral feeding and hospital discharge.

Keywords: peptic ulcer, duodenal ulcer, perforated, gastric tube

P-0101
Omentopexy versus Falciformopexy for Peptic Ulcer Perforation
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Introduction: Open or laparoscopic Graham’s omentopexy is frequently used in the treatment of peptic ulcer perforation (PUP). The technical difficulty of applying the omental plug, especially in patients with previous omentum resection, has led to the use of falciform ligament for the PUP, and some publications have been reported that it may even be a more advantageous technique than omentopexy. Here, we aimed to compare the retrospective results of patients who underwent falciformopexy or omentopexy for PUP.

Materials and Methods: Between 1999 and 2018, 303 patients who were followed-up and treated for PUP were included. Patients who had malignancy, gastric resection, definitive ulcer surgery, laparoscopic surgery and nonoperative treatment were excluded from the study. In the remaining patients, either open omentopexy or falciformopexy were applied based on the surgeon choice. These two techniques were compared for intraoperative and postoperative outcomes.

Results: Falciformopexy (n = 46) and omentopexy (n = 243) groups had similar demographics, but ASA scores were lower in the falciformopexy group. For ulcer size and localization, duration of operation, no difference was found between the groups. There was no significant difference between the groups in terms of general postoperative morbidity and mortality. However, atelectasis was more frequently observed in the omentopexy group, whereas the pexia failure was more frequent in the falciformopexy group (2.6 % vs 8.7 %, p=0.04).

Conclusion: Falciformopexy is an alternative technique that can be used in situations where it is not possible to use the omentum. It is not superior than omentopexy for the repair of PUP.

Keywords: Falciform ligament, peptic ulcer, perforated, duodenal ulcer, gastric ulcer, repair failure

P-0102
The Short- and Long-Term Outcomes of Laparoscopic Gastrectomy for Gastric Cancer in Multicenter Retrospective Study
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Background: Laparoscopic gastrectomy (LG) have been recommended at level B in the Japanese gastric cancer treatment guidelines and LG has been performed in the general practice in the past decade. Although the short-term outcome of laparoscopic assisted distal gastrectomy (LADG) was confirmed by the randomized controlled trials, the long-term outcome of LG including total gastrectomy has not been confirmed.

Methods: The patients were retrospectively selected from among the medical records of consecutive patients who underwent curative LG with nodal dissection for gastric cancer at Yokohama City University and Kanagawa Cancer Center from August 2004 to September 2015. Results: 557 patients were included to the study. 439 (78.8%) and 118 (21.2%) of the patients were performed distal gastrectomy (DG) and total gastrectomy (TG), respectively. The median operation time was 276 min (101-731). The median blood loss was 40 ml (5-1280). The overall incidence of morbidity was 12.0% and the incidence of mortality was 0.4%. The median number of harvested lymph node was 43 (0-115). The 5-year relapse-free survival and overall survival rate was 93.1% and 92.6%, respectively. The 5-year disease-specific survival was 96.6%. The median followed-up time was 43 (1-112) months.

Conclusion: The present study results suggested that LG might be a safe and feasible compared with the short-term outcome of the JCOG0912 trial and retrospective cohort study on a nationwide registry database in Japan. The long-term outcome obtained in this study might be acceptable, but the result of prospective randomized controlled study is awaited.

P-0103
Prognosis of Gastric Dysplasia after Complete Resection with Endoscopic Procedures Considering Mucin Phenotype
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Background and Objective: Gastric adenomas are considered premalignant, and some can be interpreted as cancer according to different pathologic guidelines. The dysplastic lesions share histologic characteristics including mucin phenotype that are related prognosis. The prognosis of the lesions has been studied but tends to be researched separately. Moreover, the proposed prognostic factors are mostly derived from the study of surgical specimens, and most of them did not consider the anatomical changes after surgery. Previously researched prognostic factors of gastric dysplasia were evaluated on the recurrence after complete resection with endoscopic procedure.

Methods: From 2005 to 2016, 1678 gastric dysplasia were endoscopically removed in Soonchunhyang university hospital, Seoul. They were followed up with endoscopy under a standardized protocol. For the 716 lesions were histologically evaluated including mucin phenotype with immunohistochemical stain of MUC5AC, MUC6, MUC2, and CD10. Recurrence of dysplastic lesions were analyzed for the 688 lesions with at least 1 year’s follow-up.

Results: Five-hundred and forty-three malignant lesions including in situ lesions were completely resected with endoscopic procedures. Endoscopic submucosal dissection was performed on 603 lesions and other lesions were removed with endoscopic mucosal resection. Submucosal invasion was on 83 lesions of carcinoma. The mucin phenotype of lesions was immunohistochemically evaluated. During median 40 months of follow-up, there was 89 cases of recurrence (12.9%). Kaplan-Meier analysis of the recurrence-free survival were estimated and the elderly over 65 years of age showed statistical significance (p=0.039).

Conclusion: Completely resected early stage of gastric dysplasia showed relatively low recurrence rate. Previously proposed histologic features did not affect prognosis. However, the age of patient showed statistical significance on recurrence-free survival. Regular surveillance on elderly patients is important to improve the clinical outcome of gastric dysplasia.
The matched two groups showed well balanced baseline characteristics. Of 288 patients who underwent gastrectomy, 28 patients underwent early oral feeding (EOF) group. Of 755 patients undergoing total gastrectomy for gastric carcinoma, 406 patients in early oral feeding (EOF, n=203) and conventional oral feeding (COF, n=203) groups were selected after propensity score matching. The EOF group received oral diet on postoperative day 1, and the COF group was kept nil-by-mouth until they showed gas passage. Short-term surgical outcomes, including hospital stay and complications, were compared between the two groups.

Results: The matched two groups showed well balanced baseline characteristics. The EOF group showed significantly first flatus (2.9 vs. 3.1 days, P=.013) and hospital discharge (8.9 vs. 12.6 days, P<.001) than the COF group. No significant differences were found in overall morbidity and mortality, but the EOF group showed lower incidence of abdominal infection (3.0% vs. 7.4%, P=.044) and anastomosis leakage (1.5% vs. 4.9%, P=.048) than the COF group. Subgroup analyses by age, sex, operative approach, lymph node dissection, and tumor stage showed no increased risk of morbidity and anastomosis leakage and shorter hospital stay in the EOF group.

Conclusion: Early oral nutrition is feasible and safe after total gastrectomy for gastric carcinoma. Early oral nutrition may reduce hospital stay without increasing postoperative complications after total gastrectomy.
P-0108  Eradication Rate of *Helicobacter* Due to 23S rRNA Mutations of Clarithromycin

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**Background:** Clarithromycin-resistant *Helicobacter pylori* is associated with point mutations in the 23S rRNA gene. The eradication rate may be increased if the regimen is selectively administered based on clarithromycin resistance, according to the presence of the 23S rRNA point mutation.

**Methods:** Patients in the APC group, which consisted of 308 randomly assigned participants, were treated by standard triple therapy with amoxicillin, rabeprazole, and clarithromycin; 308 participants in the APM group were treated with amoxicillin, rabeprazole, and metronidazole. For the 263 participants in the case group, a test for point mutations in the 23S rRNA gene of *H. pylori* was conducted. A new method of ‘tailored therapy’ was devised, in which amoxicillin, rabeprazole, and clarithromycin were given in the absence of a mutation, while clarithromycin was replaced by metronidazole when the mutation was detected.

**Results:** The eradication rate of *H. pylori* for the tailored group was 91.2% (176/193), and significantly higher than those of APC and APM control groups which are 75.9% (214/282) and 79.1% (219/277), respectively (P<.001). In the tailored group, the eradication rate based on the presence of a 23S rRNA point mutation was higher in the wild type than in the mutation, with values of 94.9% (131/138) and 81.8% (45/55), respectively (P<.05). Of the 263 patients who tested positive for *H. pylori* infection according to PCR, 57 patients (21.7%) had a 23S rRNA point mutation associated with clarithromycin resistance.

**Conclusion:** The eradication rate for the tailored therapy according to clarithromycin resistance using PCR was much higher than the standard triple therapy.

**Keywords:** *Helicobacter pylori*; point mutation; clarithromycin; drug resistance

P-0109  Is There Any Merit in Blumgart Anastomosis in Pancreaticoduodenectomy?

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**Objective:** Methods of pancreatic-enteroanastomosis in pancreaticoduodenectomy (PD) are still under discussion. Recently focused method is so-called Blumgart anastomosis. In our institute, we also have tried this anastomosis. Here we discuss on merits of this method.

**Materials and Methods:** In patients who underwent PD in our hospital, cases with Blumgart anastomosis were recruited, and morbidity including post-operative pancreatic fistula (POPF: Grade B and C defined by ISGPS) was compared with historical control (Kakita anastomosis).

**Results:** Eighteen patients (October 2015–November 2016) were extracted as Blumgart anastomosis group (Group B), whereas 44 (April 2012–September 2015) as Kakita anastomosis group (Group K). Between these 2 Groups, no significant difference was seen in age or sex. In each group, there was no operation-related mortality. Operation time in Group B was relatively shorter than that of Group K, though not significant. Blood loss was also relatively smaller than that of Group K, though not significant. Incidence of POPF in Group B (38.9%) seemed higher than that in Group K (22.7%), though not significant. On the other hand, delayed gastric emptying occurred in 3 of 44 Group K patients, while no patient in Group B was annoyed by this morbidity.

**Conclusion:** Blumgart anastomosis may have some merit in terms of lower incidence of delayed gastric emptying.

**Keywords:** Blumgart anastomosis, kakita anastomosis, pancreaticoduodenectomy

P-0111  Initial Experience with CRS + HIPEC: Practical Points from A Low Volumetmeterial Hospital

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**Introduction:** Carcinomatosis peritonei is known for being advanced stage IV cancer with poor prognosis and mostly treated with palliative intent. However, in recent decades, more radical surgery and treatment has been implemented for improvement in survival, such as the cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemoperfusion (HIPEC).

**Objective:** To evaluate the safety and efficacy of CRS and HIPEC in a small volume, rural referral center. Secondary aim is to identify practical points for improvement and initial set up preparations.

**Materials and Methods:** Retrospective review of a 46 year old Thai women diagnosed with pseudomyxoma peritonei from mucinous neoplasm of the appendix in November 2018. Curative surgery was performed with right hemicolecotomy, hysterectionaly, bilateral salpingo-oophorectomy, splenectomy, and CRS + HIPEC. The clinicopathological and perioperative data were collected. The 30-day morbidity and mortality was evaluated.

**Results:** The patient body mass index was 25 kg/m². The operative time was 8.20 hours. The peritoneal cancer index (PCI) was 21. The complete cytoreduction score was 0 (CC-0). Closed chemoperfusion with mitomycin-C 35 mg under 42.5-43 c for 60 minutes was done. Bilateral protective intercostal drainage was placed and removed on post-operative day 3. Time to step diet was day 4 day after entering water. The patient was kept in the ICU for 5 days for close monitoring. There was no leakage, no surgical site infections, and no pulmonary complications. The only morbidity was post-operative ileus and nausea vomiting that persisted in 10 days post-operative that required intravenous fluids and parenteral nutrition. The length of stay was 20 days. There was no mortality. The final pathology was low grade appendiceal mucinous adenocarcinoma and mucinous carcinoma peritonei. The patient came for a 6 month post-operative visit and is doing well on chemotherapy.

**Discussion and Conclusion:** CRS + HIPEC in a low volume, rural, tertiary hospital is feasible under careful patient selection and a well prepared surgical expertise. In this procedure the utmost importance in achieving superior outcomes.

**Keywords:** Cytoreductive surgery, hyperthermic intraperitoneal chemoperfusion, carcinomatosis peritonei, pseudomyxoma peritonei, mucinous neoplasm of appendix

P-0112  A Comparison Study for Bowel Preparation: 2L PEG-Ascorbic Acid Versus 1L PEG-Ascorbic Acid with Bisacodyl Versus Sodium Picosulfate/Magnesium Citrate with Bisacodyl

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**Background and Objective:** Bowel preparation is the most important colonoscopy quality indicator because it affects both the cecal intubation and adenoma detection rates. Ingestion of a large volume of PEG, as well as its unpleasant taste, results in low compliance rates and unsatisfactory cleansing quality. To reduce drug dose and increase patients satisfaction, we would like to compare the efficacy and patient satisfaction of the following three methods: 2 Lites of PEG-ascorbic acid mono regimen versus 1 Lites of PEG-ascorbic acid plus bisacodyl versus Sodium picosulfate with magnesium citrate (SPMC) plus bisacodyl.

**Methods:** This study was a single center, randomized, prospective, observer-blinded study. The study was performed from april 2018 to July 2018 and we enrolled 300 patients and classified them into three groups: 100 patients each. To evaluate bowel cleansing, we used the Boston bowel preparation scale (BBPS). The degree of discomfort and satisfaction of the patients in the bowel preparation process was investigated through questionnaire. In total 102 patients. Baseline characteristics of the three groups were similar. There was no significant difference in the bowel preparation quality using BBPS in three groups. Abdomen fullness was statistically significantly lower in SPMC and bisacodyl group.(P-value=0.003) Also patients’ satisfaction compare with three methods was significantly higher in the SPMC plus bisacodyl group.(P-value=0.016)

**Conclusion:** In this study, the combination of SPMC and bisacodyl group showed better for the improvement of the bowel preparation quality and patients satisfaction. However, the SPMC and bisacodyl group patients feel more comfortable than other groups. Therefore, in order to satisfy both good intestinal cleansing and patient compliance, we conclude that bowel preparation with the SPMC and bisacodyl group might be the better method than others.

**Keywords:** Bowel preparation, picosulfate, bisacodyl, polyethylene glycol, BBPS
Endoscopic Submucosal Dissection Using An Detachable Assisitive Robot for Endoscopic Surgery: In A Live Porcine Survival Model

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Background and Objective: Advances of Endoscopic submucosal dissection (ESD) enabled curative resection of intramucosal and submucosal gastrointestinal neoplasms. However, ESD procedures required experienced and highly skilled operators to perform. Lack of traction and coutertraction during ESD makes visualization of dissection plane difficult. There are many advances in assistive devices tried to overcome these difficulties, especially robotic devices. Our research team developed Detachable assistant robot for endoscopic surgery (DARES). The purpose of this study was to evaluate the clinical feasibility of DARES in a live porcine model and identify the safety and efficacy of unskilled operator performing ESD.

Methods: ESD was performed with two devided group, two highly experienced and two unskilled. With lack of ESD experience endoscopists. The outcome included the time to complete each step of the robot-assisted ESD, total procedure time, the size of the dissected mucosa, traction achievement and time, in bloc resection, existence of perforations and significant bleedings during procedure. Participated endoscopists were surveyed on the satisfaction with device preparation, manipulating convenience, traction efficacy and safety.

Results: In the experiments on the 9 live pigs, a total 16 gastric lesions were resected en bloc after ESD using robotic assistive device. The 6 cases were conducted by two experienced endoscopists and the 10 cases by two unskilled endoscopists. The mean total procedure time was 12 min 8 sec in experienced group, 11 min 14 sec in unskilled group. (p=0.291). The mean dissection time was 11 m 2 s, 4 m 31 s, 4 m 50 s, respectively (p=0.03). There was no incidence of tissue injury during passage, perforation and significant bleedings in two group. Traction was achieved in all cases.

Conclusion: In conclusion, our robotic assistive device can provide simple, effective and safe multidirectional traction and countertraction during ESD.

Keywords : Endoscopic submucosal dissection, robotic device

P-0114

Pseudocyst Pancreas : Contemporary Therapeutic Dilemma

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Background: Better understanding of the natural course of Pseudocyst Pancreas and an increasing shift to minimally invasive procedures, has led to a dramatic shift from unquestioned aggressive approach to exploration of cautious conservative options. However, with a clear lack of global co-visions on an optimal management strategy, the inquiry into when and whom to treat still remains unsettled.

Materials and Methods: 100 Case Files were reviewed and data was analysed using Multivariate Analysis (SPSS 25). Logistic regression model was used to evaluate factors predictive of therapeutic decisions.

Results: Significant correlation was found between etiology and location of pseudocyst. Biliary pancreatitis [44%] led to pseudocyst in the head of the pancreas whereas trauma (11%) in and around body. With alcoholic etiology in 73% patients, pseudocysts were found evenly distributed with respect to location. A pseudocyst due to biliary pancreatitis with size more than 7 cm in largest diameter and evident ductal stenosis with/without bile duct compression on imaging was found highly predictive of an eventual surgical intervention. Alcoholic etiology in older patients (>45 years) resulted in increased incidence of complications and need for intervention. Irrespective of the etiology, however, a shift in trend towards conservative management was noted after 2013 with safe outcomes.

Conclusion: Following a locally standardized protocol in accordance with patient’s symptomatology and surgeon’s experience with the condition have been the safe but debatable dictum in management of pseudocyst pancreas. A careful study of individual pseudocyst characteristics with multidisciplinary involvement may help develop a more robust treatment algorithm.

Keywords: Pancreas, pseudocyst management

P-0115

Management of Duodeno-Jejunal Flexure Transection after Blunt Trauma – A Modified Approach

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Introduction: Small Bowel Injuries are uncommon after blunt trauma and typically affect fixed segments viz. the duodenum, DJ flexure, proximal jejunal and terminal ileum. Untimely management of such injuries, especially in duodenal transection of DJ flexure, results in high-output enterocutaneous fistula. The treatment of DJ flexure transection is traditionally done by pyloric exclusion with gastrojejunostomy but more recent evidence has suggested that primary closure or end-to-end anastomosis may be equally effective in which protection of the DJ anastomosis is done by external tube duodenostomy.

Objective: The objective of the study is to provide a modification to the traditional technique of management of DJ flexure injury, avoiding external tube duodenostomy.

Materials and Methods: Patients admitted from July 1, 2015 to June 1, 2018 were identified and examined for DJ Flexure transection. Cases due to non-accidental injury were excluded.

Results: In the study period, 10 patients were admitted with DJ flexure transection. All of them were admitted 24 hours after the injury and not able to be handled. After fluid resuscitation and investigations, they were taken for urgent laparotomy. The whole of duodenum was mobilised, the transected ends were debrided and end-to-end duodenojunostomy performed in two-layer fashion. An 18-Fr nasojejunal (NJ) tube was placed beyond the anostmosis, and a 14-Fr nasogastric (NG) tube was placed in the stomach for gastric decompression. A feeding jejunostomy was inserted in all cases for nutritional supplementation. Both NG and NJ tubes were removed after jejunal anastomoses started and FJ was removed on first followup. There were no duodenal related complications, and all were doing well on follow up.

Discussion and Conclusion: In our study, placing the Noasjeunal and Nasogastric tube eliminates the need for duodenostomy or gastrostomy, respectively. This method protects the DJ anastomosis and decreases duodenum-related complications.

Keywords: Blunt trauma, dueno-jejunal flexure transection, modified approach, nasogastric decompression, noasjeunal decompression

P-0116

Parametrical Hydatid Cyst with Bladder Fistula – A Rare Presentation

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Introduction: Hydatid disease is a parasitic infestation by a tapeworm of the genus Echinococcus. Theoretically, echinococcosis can involve any organ. The liver is the most common organ involved, followed by the lungs. However, uterus and and adenoxa have an incidence of 0.5-1%. Till date, three cases have been reported in which a parametrical hydatid cyst formed a bladder fistula.

Objective: The objective of this case report is to document a rare presentation of hydatid cyst and its management.

Materials and Methods: A 30 year old female was admitted with complaint of burning micturition along with whitish urine for the last 15-20 days with no other significant history. CECT Abdomen was suggestive of large well-defined thick-walled lesion in pelvic cavity showing multiple multiple sized daughter cysts within and calcification on anterior wall. All biochemical markers were within normal limits. Results: The patient was explored surgically. There a thick-walled lesion was found in right parametrium. The cavity of the lesion was filled with daughter hydatid cyst, along with communication into the bladder via fistula. The cavity was closed and anesthesia was done. Both cysts and the fistula was repaired. The patient recovered uneventfully and was doing well on follow up.

Discussion and Conclusion: The incidence of hydatid cysts in the female reproductive system is very low and constitutes less than 0.5% of all hydatid cysts. However, rare cases have been reported, thus the clinician must be aware of this rare disease and should take precautions while operating, as any spillage may lead to anaphylactic shock. We recommend that surgeons, gynecologists, radiologists, and histopathologists should have high index of suspicion for hydatid cyst whenever a cystic pelvic mass is found.

Keywords: Hydatid cyst, parametrium, bladder fistula
Role of Gastrografin for Determination of Early Surgical Intervention vs Conservative Management in Adhesive Small Bowel Obstruction

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Introduction: Small Bowel Obstruction is defined as a partial or complete interference with passage stools distally in the intestine. A trial of conservative management is possible in partial or incomplete obstruction. The role of contrast radiology has been studied recently and documented a diagnostic value in small bowel obstruction.

Objective: The aim of the study was to determine whether Gastrografin study followed for 24 hours can be a reliable indicator of the need for early surgical intervention in small bowel obstruction.

Materials and Methods: 150 patients with small bowel obstruction who were admitted to the department of General Surgery, Gandhi Medical College & Associated Hamidia Hospital were included. Patients with signs of strangulation, evidence of intraabdominal malignancies, pregnancy, large bowel obstruction, obstruction caused by incarcerated hernias, history of inflammatory bowel disease or radiation were excluded. 40 ml of gastrografin mixed with 40ml distilled water was administered to each patient orally/via nasogastric tube, and serial plain abdominal radiographs were taken at 4, 8, 16 and 24 hours after ingestion. The patients in whom plain radiography demonstrated contrast in ascending colon within 24 hours of ingestion were kept on conservative management, whereas if contrast failed to enter in ascending colon, the patient was managed operatively or received non operative treatment based on presence or absence of clinical evidence of strangulation and gangrene.

Results: Of 150 patients with small bowel obstruction, gastrografin was seen beyond the IC junction within 24 hours in 136 (90.67%) of patients. Rest of the patients (14, 9.34%) were taken for urgent laparotomy. All patients in the first group were managed conservatively successfully.

Discussion and Conclusion: Gastrografin contrast study is a valuable diagnostic modality in managing SBO & minimizing complication in cases of uncertain clinical and radiological diagnosis.

Keywords: Small bowel obstruction, gastrografin, contrast study, conservative management

Same Admission Closure vs Tradition Closure of Temporary Bowel Stomas

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Introduction: Temporary diverting enterostomy is the standard of care for a variety of traumatic and non-traumatic intestinal pathologies viz diversion of fecal stream in emergency bowel surgery or protection of distal anastomosis in elective surgeries. As anastomotic leakage presents mostly within a period of five to seven days, if there are neither clinical now radiological signs of anastomotic leakage within one week, it might be feasible to close protective loop stoma during the same hospital admission.

Objective: The objective of this study was to assess the feasibility of same admission closure and to compare same admission closure with traditional closure in terms of safety and complications.

Materials and Methods: In this study, 160 patients in which temporary bowel stomas were created due to various pathologies were included and divided into two groups i.e. with early closure group (same admission closure between 2-3 weeks) and late closure group (more than 12 weeks) and the results were compared.

Results: In the study early stoma closure was performed in 80 patients, and traditional closure was performed in 80 patients. The average hospital stay was comparable between the two groups, 9.5±5.0 days after early closure and 11.6±2.98 days after traditional closure. Stoma-related complications were reported more in traditional closure (70%) than early closure (25%).

Discussion and Conclusion: Early stoma closure in otherwise fit and healthy patients is not only feasible but a better option than traditional closure as it allows for early return to normal life and is associated with reduced incidence of stoma-related complications.

Keywords: Temporary bowel stoma, early stoma closure, same admission closure

Mammary-Type Myofibroblastoma: A Rare Presentation of a Pararectal Mass

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Introduction: Mammary myofibroblastoma is a very rare tumour composed of fascicles of spindle cells. When it manifests outside of breast tissue, it is classified as mammary-type and usually occurs along a embryological milk line with pre-dilection for males and found in the inguinal or scrotal region. We present a case of a 47 year-old female with this rare tumour in the pararectal region, the workup involved, and rationale for management.

Methods: A 47 year-old female presented with an incidental mass intimately related to the rectum as part of a staging CT scan of her invasive breast carcinoma. This pararectal mass was palpable on rectal examination, MRI, endoanal ultrasound, and colonoscopy were non-diagnostic although MRI was suggestive of a possible metastatic lesion. Due to diagnostic uncertainty and the possibility of malignancy, adhesiolysis, bilateral salpingo-oophorectomy, and excision of the presacral lesion using the DaVinci Xi™ Robotic Surgical System was pursued.

Results: The patient had a routine surgery preserving adjacent structures and an uneventful recovery period. Histopathology and extensive immunohistochemistry revealed the mass as most consistent with a benign mammary-type myofibroblastoma with CD34 positivity.

Conclusion: Mammary-type myofibroblastoma is a benign tumour histologically resembling spindle cells with characteristic CD34 positivity on immunohistochemistry for the majority of its variants. First described in 2001 by McMenamin et al., detection on radiological imaging carries a broad differential diagnosis with immunohistochemistry being the gold standard diagnostic method. Surgeons, radiologists, and pathologists should be aware of this rare pathology in the differentials for a pararectal mass.

Band Adhesion Overlying Meckel’s Diverticulum: A Rare Case of Small Bowel Obstruction

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Introduction: Meckel’s diverticulum is a small bowel congenital abnormality resulting from incomplete obliteration of the vitelline duct. It occurs in up to 4% of the population with predilection for males and carries a 4% risk of lifetime complications. The second most common complication is bowel obstruction through various means. We discuss the case of a 47 male who presented with small bowel obstruction and rationale for his management.

Methods: A 47 year-old male presented to the emergency department with lower abdominal pain very similar to a presentation from 6 years prior. His background medical history included well managed Addison’s disease and no surgical history. An abdominal CT revealed dilated loops of small bowel with a transition point in the lower abdomen. Although serial biochemical analysis was normal with no raised white cell count or CRP, ongoing tenderness and focal peritonism two days after presentation warranted exploration in theatre in light of his immunosuppressive state.

Results: A diagnostic laparoscopy was performed revealing a band adhesion overlying a Meckel’s diverticulum with proximal small bowel dilatation. A decision was made to convert to mini-laparotomy and small bowel resection of the Meckel’s segment with side-to-side small bowel anastomosis with the GIA™ stapler system. He was discharged 1 week post-operatively with no complications. Histopathology revealed a Meckel’s diverticulum with no heterotopic tissue or dysplasia.

Conclusion: Band adhesion of a Meckel’s diverticulum remains a very difficult diagnosis without intraoperative interrogation. Further research is needed to better diagnose this rare cause of small bowel obstruction.
P-0121
Pneumatisis Intestinalis—Benign or Life-Threatening?
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Introduction: Pneumatisis intestinalis (PI) is characterised by the presence of gas within the wall of the intestines. In 15% of cases it is attributed to an idiopathic process, with 85% secondary to a variety of pathologies including viscus perforation. We present 2 cases of PI and their management. Case 1 is a 61 year-old male with a background of laryngeal cancer treated with surgical and chemoradiotherapy who presented with abdominal cramps. Case 2 is a 74 year-old female with a background of recently diagnosed oesophageal cancer undergoing chemoradiotherapy who presented with vomiting and diarrhoea. Both had impressive radiological pneumatisis on abdominal CT.

Methods: In both cases, no red flags for acute abdomen such as peritonitis was demonstrated and biochemical analysis was unremarkable. Due to palpable crepitus in case 1, a diagnostic laparoscopy was performed to rule out catastrophic abdominal pathology.

Results: Diagnostic laparoscopy for case 1 confirmed PI with no evidence of dead bowel. Subsequently, he was managed expectantly as was case 2 from presentation. Both patients were given gut rest, gradual re-introduction of their regular diet, and were discharged symptom-free several days after.

Conclusion: The management of PI requires careful assessment and a low index of suspicion for surgical exploration. In this case series, both patients had mild symptoms with a history of malignancy treated with chemoradiotherapy. Although both had impressive radiological findings, both were appropriately managed expectantly. Clinicians should be aware of this interesting but rare phenomenon and the importance of clinical findings over impressive radiological findings alone.

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P-0122
The Impact of Straight Stomach Reconstruction with Feeding Jejunostomy Tube Placement after Pylorus Preserving Pancreaticoduodenectomy to Prevent Delayed Gastric Emptying
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Background: Delayed gastric emptying (DGE) is a leading cause of complication after pylorus preserving pancreaticoduodenectomy (PPPD). The aim of this study was evaluated for straight stomach reconstruction with insertion of intestinal feeding tube to prevent for DGE.

Methods: A retrospective analysis was conducted for 82 consecutive patients who underwent a PPPD in which a straight stomach reconstruction with insertion of intestinal feeding tube was performed. After PPPD, reconstruction was done using conventional Child procedure: the stomach was mobilized downward in a straight line. The duodenum was anastomosed end-to-side to the jejunum, antecolic, 40 cm from the choledochojunostomy. The efferent jejunum is placed in the left lower abdomen with the feeding jejunostomy tube placement. DGE was defined according to the International Study Group of Pancreatic Surgery.

Results: Of all 82, the median of postoperative hospital stay was 27.0 days and the in-hospital mortality was zero. In our series, the median interval for removal of nasogastric tube (NGT) was 1 postoperative day, and reinsertion of NGT required in 13 patients as 16%. DGE occurred in ten patients (12%) as Grade A in 6, Grade B in 3 and Grade C in 1. Clinical significant DGE (grades B and C) was only 4 (5%). The incidence of DGE was not associated with the occurrence of pancreatic fistula in this study.

Conclusion: Straight stomach reconstruction with a insertion of intestinal feeding tube could reduce the incidence of DGE after PPPD.

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P-0123
Gemcitabine Plus Cisplatin Increases Survival Time of Unresectable Hilar Cholangiocarcinoma in Both Effective and Ineffective Biliary Drainage Group: Multicenter Study in Korea
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Background: Gemcitabine plus cisplatin (GC) is recommended as a first-line treatment for advanced biliary tract cancer. We aimed to investigate the impact of GC chemotherapy on patients with HC in both the effective (EBD) and ineffective biliary drainage (iEBD) groups.

Methods: From 2010 to 2016, 112 patients with unresectable HC at three hospitals in Korea were enrolled. 38 patients received GC chemotherapy (cisplatin (25 mg/m²) followed by gemcitabine (1,000 mg/m²), each administered on days 1 and 8, every 3 weeks) and 74 patients received best supportive care (BSC). The EBD was defined as the reduction of total bilirubin to less than half or 2 mg/dl within 2 weeks after first drainage procedure. Overall survival (OS) was estimated using the Kaplan-Meier curve and compared via the log-rank test.

Results: GC group showed statistically significantly longer median OS than BSC group (12.7 vs. 6.1 months, p < 0.001). Moreover, patients with EBD experienced significantly longer OS compared with iEBD patients (8.0 vs. 4.7 months, p < 0.001). GC chemotherapy was beneficial for OS in both EBD group (12.7 vs. 6.8 months, p < 0.001) as well as in iEBD group (12.2 vs. 3.4 months, p < 0.001). In the multivariate analysis, EBD (HR 0.59, 95% CI 0.39–0.88, p < 0.01), GC chemotherapy (HR 0.42, 95% CI 0.28–0.65, p < 0.01) and ECOG ≥ 2 (HR 3.67, 95% CI 2.09–6.43, p < 0.01) were significant prognostic factors.

Conclusion: GC chemotherapy increases the survival of HC in both the EBD or iEBD groups.

Keywords: Hilar cholangiocarcinoma, effective biliary drainage, gemcitabine plus cisplatin

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P-0124
Band Adhesia Efficacy of Preoperative Chemotherapy for Obstructive Rectal Cancer on Overlying Meckel’s Diverticulum: A Rare Case of Small Bowel Obstruction
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Background: Obstructive colorectal cancer classified as oncoemergent emergency and require early treatment due to intestinal stenosis and obstruction. Especially in cases of rectal cancer with obstructive symptoms, many T4b cases involve direct infiltration into the surrounding organs, often requiring other organ combined resection to ensure resection margins.

Objective: To evaluate patients who underwent two-stage treatment to perform curative surgery by performing preoperative chemotherapy (NAC) after the establishment of the stoma.

Materials and Methods: Of the 612 rectal cancers in 2005 - 2016, 60 patients who were fasted because of obstructive symptoms, requiring TPN management were targeted. We compared the treatment contents with the postoperative results compared with the first term group from 2005 to 2010 and the second term group from 2011 to 2016.

Results: Tumors below Rb were 18% in the early group and 50% in the late group, with lower rectal cancer in the late group. The wall deepening degree of T4b was 30% in the early group and 57% in the late group, which was higher in the late stage group. In the depression method, naso / transoral / stoma was 16/23/19% in the early group and 0/21/63% in the late group, and the proportion of stomach construction presupposing NAC increased in the late group. NAC was significantly higher in the late stage group, 3% in the former group and 63% in the latter group, and in all cases L-OHP was administered on average 5.5 courses (95% combined use of the molecular targeted drugs). Peritonitis surgery was 6% in the first term group and 17% in the second term group, and emergency surgery was 39% in the first term group and 53% in the second term group. Postoperative complications were 48% in the early stage group and 46% in the late stage group, and the suture insufficiency was 13% in the former group and 21% in the latter group. There was no significant difference in the local relapse / free survival rate, but the disease free survival rate was significantly better in the late group.

Discussion and Conclusions: Two stage treatment based on NAC after stoma formation for obstructive rectal cancer was considered to be useful from the viewpoint of life prognosis.

Keywords: Rectal cancer, oncologic emergency, preoperative chemotherapy
P-0125
Anomalous Anatomical Variation in Extrahepatic Biliary Tree and Pancreas and Its Related Vessels - A Cadaveric Study

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Background: Congenital anamolies of extrahepatic biliary apparatus and pancreas have long been recognized but are rare and are of clinical importance because when present may surprise the surgeon during surgery and can lead to iatrogenic injuries. In recent times the trend in surgical procedure is to move toward minimal invasive surgery and surgeries on extra-hepatic biliary apparatus and pancreas are regularly performed throughout the world. Thus in-depth insight into the normal anatomy and congenital variations will reduce complication and definitely improve outcome.

Methods: Study was conducted in department of surgery GMC Bhopal and dissection was carried out in dept of forensic medicine on 100 cadavers with approval from college ethical committee.

Results: IN 100 cases 70 were male and 30 female. The most common variation in extra hepatic biliary apparatus was Short cystic duct was found in 6% cases then formation of Common Hepatic Duct by union of Right Hepatic Duct and Left hepatic duct was intrahepatic in 3% cases. There was low insertion of Cystic Duct with Common Hepatic Duct in 1% case. Cystic artery originating from left hepatic artery in 1% case, in 1% case cystic artery was anterior to Common Hepatic Duct. In Pancreas anterior arterial arcade was absent in 2% cases and its origin varied in 2% case. Posterior pancreatic arcade absent in 1% cases and variation in origin was present in 1% case. The variation in pancreatic duct course was present in 22% cases.

Conclusion: Thus significant variation was seen and it could definitely be helpful to hepatobiliary, laparoscopic surgeons, radiologist and will further contribute to literature on variation of extrahepatic biliary apparatus and pancreas and its related vessels.

P-0126

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Objective: We present the case of a 49 year old female who presented with knee pain, which was then found to be septic arthritis of her knee joint. She underwent a washout of her knee joint and when infection was found to be tracking below the knee, she had a fasciomy of her anterior and posterior compartments of her lower leg. The patient failed to improve on IV antibiotics and a repeat CT scan showed gas in the medial compartment of the thigh which suggested necrotising fasciitis. The patient required multiple debridements of necrotic tissue in theatre due to severe sepsis with end organ dysfunction culminating in a hindquarter amputation, a joint case involving general surgery, orthopaedics and vascular surgery.

Introduction: Necrotising Fasciitis is a rare bacterial infection of subcutaneous soft tissue. Necrotising fasciitis spreads rapidly along fascial planes at a rate of 2-3cm/hour causing fascial destruction along the way. Due to this, the median mortality rate for this condition is relatively high at 32.2%. It is a relatively rare condition in Australia, with yearly incidences of 3.8 cases per 100,000. In terms of worldwide incidence, there are between 90-200 cases of necrotising fasciitis in Canada, and in the US, the age adjusted incidence is reported as 4.3 per 100,000.

Methods: The patient underwent a washout of her knee joint and then lower limb anterior and posterior compartment fasciomy. When the clinical picture did not improve, and patient showed signs of septic shock and multiorgan failure, further investigation with a CT scan was performed. This showed gas tracking across the medial and anterior compartment of the thigh which required a take back to theatre for further debridement and negative pressure dressing. The patient was still on haemodynamic support when she was taken back to theatre for a relook and after discussion involving general surgery, orthopaedics and vascular surgery a hindquarter amputation had to be performed to achieve source control and to reduce the risk of mortality.

Results: Despite multiple debridements in theatre, the patient was still on sepsis and showing signs of end organ dysfunction. This indicated that we had not achieved source control despite concurrent IV antibiotics and when the patient was taken back to theatre, a joint decision was made by the orthopaedic, general surgical and vascular consultant to perform a hindquarter amputation to get ahead of the rapidly progressing necrotising fasciitis.

Conclusion: Necrotising fasciitis can be hard to diagnose and can be misdiagnosed as a septic joint, cellulitis or an abscess. Early diagnosis and prompt initiation of intervention with antibiotics and early surgical debridement of necrotic tissue down to healthy tissue base is the critical to enable good outcomes for patients presenting with necrotising fasciitis. Surgeons need to be aware that given the high mortality rates associated with this condition, early operative management and debridement of all necrotic tissue is paramount to achieving control of infection in patients with necrotising fasciitis.

P-0127
Necrotising Fasciitis Requiring Emergency Mastectomy at An Australian Tertiary Centre

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Objective: We present a case of a 69 year old female who received a corticosteroid injection to her left shoulder joint by her primary physician and then presented to hospital a week later with glenohumeral septic arthritis with spreading erythema and induration over left breast. She was started on IV antibiotics covering skin flora and taken to the operating theatre promptly for a washout of the glenohumeral joint and upon encountering necrotising fasciitis of the breast, a total mastectomy was performed.

Introduction: Necrotising fasciitis is a subcutaneous tissue infection that progresses rapidly and can be life threatening if treatment is delayed. It is a relatively rare bacterial infection with approximately 500 cases reported in the UK per year and Australian studies reporting a yearly incidence of 3.8 cases per 100,000. Necrotising fasciitis involving breast tissue is rare with only a handful of cases reported in literature in otherwise well, non-lactating women.

Methods: The patient was taken to theatre initially for an exploration and washout of her left glenohumeral joint where it was found that she had infection tracking into her left axilla which was promptly divided as well. An intra-operative consult to general surgery was made as the infection was tracking to her left chest wall. It then became evident that the necrotising fasciitis was involving the axillary tail and lateral aspect of her left breast. In order to gain source control, the decision was made to perform an emergency left total mastectomy down to bleeding healthy tissue.

Results: The patient was initially treated with IV fluoxacillin and intra-operative samples showed growth of Group B streptococcus. The patient was then treated with IV Benzyl Penicillin and Vancomycin with Clindamycin added on to combat the toxin mediated effect. The patient recovered well post-op and received a local flap reconstruction of her left breast once she was completely well.

Conclusion: Our case shows the rare phenomenon of necrotising fasciitis of breast tissue and also highlights that early diagnosis and prompt initiation of intervention with antibiotics and debridement of necrotic tissue as required is critical for good health outcomes for patients with necrotising fasciitis.
Pubmed and Scopus databases were scanned using the keywords “Hirschsprung’s disease” and “sigmoid volvulus”. A total of 31 cases were analyzed in 22 articles. Ninety-seven percent of the patients were under 40 years of age and had complaints of constipation since childhood. Hirschsprung’s disease was diagnosed in 96% of the patients. Patients suspected to be Hirschsprung’s disease were treated with rectal biopsy before the resection and mortality was not observed (p = 0.08). If a sigmoid volvulus patient is under 40 years of age and has complaints of constipation since childhood, Hirschsprung’s disease should be excluded with rectal biopsy before the resection and anastomosis for sigmoid volvulus.

Keywords: Colon, ileus, acute abdomen, constipation, sigmoid volvulus.

**P-0130**

**Stem Cell Therapeutical Frontiers during Liver Diseases**

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**Background:** Liver transplantation is the primary treatment for various end-stage hepatic diseases but is hindered by the lack of donor organs and by complications associated with rejection and immunosuppression. There is increasing evidence to suggest the bone marrow is a transplatable source of hepatic progenitors. We previously reported that multipotent bone marrow-derived mesenchymal stem cells differentiate into functional hepatocyte-like cells with almost 100% induction frequency under defined conditions, suggesting the potential for clinical applications. The aim of this study was to critically analyze the various parameters governing the success of bone marrow-derived mesenchymal stem cell-based therapy for treatment of liver diseases.

**Methods:** Fulminant liver failure with lethal outcome in nonobese diabetic severe combined immunodeficient mice was induced by carbon tetrachloride gavage. Mesenchymal stem cell-derived hepatocytes and mesenchymal stem cells were then transplanted at different doses.

**Results:** Both mesenchymal stem cell-derived hepatocytes and mesenchymal stem cells, transplanted by either intrahepatic or intravenous route, engrafted recipient liver, differentiated into functional hepatocytes, and rescued liver failure. Intrahepatic transplantation was more effective in rescuing liver failure than intravenous transplantation. Moreover, mesenchymal stem cells were more resistant to reactive oxygen species in vitro, reduced oxidative stress in recipient mice, and accelerated repopulation of hepatocytes after liver damage, suggesting a possible role for paracrine effects.

**Conclusions:** Bone marrow-derived mesenchymal stem cells can effectively rescue experimental liver failure and contribute to liver regeneration and offer a potentially alternative therapy to organ transplantation for treatment of liver diseases.

Keywords: Fulminant liver failure, stem cell, liver regeneration.
Hepatic Stem Cell Morphological Activity Action on Liver Regeneration

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Backgrounds: The hepatic stem cells reside periportally forming the canals of Hering in normal liver. They can be identified by their unique immunophenotype in rat. The oval cells, the progenies of stem cells invade deep the liver parenchyma after activation and differentiate into focally arranged small-and eventually trabecularly ordered regular hepatocytes. We have observed that upon the completion of intense oval cell reactions narrow ductular structures are present in the parenchyma, we propose to call them parenchymal ductules. These parenchymal ductules have the same immunophenotype [cytokeratin (CK)7-/ CK19+/alpha-fetoprotein (AFP)/-delta-like protein (DLK)] as the resting stem cells of the canals of Hering, but different from them reside scattered in the parenchyma.

Methods: In our present experiments, we have investigated in an in vivo functional assay if the presence of these parenchymal ductules has any impact on a progenitor cell driven regeneration process. Parenchymal ductules were induced either by an established model of oval cell induction consisting of the administration of necrogenic dose of carbon tetrachloride to 2-acetaminofluorene pretreated rats (AAF/CCl4) or a large necrogenic dose of diethyl nitrosamine (DEN).

Results: The oval cells expanded faster and the foci evolved earlier after repeated injury in the livers with preexistent parenchymal ductules. When the animals were left to survive for one more year increased liver tumor formation was observed exclusively in the DEN treated rats. Thus, repeated oval cell reactions are not necessarily carcinogenic.

Conclusion: We conclude that the expansion of hepatic stem cell compartment conceptually can be used to facilitate liver regeneration without an increased risk of tumorigenesis.

Keywords: Hepatic stem cell, parenchymal ductules, regeneration

The Source of The Small Hepatocyte-Like Progenitor Cells During Liver Damage

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Background: Mature hepatocytes divide to restore liver mass after injury. However, when hepatocyte division is impaired by retrorsine poisoning, regeneration proceeds from another cell type: the small hepatocyte-like progenitor cells (SHPCs). Our aim was to test whether SHPCs could originate from mature hepatocytes.

Methods: Mature hepatocytes were genetically labeled using retroviral vectors harboring the beta-galactosidase gene. After labeling, retrorsine was administered to rats followed by a partial hepatectomy to trigger regeneration. A liver biopsy was performed one month after surgery and rats were sacrificed one month later.

Results: We observed the proliferation of small hepatocytes arranged in clusters in liver biopsies. These cells expressed K67 antigen and displayed a high mitotic index. At sacrifice, regeneration was completed and clusters had merged. A significant proportion of clusters also expressed beta-galactosidase demonstrating their origin from labeled mature hepatocytes. Finally, the overall proportion of beta-galactosidase positive cells was identical at the time of hepatectomy as well as in liver biopsy and at sacrifice.

Conclusions: The constant proportion of beta-galactosidase positive cells during the regeneration process demonstrates that mature hepatocytes are randomly recruited to proliferate and compensate parenchyma loss in this model. Furthermore, mature hepatocytes are the source of SHPC after retrorsine injury.

Keywords: Mature hepatocytes, small hepatocyte-like progenitor cells, regeneration

Regeneration of The Liver by Small Hepatocyte-Like Progenitor Cells after Nectotic Damage by Carbon Tetrachloride

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Background: Hepatic regeneration after partial hepatectomy (PH) in rats exposed to the pyrrolizidine alkaloid retrorsine is accomplished through the proliferation and differentiation of a population of small hepatocyte-like progenitor cells (SHPCs). The activation, emergence, and outgrowth of SHPCs in response to the liver deficit generated through surgical PH have been well characterized. However, the participation of these cells in the restoration of hepatocyte numbers and regeneration of liver tissue mass following necrotic injury has not been investigated. To investigate the capacity of SHPCs to respond to necrotizing liver injury, we combined retrorsine treatment with the centrilobular-specific toxin carbon tetrachloride (CCl4).

Methods: Male Fischer 240 rats were treated with retrorsine (30 mg/kg ip) at 6 and 8 weeks of age, followed by CCl4 (4) treatment (1500 mg/kg ip) 5 weeks later. Liver tissues were harvested at 3, 7, 14, 21, and 30-days post-injection. The dose of CCl4 (4) employed resulted in the necrotic destruction of 59±2% of liver mass and elicited a regenerative response equivalent to that of surgical PH.

Results: Livers from retrorsine-exposed CCl4 (4)-treated rats exhibit SHPC proliferation similar to retrorsine-exposed rats subjected to PH (RP). SHPCs appear at 3-days post-injection, continue to expand at 7-days and 14-days post-injection, and completely regenerate/restore the liver mass and structure in these animals by 30-days post-injection.

Conclusion: Performed studies has shown that SHPCs are capable of regenerating liver after exposure to necrotizing agents and suggest that the progenitor cell of origin of the SHPCs is not restricted to the centrilobular zone of the liver parenchyma.

Keywords: Liver regeneration, small hepatocyte-like progenitor cells, carbon tetrachloride


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Introduction: Guidelines published by the ERAS group recommend its use in Whipple surgeries. However, this recommendation was based on a very limited number of studies. A subsequent meta-analysis was only able to include 4 studies and found that ERAS reduced overall morbidity without affecting readmission rates or mortality. The effect of ERAS on length of hospital stay and in-hospital costs while Whipple surgery remains unexplored. St. Luke’s Medical Center, Quezon City, Philippines has formulated its own ERAS protocol for Whipple Surgery. Using this protocol, the study aims to determine the effect of ERAS on postoperative complications and morbidity and mortality.

Objectives: The general objective is to describe outcomes of patients who were enrolled to the ERAS program and will undergo pancreaticoduodenectomy and pancreaticojejunostomy duoden technique with total pancreatic juice diversion at St. Luke’s Medical Center, Quezon City. Specific objectives are to show the demographic data, operative and postoperative data, the primary outcome as length-of-stay in hospital and secondary outcomes as post-operative complications (ileus and post-operative pain), readmission rate, and mortality of patients, and incidence of grade B and C pancreatic fistula of patients who were enrolled to the ERAS program and will undergo pancreaticoduodenectomy.

Keywords: Pancreaticoduodenectomy, ERAS, Whipple procedure, Outcomes, Morbidity, Mortality.
P-0135

Materials and Methods: This is a descriptive, prospective study from 2010-2018 at St. Luke’s Medical Center, Quezon City, Philippines of patients who will undergo pancreaticoduodenectomy with pancreaticojejunostomy, dunking technique with total pancreatic juice diversion and ERAS protocol of St. Luke’s Medical Center, Quezon City. The study focused on same pancreaticoduodenectomy technique done by several surgeons and anesthesiologists who practice the ERAS protocol, which was created through a collaboration of different services: Institute of Surgery, Department of Anesthesiology, Internal Medicine, and Clinical Nutrition Service.

Results: Seventy-eight patients underwent pancreaticoduodenectomy using the technique from January 2010 to December 2018. Analysis of the clinical, intraoperative and post-operative parameters was done. Sixty-seven (85.9%) had no fistula and 11 (14.1%) had fistula. Two patients (2.6%) were classified to have clinically evident pancreatic fistula with 2 patients having grade B fistula and none with grade C fistula. There was a trend towards shorter hospital stay in those who were enrolled in the ERAS protocol, decreased incidence of post-operative complications, none were readmitted, and there was no mortality recorded.

Discussion and Conclusion: Many studies have proven that ERAS can be successfully implemented in pancreaticoduodenectomy. St. Luke’s Medical Center, Quezon City, Philippines developed and applied an ERAS protocol for pancreaticoduodenectomy since 2010. In this study, the outcomes of the patients who were enrolled in the ERAS protocol safely reduce the number of total hospital stay, incidence of post-operative complications, length of hospital stay (LOS), and mortality.

Keywords: Pancreaticoduodenectomy, Whipple’s Surgery, enhanced recovery.

P-0136

Incidence of Grade B and C Pancreatic Fistula among Patients Who Underwent Pancreaticojejunostomy Dunking Technique with Total Pancreatic Juice Diversion after Pancreaticoduodenectomy at St. Luke’s Medical Center, Quezon City, Philippines

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Introduction: The pancreaticojejunostomy anastomosis has been referred to as the “Achilles heel” of pancreaticoduodenectomy because it has been associated with risk of leakage resulting in pancreatic fistula. Our institution’s technique developed by Dr. Menandro V. Sionzon, our hepatopancreato-biliary expert. This technique proposes pancreaticojejunostomy dunking technique with total pancreatic diversion, which reduces leak rate up to nil.

Objective: The objective is to report the incidence of postoperative grade B and C pancreatic fistula among patients undergoing pancreaticoduodenectomy and pancreaticojejunostomy with total pancreatic diversion at our institution.

Materials and Methods: This is a prospective descriptive analysis with a time period of 8 years. The target population includes patients who undergo pancreaticoduodenectomy with pancreaticojejunostomy dunking technique with total pancreatic diversion.

Results: Seventy patients underwent pancreaticoduodenectomy using the technique from January 2010 to December 2017. Analysis of the clinical, intraoperative and post-operative parameters was done. Fifty-nine (84.28%) had no fistula and 11 (15.71%) had fistula. There was a significant difference in the association of a soft pancreatic remnant and development of pancreatic fistula, and prolonged hospital stay with those with pancreatic fistula. Only 2 patients (2.86%) were classified to have clinically apparent pancreatic fistula with 2 patients having grade B fistula and none with grade C fistula.

Discussion and Conclusion: This study showed a reconstruction technique of pancreaticojejunostomy with total pancreatic diversion developed by a single surgeon from this institution can result in lower rate of pancreatic fistula. Clinical pancreatic fistula (grade B) occurred in 2.86% of the 70 patients. Factors such as soft pancreatic texture may be potentially related to pancreatic fistula development.

Keywords: Pancreaticojejunostomy dunking technique, total pancreatic juice diversion, pancreaticoduodenectomy.

P-0137

Outcomes of Hepatic Resection at St. Luke’s Medical Center, Philippines: A Five-Year Case Series

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Introduction: More and more Filipinos are being diagnosed with liver diseases, however, it still remains a “silent epidemic.” Liver cancer is relatively common in the Philippines primarily because many Filipinos suffer from liver cirrhosis, which then precedes 80% of all hepatic cancers. The common etiology among Filipinos are chronic hepatitis B and C, smoking, and alcoholism.

Objective: This aims to evaluate all patients who underwent liver resection for demographics, intra- and post-operative outcomes and describe the 5-year trend in a two-hospital, single-institution. More patients will be aware of different liver pathology and more physicians will be updated on the current hepatic disease status in the Philippines for proper patient selection and best outcomes in hepatic resection.

Materials and Methods: This is a retrospective, descriptive type of study design with time period of 5 years (2014-2018). This includes all patients who underwent hepatectomy. Patients’ records will be collected. Data to be evaluated include patient’s age, gender, type of hepatic mass (primary malignant, metastatic, pre-malignant, benign), intra-operative data (blood loss, operative time, laparoscopic vs open technique, type of hepatic resection), and postoperative data (resection margin, final histopathology) of patients. The primary outcome will be length-of-stay in hospital (LOS) and operative mortality.

Result: From January 2014 to December 2018, 108 patients underwent hepatic resection, 24 were excluded, 84 patients were included. Mean age is 54.50 years (SD 17.26), 38 were females (45.24%) and 46 were males (54.76%). Blood loss with the mean of 993.27ml (SD 1335.21). Mean operative time was 295.73 minutes (SD 1225.15). There were 11 cases of laparoscopic liver resections performed (13.10%) and 73 open hepatectomies (86.9%). 84 had negative resection margins and 9 had positive resection margins, 89.29% and 10.70%. Primary malignant was still most common at 55.95%. The mean hospital stay was 8.68 days (SD 6.39). No intra-operative mortality was noted.

Discussion and Conclusion: This study described the demographics, intra- and post-operative 5-year data of hepatic resection. Outcomes noted in this study was comparable to international benchmarking for hepatic resections and may serve as a reference for evaluating surgical performance.

Keywords: Hepatectomy, liver resection, hepatic cancer.
P-0138
Hepatic Progenitor Cells from Adult Human Livers for Cell Transplantation

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Background: Liver regeneration is mainly based on cellular self-renewal including progenitor cells. Efforts have been made to harness this potential for cell transplantation, but shortage of hepatocytes and premature differentiated progenitor cells from extra-hepatic organs are limiting factors. Histological studies implied that resident cells in adult liver can proliferate, have bipotential character and may be a suitable source for cell transplantation.

Methods: Particular cell populations were isolated after adequate tissue dissociation. Single cell suspensions were purified by Thy-1 positivity selection, characterised in vitro and transplanted in immunodeficient Pip/Rag2 mice.

Results: Thy-1(+) cells that are mainly found in the portal tract and the surrounding parenchyma, were isolated from surgical liver tissue with high yields from specimens with histological signs of regeneration. Thy-1(+) cell populations were positive for progenitor (CD34, c-kit, CK14, M2PK, OV6), biliary (CK19) and hepatic (HepPar1) markers revealing their progenitor as well as hepatic and biliary nature. The potential of Thy-1(+) cells for differentiation in vitro was demonstrated by increased mRNA and protein expression for hepatic (CK18, HepPar1) and biliary (CK7) markers during culture while progenitor markers CK14, chromogranin A and nestin were reduced. After transplantation of Thy-1(+) cells into livers of immunodeficient mice, engraftment was predominantly seen in the periporal portion of the liver lobule. Analysis of in situ material revealed that transplanted cells express human hepatic markers HepPar1 and albumin, indicating functional engraftment.

Conclusion: Bipotential progenitor cells from human adult livers can be isolated using Thy-1 and might be a potential candidate for cell treatment in liver diseases.

Keywords: Liver regeneration; bipotential progenitor cells; treatment

P-0139
Impact of BRAF Allele Frequency in Colorectal Cancer Patients

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Objective: It is known that colorectal cancer with BRAF V600E mutation has a poor prognosis. We investigated the significance of BRAF mutant allele frequency in colorectal cancer (CRC).

Materials and Methods: We selected 85 BRAF mutant CRC specimens from 2008 to 2015. The presence and allele percentage of the BRAF mutation was determined by digital PCR.

Results: Of the 85 cancers specimen, 75 were BRAF V600E mutations, 9 were D594G mutations, and 1 were D594N mutations. The allele frequencies of V600E were 27.0% (63.6-60.6%) in cancer specimens with V600E, 0.1% in cancer specimens with D594G, and 0.0% in cancer specimens with D594N. The patients with V600E mutation were divided into two groups by allele frequency: group 1 (<19.5%, n=21) and group 2 (≥19.5%, n=39). Frequency of vascular invasion and CIMP-positive were higher in group 2 (p=0.079 and p=0.086, respectively). There was no significant difference in DFS and OS between the two groups (3-year OS 69.4%, 66.1%; p=0.463).

Conclusion: Although there was no significant difference in this examination, it was suggested that the prognosis may change depending on the allele frequency. It was considered necessary to examine further cases.

P-0140
Simple Endoscopic Scoring of Patients with Rectal Cancer after Concurrent Chemoradiotherapy

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Background: Neoadjuvant concurrent chemoradiotherapy (CCRT) is an effective treatment option for patients with rectal cancer. In this study, we investigated the clinical efficacy of simple endoscopic scoring of patients with rectal cancer after CCRT.

Methods: Between July 2008 and October 2015, medical records including endoscopic imaging from 41 patients with rectal cancer who received CCRT were retrospectively reviewed. Two expert gastroenterologists reviewed the endoscopic images and assigned scores from 0–3 according to post-CCRT findings. The scoring criteria were as follows: 0= no ulcer; 1= clean-based ulcer without marginal elevation; 2= clean-based ulcer with marginal elevation; 3= non-clean-based ulcer. We evaluated image scores to predict long-term outcomes using Kaplan-Meier curves and Cox regression models.

Results: The median follow-up duration was 55 months (interquartile range: 35–76). Patients with a low score (≤2) had a 17.2% recurrence rate, whereas patients with a high score (3) had a 50.0% recurrence rate. Patients with a low score had longer disease-free survival (DFS) than those with a high score in log-rank test (p=0.026). In multivariate Cox regression analysis, a high score was a significant predictor of poor DFS in patients with rectal cancer after CCRT treatment (hazard ratio=4.89, 95% confidence interval: 1.11–21.50, p=0.036).

Conclusion: This simple endoscopic scoring approach is helpful for predicting prognosis of patients with rectal cancer after treatment with CCRT.

P-0141
Preoperative Sarcopenia and Postoperative Infection in Mature Digestive Surgery Patients

Yuichi Kitagawa
National Center for Geriatrics and Gerontology, Japan.

Background: When performing surgery on elderly patients, evaluations of sarcopenia are being introduced. This study was performed as part of “Aged operative patients with sarcopenia and perioperative infection” in The Research Funding for Longevity Sciences from National Center for Geriatrics and Gerontology (NCGG), Japan (project 30-32).

Objective: The aim of this investigation is whether preoperative sarcopenia is associated with the development of postoperative infectious complications.

Methods: After registration, electronic medical records were referred and extracted patient basic information and data suspected of post-operative infections. The diagnostic criteria of infection dealt with Grade II or more of Clavien-Dindo classification. Diagnosis of infectious disease was made with reference to blood test, imaging and bacterial test results. Surgical site infection (SSI) was evaluated based on the SSI team surveillance.

Results: 24 elderly patients were registered with necessary data. The average age was 77.0 years, 13 males and 11 females were included. In the sarcopenia evaluation, there were 11 cases without sarcopenia and 13 cases with it. Eight cases developed some infectious complications postoperatively. The types of infectious complications (including duplication) were 6 cases of organ / body cavity infections including suture failures, 4 of urinary tract infection, 3 of sepsis, 3 of pneumonia, and a case of otitis media. Infectious complications occurred in 4 cases in the non-sarcopenia group and 2 in the sarcopenia group (P = 0.237). The average postoperative hospitalization was 29.2 days overall, 56.8 in the group with postoperative infectious complications, and 23.2 in the group without.

Conclusion: In this study, there was no relation in the incidence of postoperative infectious and preoperative sarcopenia. However, the postoperative hospitalization in the group with postoperative infectious complications was more than doubled.
Introduction: Totally implantable venous access port (TIVAP) implantation has been widely used as a simple and safe approach to access the vascular system for intravenous administration of chemotherapeutic drugs and nutritional support. Several studies have investigated the late complications associated with TIVAP implantation via the internal jugular vein (IJV); however, the reported results are inconclusive due to small sample sizes or insufficient analytic methods.

Objective: To elucidate the types and incidences of late complications associated with TIVAP implantation via the IJV.

Patients and Methods: The study included 482 patients (mean age, 65 ± 11 years) who underwent TIVAP implantation for long-term chemotherapy and/or nutritional support between April 2012 and December 2017. Most patients (95.2%) had malignant diseases. The right IJV was selected in 88.2% of the patients. Events requiring TIVAP removal were defined as TIVAP-related complications.

Results: The median TIVAP and global follow-ups were 319 days (IQR: 152–661) and 218,971 catheter-days, respectively. The 3-year cumulative TIVAP availability rate was 70%. There were 44 complications (incidence of 9.1%; 0.201 complications/1000 catheter-days). Infectious, catheter-related, and port-related complications occurred in 21, 14, and 9 patients, respectively, with infectious complications occurring earlier and more frequently than catheter- and port-related complications. Univariate analysis related that patient age, background diseases, and purpose of TIVAP implantation were significantly correlated with TIVAP-related complications. Multivariate analysis revealed that age <65 years and presence of non-gastrointestinal diseases were significant unfavorable factors for TIVAP-related complications. The risk was between two and three times higher in patients with at least one of these factors than in those without these factors.

Conclusions: Among the late complications associated with TIVAP implantation via the IJV, infectious complications occur earlier and more frequently than catheter- and port-related complications. Patients with an age <65 years and having non-gastrointestinal diseases have a significantly high risk of TIVAP-related complications.

Keywords: Totally implantable venous access port, internal jugular vein, complication
General Information

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Official Language
The official language of the Congress will be English.

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Certificate of attendance will be issued to congress delegates as e-certificate only on congress website.

Official Bank
Bangkok Bank (Public) Co., Ltd. has been appointed as the official bank of the Congress.

Traveller’s Cheques and Credit Cards
Major credit cards, such as VISA and Master Card are widely accepted in hotels and shops. Traveller’s cheques can be conveniently cashed at all commercial banks and authorized money exchanges.

Currency
The Thai currency is Baht, which is divided into 100 Satang. Coins are 25 and 50 Satang, 1, 5 and 10 Baht. Foreign currency may be exchanged at authorized exchange banks, hotels and shops.
(1 USD is approximately 31 Baht).

Electricity
Voltage in Thailand is 220 V AC. However, electric razor outlets, generally with multi-voltage fittings, are available in most hotels.

What to Wear/Dress & Weather
Definitely cool cottons rather than synthetics and comfortable footwear. To be ‘casual’ is quite acceptable, but Thais consider it impolite to wear shorts and skimpy tops on city streets. Only the top restaurants demand a jacket and tie. Being in the Southeast Asia region, Thailand has a subtropical climate. During October the temperature averages 30°C in daytime and 25°C to 27°C at night.

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