



**T-CAP** 2014  
Tokyo Conference of Asian Pancreato-biliary Interventional Endoscopist

PROGRAM & COMPENDIUM

**T-CAP 2014** -Tokyo Conference of Asian Pancreato-biliary Interventional Endoscopist-

**JUN. 27-28, 2014**

**Ito International Research Center**

We would like to appreciate all of you joining T-CAP 2014. This is 2nd T-CAP meeting, and we expect T-CAP 2014 will become more exciting with hotter discussion. T-CAP has two major missions: Collaboration and education.

We as pancreato-biliary interventional endoscopists need skills in endoscopic procedures as well as a wide knowledge of diseases, devices and treatment strategy, which we can share with international faculties through this meeting. Hot discussion is another feature, which makes T-CAP meeting special of all the conferences and meetings in this field. T-CAP encourages discussion on techniques and devices based on experiences and we can learn practical knowledge on the procedure and patient care.

And last but not least, we believe friendship among participants is the most important in this international meeting. We can enjoy not only the scientific meeting but also chat during the meeting and party. Please enjoy food and drink with famous international endoscopists at party!

Hiroyuki Isayama,  
President of T-CAP



## Faculty Members

Exclusive adviser: **Kazuhiko Koike** (Tokyo Univ. Japan)

President: **Hiroyuki Isayama** (Tokyo Univ. Japan)

### Organizing committee

Chief: **Takao Itoi** (Tokyo Medical Univ. Japan)

**Ichiro Yasuda** (Teikyo Univ. Mizonokuchi Hosp.)

**Hiroshi Kawakami** (Hokkaido Univ. Japan)

**Iruru Maetani** (Toho Univ. Ohashi, Japan)

**Keiji Hanada** (Onomichi General Hospital, Japan)

**Masayuki Kitano** (Kinki Univ. Japan)

**Atsushi Irisawa** (Fukushima Medical University Aizu Medical Center)

**Shomei Ryozaawa** (Saitama Medical University International Medical Center)

**Tsuyoshi Hayashi** (Sapporo Medical Univ.)

### International organizing committee

Chief: **Hsiu-Po Wang** (Taiwan)

**Jong Ho Moon** (Korea)

**Dong Wang Seo** (Korea)

**Hu Bing** (China)

**Christopher Khor** (Singapore)

**Thawee Ratanachu-ek** (Thailand)

**Ryan Ponnudurai** (Malaysia)

**James Lau** (Hong Kong)

**Sundeeep Lakhtakia** (India)

**Rungsun Rerknimitr** (Thailand)

**Ang Tiing-Leong** (Singapore)

Secretaly general: **Ichiro Yasuda** (Teikyo Univ. Mizonokuchi Hosp.)

Secretariats **Yousuke Nakai** (Tokyo Univ. Japan)

**Masaki Kuwatani** (Hokkaido Univ. Japan)

**Takuji Iwashita** (Gifu Univ. Japan)

**Fumihide Itokawa** (Tokyo Medical Univ. Japan)

**Natsuyo Yamamoto** (Tokyo Univ. Japan)

**Hirofumi Kogure** (Tokyo Univ. Japan)

**Tsuyoshi Hamada** (Tokyo Univ. Japan)

**Satoko Uchiyama** (Tokyo Univ. Japan)

## Faculty Members

### Exclusive adviser

**Kazuhiko Koike** (Tokyo Univ. Japan)



Dr. Koike obtained his M.D. degree from The University of Tokyo in 1980. From 1986-89, he worked in National Cancer Institute, Bethesda, as a visiting fellow. In 2009, has been appointed as the Professor and Chairman of Department of Gastroenterology, The University of Tokyo.

He has been installed as Director General of The Japan Society of Hepatology (JSH) since May 2010.

He is a board-certified hepatologist and gastroenterologist. His major research efforts have been directed toward the elucidation of mechanism of hepatocarcinogenesis in hepatitis C and B. He has published more than 500 papers, book chapters and miscellaneous publications.

### President

**Hiroyuki Isayama** (Tokyo Univ. Japan)



Lecturer, Department of Gastroenterology, Training Program for Oncology Professionals, Graduate School of Medicine, The University of Tokyo.

He is both interventional-endoscopist and oncologist in the pancreato-biliary field. He published first RCT of covered vs. uncovered self-expandable metallic stent (SEMS) and showed the superiority of covered-SEMS for the distal biliary obstruction. He also published some clinical studies of chemotherapy as a chief-investigator. He has published more than 140 peer-reviewed articles (IF > 500). He was invited internationally 25 times for lecture and 9 for endoscopic live-demonstration in this 5 years. He is member of editorial-board of 5 journals.

### Organizing committee

**Takao Itoi** (Tokyo Medical Univ. Japan)

Chief



Dr. Takao Itoi is presently the associate professor of the Tokyo Medical University at Tokyo, Japan.

Dr. Takao Itoi graduated from Tokyo Medical University in 1991 and had worked in Tokyo Medical University Hospital as a gastroenterologist. His major is diagnostic and therapeutic endoscopy in pancreaticobiliary diseases by means of EUS and ERCP. Until now, he has outstanding endoscopic skill and has published many papers in high impact factor journals on the novel and special techniques and outcome.

**Ichiro Yasuda** (Teikyo Univ. Mizonokuchi Hosp. Japan)



Dr Ichiro Yasuda is Professor and Director at the Department of Gastroenterology, Teikyo University Mizonokuchi Hospital, Japan. After his graduation from Gifu University School of Medicine in 1990, he received his training in Gastroenterology at Gifu University Hospital and subsequently at the world renowned University Hospital Hamburg-Eppendorf under the direction of Professor Nib Soehendra. Dr Yasuda is an expert in ERCP and endoscopic ultrasonography (EUS). After he had gained experience for more than 20 years in Gifu and published more than 110 peer-review English articles, he has promoted to the current position in 2014.

## Faculty Members

### Organizing committee

#### Hiroshi Kawakami (Hokkaido Univ. Japan)



Assistant professor, Department of Gastroenterology and Hepatology, Hokkaido University Hospital. He is interventional-endoscopist, endosonographer and oncologist in the pancreatico-biliary disease. He has an extreme interest in hepato-pancreatico-biliary strictures. He published preoperative biliary drainage in patients expected to undergo definitive surgery for hilar cholangiocarcinoma. A breakthrough in his work causes a paradigm shift in guideline for the management of bile duct cancer. Recently, he also published some randomized controlled trials of selective bile duct cannulation as a chief-investigator. He published about 50 peer-reviewed international articles and more than 100 domestic publications.

#### Iruru Maetani (Toho Univ. Ohashi, Japan)



Professor and Chairman  
Division of Gastroenterology and Hepatology, Department of Internal Medicine  
Toho University Ohashi Medical Center  
Dr. Iruru Maetani is Chairman and Professor of Gastroenterology at Toho University Ohashi Medical Center in Tokyo. He has worked for over 30 years in the hospital after his graduation from Toho University. He is devoting clinical practices and research and to undergraduate and postgraduate medical education. His special research interests include diagnostic and therapeutic endoscopy and interventional radiology for gastroenterological diseases, especially gastrointestinal/biliary stenting, gastrostomy and various palliative interventions for advanced cancers. He is currently a member of many domestic and international societies, and a member of editorial and review board of international journals.

#### Keiji Hanada (Onomichi General Hospital, Japan)



Chief, Center for Gastroendoscopy, Onomichi General Hospital  
Clinical Professor, Hiroshima University School of Medicine  
He is graduated from Shimane Medical University (1988), and the postgraduate course of Hiroshima University, with the degree of PhD (1996). He belongs to Japan Gastroenterological Endoscopy Society, Japanese Society of Gastroenterology, Japan Pancreas Society, Japan Biliary Association as councilor, and Japanese Society of Internal Medicine, Japanese Cancer Association and Japanese Society of Medical Oncology. He is both skilled endoscopist and oncologist. Now he is advancing the clinical project to detect the early stage pancreatic cancer in Onomichi City.

#### Masayuki Kitano (Kinki Univ. Japan)



Department of Gastroenterology and Hepatology, Kinki University Faculty of Medicine, Japan  
Dr. Masayuki Kitano is Associate Professor of Department of Gastroenterology and Hepatology, Kinki University Faculty of Medicine. He graduated Tottori University School of Medicine, got medical degree in Japan in 1990 and earned PhD in 1994. From 2000, he began to work at Kinki University, and studied in the field of pancreatobiliary diseases, particularly endoscopic diagnosis and treatment. He and his colleagues made a novel EUS system equipped with contrast harmonic imaging which allowed visualization of tissue microcirculation, and reported its utility for diagnoses of pancreatobiliary and gastrointestinal diseases. By this work, he received the Ito Award from Japan Society of Ultrasonics in Medicine. He works as a faculty of the Japanese Society of Gastroenterology, of the Japan Gastroenterological Endoscopy Society, and of the Japanese Society of Clinical Pharmacology and Therapeutics. He has authored / co-authored 90 peer reviewed English publications.

## Faculty Members

### Organizing committee

#### Atsushi Irisawa (Fukushima Medical University Aizu Medical Center Japan)



Prof. Atsushi Irisawa is a Professor of Gastroenterology, Fukushima medical university Aizu medical center. Graduated from the School of Medicine, Dokkyo Medical University in 1989, and obtained PhD from Fukushima Medical University in 1996. He was visiting faculty of Center for EUS, University of Florida, and worked with Professor Bhutani in 2000. His specialty is mainly endoscopic diagnosis and treatment for pancreatobiliary area, especially interventional EUS and ERCP. However that may be, he plays an active part in the wide-ranging digestive disease; member as councilor in the Japanese Gastroenterological Endoscopy Society, Japanese Society of Gastroenterology, Japan Pancreas Society, Japanese Society of Portal Hypertension, Japanese Gastroenterological association, and international member of American Society for the Gastrointestinal Endoscopy.

#### Shomei Ryozaawa (Saitama Medical University International Medical Center Japan)



Dr. Shomei Ryozaawa graduated from Yamaguchi University in 1991 and took his PhD in 1997. He worked at Dept. of Endoscopy in Hamburg University Eppendorf Hospital (Prof. Nib Soehendra) from 2000 to 2001. He has been appointed as the Professor and Chairman of Department of Gastroenterology, Saitama Medical University International Medical Center in 2013. He serves as a reviewer for over 10 journals. He is an expert in ERCP and EUS-FNA, and has been invited for many live demonstrations.

#### Tsuyoshi Hayashi (Sapporo Medical Univ. Japan)



Dr. Tsuyoshi Hayashi is the assistant professor of Department of Medical Oncology and Hematology, Sapporo Medical University, Japan. He graduated in 1996 and earned PhD. in 2005 from Sapporo Medical University. His specialties are pancreatico-biliary diseases including not merely endoscopic procedure but also clinical oncology, and he has extensively published papers in this area.

### International organizing committee

#### Hsiu-Po Wang (Taiwan)

Chief



Dr. Hsiu-Po Wang, born in 1961, is the Chief of Endoscopy Division of National Taiwan University Hospital and Professor of Internal Medicine, College of Medicine, National Taiwan University. He is the incumbent the President of Digestive Endoscopy Society of Taiwan and a Council Member of Taiwan Society of Coloproctology and a Member of the Board of Director of Taiwan Pancreas Society. He is skillful with many endoscopic techniques. Besides his majors of ERCP and EUS/interventional EUS, he also involves IEE (NBI, i-scan, AFI), endoscopic tumor ablation techniques, enteroscopy, esophageal/enteric stenting. He is active in many international meetings and has been invited for chair, speech and live demonstration. He has had many publications involving gastroenterological and endoscopic fields. He also has written a book chapter about GI bleeding of international emergency textbook.

## Faculty Members

### International organizing committee

#### Jong Ho Moon (Korea)



Professor of Medicine

SoonChunHyang University School of Medicine, Bucheon/Seoul, Korea

Dr. Moon is currently the Chief of Division of Gastroenterology, Director of Digestive Disease Center of SoonChunHyang University Hospital of Bucheon, Korea. His specialty includes diagnostic and therapeutic endoscopy of pancreaticobiliary tract diseases, especially through ERCP and EUS. Dr. Moon is involved in the clinical research of pancreaticobiliary endoscopy and has published extensively in high ranked journals. Dr. Moon is also actively involved in the development of metal stents, and endoscopic accessories. Dr. Moon has been invited to many international endoscopic symposiums in the world. Several Awards received locally, and nationally.

#### Dong Wang Seo (Korea)



Dong Wan Seo is a full professor of Department of Gastroenterology, University of Ulsan Medical College, Asan Medical Center which is the largest teaching hospital in South Korea. Dr. Seo has created a lot of advanced endoscopy works to the World of GI Endoscopy and his main research interests are cholangioscopy, interventional EUS and interventional treatment of hepato-bilio-pancreatic neoplasm. Prof. Seo is also serving as a chairperson of Endoscopy Teleconference Session in APAN meeting and scientific committee of SGI meeting. He is working as an active member in variety of national & international societies including KSGE, KSG, SGI, ASGE and NOSCAR. He is also serving as an international editorial board member of Gastrointestinal Endoscopy.

#### Hu Bing (China)



Professor, Head of Endoscopy Center

Eastern Hepatobiliary Hospital

Second Military Medical University

absent

#### Christopher Khor (Singapore)



Senior Consultant / Department of Gastroenterology & Hepatology Director, Endoscopy Centre Singapore

General Hospital Immediate past president, Gastroenterological Society of Singapore

Dr Christopher Khor completed clinical fellowships in ERCP and in EUS in the US, after Internal Medicine & GI training in Singapore. More recently, he trained in Endoscopic Submucosal Dissection at the National Cancer Center Hospital, and at Kobe University Medical Center. His main practice areas are in general gastroenterology, therapeutic endoscopy and pancreato-biliary disease. He has a keen interest in endoscopic quality and education, and in promoting cross-border co-operation between endoscopists in the region. Dr Khor was Vice-President of Asian-Pacific Digestive Week 2011 in Singapore, for which he directed Endoscopy programming. He is the immediate past President of the Gastroenterological Society of Singapore.

## Faculty Members

### International organizing committee

#### Thawee Ratanachu-ek (Thailand)



Dr. Thawee is currently a director of surgical endoscopy unit, Chief of general surgery division, department of surgery, Rajavithi hospital which is a tertiary care of gastrointestinal specialty in Thailand. He graduated from Siriraj Medical School, Mahidol University then received a board of surgery, he gained his endoscopic experiences from a short term visiting in various famous centers. His main interests are all kinds of therapeutic endoscopy and EUS especially hepato-pancreato-biliary area. Formerly he also held the position of president of Thai Association of Gastrointestinal Endoscopy (TAGE) during 2012-2013. Currently he is the chief of Gastrointestinal Endoscopy Summit Thailand (GEST) and Clinical Instructor at Rungsit Medical College, Rungsit University, Thailand.

#### Ryan Ponnudurai (Malaysia)



Dr. Ponnudurai was trained in Canada and in Hamburg specializing in advanced endoscopy and endoscopic ultrasound. When he returned to Malaysia in 2001, he pioneered the training and development of EUS in his country. His passion is teaching endoscopic ultrasound and has been invited to many live endoscopy courses around the world. In 2011 an EUS task force for the Asia Pacific region was developed, which he chairs. He also sits on many editorial boards and has published in peer review journals.

#### James Lau (Hong Kong)



Dr. Lau is currently Director to Endoscopy Center and Professor to Surgery at the Prince of Wales Hospital to the Chinese University of Hong Kong. He graduated from University of New South Wales, Australia in 1987 and became a Fellow to the Royal College of Surgeons at Edinburgh in 1991. He subsequently learned upper gastrointestinal, laparoscopic surgery and therapeutic endoscopy at the Prince of Wales Hospital. His main research interests are in epidemiology of gastrointestinal diseases, therapeutic endoscopy and specifically in management of upper gastrointestinal bleeding and biliary endoscopy.

#### Sundeep Lakhtakia (India)



I, Dr Sundeep Lakhtakia, am senior consultant at Asian Institute of Gastroenterology, Hyderabad, India with special interest in EUS, therapeutic endoscopy & ERCP.

I graduated (MBBS) from MAMC, New Delhi, followed by MD (Internal Medicine) from prestigious PGIMER, Chandigarh, and DM (Gastroenterology) from SGPGIMS, Lucknow in 1998.

I received advanced training in "Endoscopic Ultrasound" at MUSC, Charleston, South Carolina, USA.

I have various publications in national & international journals. I am peer reviewer in national and international journals.

I have received various awards and scholarships during my academic career, including prestigious "Young Investigator Award" at APDW at Philippines in 2006.

## Faculty Members

### International organizing committee

#### Rungsun Rerknimitr (Thailand)



Rungsun Rerknimitr graduated from Chulalongkorn University, Thailand with honor. He obtained his American Board of Internal Medicine from Rush Medical College, Chicago in 1996. Later, he pursued his Gastroenterology fellowship from Louisiana State University in New Orleans. Before he returned to Thailand, he obtained an ERCP fellowship from Indiana University. To date he has published 5 English-GI- Endoscopy Atlases and more than 70 articles in peer review GI journals. He is currently a Professor of Medicine and a Director of GI Endoscopy Excellence Center at Chulalongkorn University, Bangkok, Thailand. He is also a founding member of the Thai Association of Gastrointestinal Endoscopy (TAGE) and also a past chief editor of the Thai Journal of Gastroenterology. He has been elected as new president for TAGE (2014-2015). He recently won the award as the most achievement young internist (2013) from the Thai Royal College of Physicians. His main endoscopic interest is therapeutic ERCP with a special interest in metallic stent clinical application.

#### Ang Tiing-Leong (Singapore)



Dr. Ang is Chief and Senior Consultant at the Department of Gastroenterology, Changi General Hospital. He is also the Deputy Head, Research and Director of Endoscopy Center, as well as Adjunct Associate Professor at the Yong Loo Lin School of Medicine, National University of Singapore. Dr. Ang is actively involved in the gastroenterological field. He is the President of the Gastroenterological Society of Singapore, a member of the Residency Advisory Committee for Gastroenterology and Vice Chairman of the Chapter of Gastroenterology, Academy of Medicine, Singapore. Dr Ang has subspecialty clinical interests in pancreaticobiliary diseases, early GI cancers and advanced therapeutic endoscopy. His research interests include acid-related disorders, H. pylori infection, pancreatobiliary diseases and gastrointestinal endoscopy.

### Secretaly general

#### Ichiro Yasuda (Teikyo Univ. Mizonokuchi Hosp.)



Dr Ichiro Yasuda is Associate Professor of Medicine and Gastroenterology at the First Department of Internal medicine, Gifu University Hospital, Japan. He is also the head of the pancreatobiliary section at Gifu University Hospital. After his graduation from Gifu University School of Medicine in 1990, he received his training in Gastroenterology at Gifu University Hospital and subsequently at the world renowned University Hospital Hamburg-Eppendorf under the direction of Professor Nib Soehendra. Dr Yasuda is an expert in ERCP and endoscopic ultrasonography (EUS), and has published extensively in pancreatobiliary diseases.

## Faculty Members

### Secretariats

#### Yousuke Nakai (Tokyo Univ. Japan)

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Assistant Professor, Department of Gastroenterology, Graduate School of Medicine, The University of Tokyo.

He is interested in both advanced endoscopic procedures for pancreato-biliary diseases and oncology for pancreatic cancer. He finished advanced EUS fellowship with Prof. Kenneth Chang at University of California, Irvine and conducted a prospective study of EUS-guided “through-the-needle” diagnosis of pancreatic cysts using Spyglass and nCLE. He published many (>100) articles regarding interventional endoscopy, oncology and the combination, “interventional oncology; iOncology.”

#### Masaki Kuwatani (Hokkaido Univ. Japan)

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Assistant professor, Department of Gastroenterology and Hepatology, Hokkaido University Hospital.

He graduated from Hokkaido University and has been engaged in the pancreato-biliary field as both a physician and endoscopist for 14 years. He recently reported RCT of CO<sub>2</sub> vs. air insufflation during ERCP and showed that patients’ discomfort after ERCP can be alleviated effectively by deep conscious sedation during ERCP regardless of insufflation gas used. He has published about 30 peer-reviewed international and 25 domestic articles.

#### Takuji Iwashita (Gifu Univ. Japan)

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Dr Takuji Iwashita completed his medical degree as well as his Ph.D. at Gifu University. He received his training in Gastroenterology at Gifu University Hospital and subsequently at University of California, Irvine under the direction of Prof. Kenneth J. Chang. He is currently Assistant Professor of Gastroenterology at First Department of Internal Medicine, Gifu University Hospital. His clinical research focuses on endoscopic ultrasound (EUS) guided procedures. His clinical expertise in pancreato-biliary endoscopy includes EUS, EUS-guided procedures, and endoscopic retrograde cholangiopancreatography (ERCP).

#### Fumihide Itokawa (Tokyo Medical Univ. Japan)

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Instructor of dept of Gastroenterology and Hepatology, Tokyo Medical University

He is both interventional-endoscopist and oncologist in the pancreato-biliary field. He is the member of Japanese Society of Internal Medicine and Gastroenterology, American and Japanese Endoscopic Society, and Japanese Biliary and Pancreatic Society. He is specialized in EUS-elastography in pancreatic masses and published articles. He have been given 2 awards; Award of Japan Biliary Society in 2004 and Best of DDW(US) in 2009.

## Faculty Members

### Secretariats

#### Natsuyo Yamamoto (Tokyo Univ. Japan)

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Dr. Natsuyo Yamamoto is the assistant professor of the University of Tokyo at Tokyo, Japan. She graduated from Chiba University in 1998 and had worked as a gastroenterologist in Tokyo University Hospital, Japanese Red Cross Medical Center and International University of Health and Welfare Mita Hospital. Her major is diagnostic and therapeutic endoscopy in pancreaticobiliary diseases. She also specialized in endoscopic intervention for severe pancreatitis.

#### Hirofumi Kogure (Tokyo Univ. Japan)

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Dr. Hirofumi Kogure is Assistant Professor at the Department of Endoscopy and Endoscopic Surgery, Graduate School of Medicine, The University of Tokyo, Japan. He graduated from The University of Tokyo in 2001.

His clinical and research interests include therapeutic pancreaticobiliary endoscopy and endoscopic ultrasound, especially biliary stenting and Double-balloon enteroscopy-assisted ERCP.

#### Tsuyoshi Hamada (Tokyo Univ. Japan)

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Department of Gastroenterology, Graduate School of Medicine, The University of Tokyo.

He is a young and eager interventional-endoscopist in the pancreato-biliary field and his main interest is biliary self-expandable metal stents for malignant biliary obstruction, including antireflux stents. He is well trained in statistical analyses and has published articles on risk factors for stent dysfunction using a competing risk analysis or a propensity analysis. He is also specialized in percutaneous transhepatic cholangioscopy using an ultraslim upper endoscope.

#### Satoko Uchiyama (Tokyo Univ. Japan)

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She graduated Aoyama Gakuin University College of Literature Department of History.

She worked as a medical office secretary In Yokohamashintoshi Neurosurgical Hospital until 2011.

She is working from 2011 as a secretary of the University of Tokyo Hospital Department of Gastroenterology group.



## Access

The Ito International Research Center is located on the Hongo Campus in central Tokyo. There are several options for access from Narita Airport.

### Narita Express

Take the JR Narita Express train from the basement of the airport building to Tokyo Station. Trains run approximately every thirty minutes and take about either 60 or 90 minutes to reach Tokyo Station. Tickets cost about 3,000 yen. From Tokyo Station take the Marunouchi Metro line (Ikebukuro direction) and get off at Hongo Sanchome Station. Trains run every few minutes and take about 8 minutes. Tickets cost 170 yen.

### Keisei Express "Skyliner"

Take the Keisei Express "Skyliner" from the basement of the airport building to Keisei Ueno. Trains run approximately every twenty minutes and take 44 minutes to reach Keisei Ueno Station. Tickets cost about 2,470 yen. Take a taxi from Keisei Ueno Station to the Hongo Campus, or walk (about 20 minutes; includes uphill sections).

### Limousine Bus

Take the Limousine Bus from outside the terminal building immediately opposite the exit from customs. Buses run every twenty to thirty minutes and take up to 120 minutes, depending on the traffic. Tickets cost 3,100 yen. From Tokyo Station take the Marunouchi Metro line (Ikebukuro direction) and get off at Hongo Sanchome Station. Trains run every few minutes and take about 8 minutes. Tickets cost 170 yen.

### Taxi

Narita Airport is about a two-hour drive from Tokyo. Taking a taxi from the airport is not recommended as it is expensive (about 20,000 yen), but you can take a taxi from Tokyo Station if you prefer not to take the Metro.

### Access Map

The University of Tokyo  
 Ito International Research Center  
 7-3-1 Hongo, Bunkyo-ku, Tokyo  
 113-0033 JAPAN



## Congress information

### Registration

- **Registration Desk:** In front of "Ito Hall" , B2F , ITO INTERNATIONAL RESEARCH CENTER
- **Open hours:** **Friday**, June 27 9:00-21:00 / **Saturday**, June 28 9:00-17:00
- **Registration Fee:** Onsite registration: JPY 15,000  
Pre-registration: JPY 10,000  
Medical company person: JPY 15,000
- **Entitlements**  
Participants' registration includes: +Participation in the Scientific Program / +Abstract Book / +Luncheon Seminar / +Coffee Breaks / + Dinner Party / +Morning seminar (The breakfast is not included in Morning seminar.)
- **Payment Method:** Payment must be made in JPY ( Japanese Yen), cash and credit card.

### Instruct for Presentation

#### [Symposium (Oral Presentation)]

- **All speakers, please bring one's PC. And the person using the Macintosh PC, please bring the Adapter. All speakers, please provide and bring the back-up data by USB flash memory, and see the following information.**
- All speakers are requested to come to the PC Center at least 30 minutes prior to their presentations in order to verify if the data functions properly on the equipment provided.
- If you have prepared data by Windows PC, please bring your data by USB flash memory. Your presentation data will be loaded onto a central server and distributed to an appropriate session room at an appropriate time via a LAN .
- If you have prepared data by Macintosh , please bring your Macintosh with you.
- Please operate a mouse and keypad at the podium when you make a presentation.

#### [Data Preparation (for Windows)]

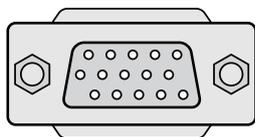
1. The operating system must be Windows 2000 or later.
2. Presentation slide must be prepared by Microsoft PowerPoint 2003/2007/2010 and the following OS standard fonts:
3. [English] Times New Roman, Arial, Arial Black, Arial Narrow, Century, Century Gothic, Courier, Courier New, Georgia
4. Animation and movies can be included but it should be played by default codec of Windows Media Player 11.
5. Audio can be included as well.
6. File size should be less than 700MB including movies.
7. Resolution of presentation PC is set as XGA (1.024×768). Please be sure to change your resolution to XGA before reviewing the layout.
8. In order to avoid virus infection, please scan your data with the updated antivirus program beforehand.
9. Your presentation data loaded onto the server will surely be deleted by the congress secretariat after the congress.

# Congress information

**[For those who bring their own computers]**

1. No regulation for computer models, OS and applications, but your computer must have VGA D-sub15 pin female output. Special video output cable is required for some laptops to use D-sub 15pin to connect to external monitors and data projectors.

D-sub 15pin



e.g. output cables



2. Please review your data at PC Center if it works properly if video and audio included.
3. Resolution of presentation is set as XGA (1.024x768). Please be sure to change your resolution to XGA before reviewing the layout.
4. Please make sure to bring AC power cable with you. Running your computer with battery only might cause a trouble.
5. It is recommended to have your data backed up in case of computer trouble.
6. After your presentation finished, your computer will be returned to you. Please come to the operator's desk and certainly collect your computer.

**[Poster Presentation]**

**Schedule:**

**Friday, June 27 9:00 - Saturday, June 28 17:00**

**27 13:30-14:00 Poster Discussion**

**28 13:30-14:00 Poster Discussion**

**Poster presentator, please come in front of your poster at time of Poster Discussion round mentioned above.**

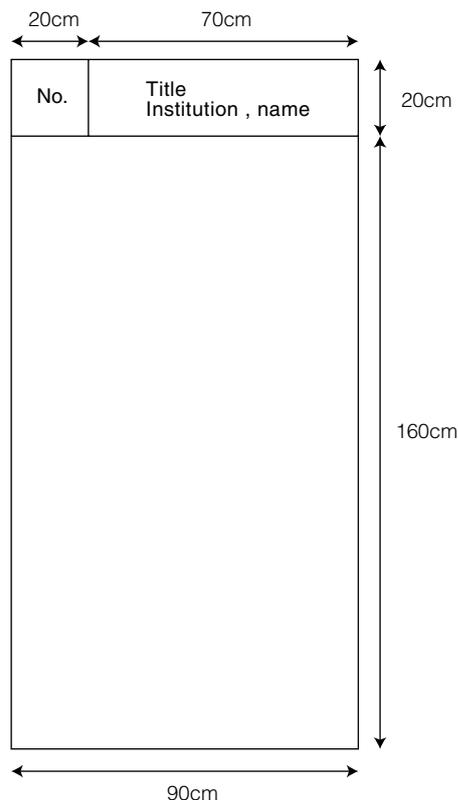
**Poster size:**

Poster: 90cm wide x 180cm high / Label : 70cm wide x 20cm high

- Your assigned board will be indicated with your poster program number.
- Please prepare a label showing the title, institution, and speaker's name.
- Pins for mounting will be available from the Poster Session area.

**\*\*Note\*\***

- Posters should be brought personally to the congress and not mailed. The Organizing Committee is unable to take any responsibilities for any loss or mishandling.
- Presenters are responsible for posting and removing their own materials.
- Audio-Visual equipments may not be used.



## Time Table

Friday , June 27	
Ito International Research Center B2F Ito Hall	
8:30	
9:00	Opening remarks (9:00-9:10)
9:30	Session 1 (9:10~10:30): What Is the Best Management of Malignant Hilar Stricture
10:00	
10:30	Coffee break (10:30~15:50)
11:00	Session 2 (10:30~12:00): Free paper session 1 (Each paper: 7min+3min)
11:30	
12:00	
12:30	FUJIFILM Corporation Luncheon Seminar (12:00-13:10)
13:00	
13:30	Poster Discussion (13:30~14:00)
14:00	
14:30	Session 3 Special Lecture (14:00~15:15)
15:00	
15:30	
16:00	Session 4 (15:45~17:30): T-CAP Statement of management of WON
16:30	
17:00	
17:30	Coffee break (17:30~17:45)
18:00	
18:30	TaeWoong & CMI Satellite symposium (18:30~19:15)
19:00	
19:30	
20:00	TaeWoong & CMI Dinner Party (19:15~21:00)
20:30	
21:00	

Saturday , June 28	
Ito International Research Center B2F Ito Hall	
8:30	
9:00	
9:30	Hitachi Medical Corporation Morning seminar (9:00-10:10)
10:00	
10:30	Session 5 (10:10~11:10): Current advance in EUS related procedures
11:00	
11:30	Session 6 (11:10~12:10): Recent progress in endotherapy for pancreato-biliary diseases
12:00	
12:30	Piolax Medical Devices Corporation Luncheon Seminar (12:10-13:20)
13:00	
13:30	Poster Discussion (13:30~14:00)
14:00	
14:30	Session 7 (14:00~15:00): Endotherapy for altered anatomy
15:00	Coffee break (15:00~15:15)
15:30	
16:00	Special Lecture (15:15~16:30)
16:30	
17:00	Awarded Ceremony & Closing remarks (16:30~16:45)
17:30	
18:00	
18:30	
19:00	
19:30	
20:00	
20:30	
21:00	

## Meeting agenda of T-CAP 2014

**[June 27, Friday]**

**Opening remarks (9:00-9:10)**

Hiroyuki Isayama  
 Kazuhiko Koike  
 Hsiu-Po Wang

**Session 1 (9:10~10:30): What Is the Best Management of Malignant Hilar Stricture**

**Moderator:**

Keiji Hanada, Tiing Leong Ang

Endoscopic Management of Malignant Hilar Biliary Stricture (15min+5min)      Jong Ho Moon

Stent-in-stent technique (10min)      Hirofumi Kogure

Malignant Hilar Stricture with side-by-side metallic stenting (10min)      Rungsun Rerknimitr

*Discussion "SIS versus SBS" (10min)*

EUS-guided biliary drainage for hilar obstruction (10min+5min)      Do Hyun Park

**Discusser:**

Hiroshi Kawakami, Iruru Maetani, Hiroyuki Isayama,  
 Sundeep Lakhtakia, Peter Draganov, Dong Ki Lee

**Coffee break (10:30-10:50)**

**Session 2 (10:50-12:10): Free paper session 1 (Each paper: 6min+3min)**

**Moderator:**

Natsuyo Yamamoto, Hsiu-Po Wang

1. A pilot study of contrast enhanced harmonic endosonography (CH\_EUS) using SONOVUE in the evaluation of suspected pancreaticobiliary and peri-ampullary malignancies      Shannon Melissa Chan

2. Novel Metabolomics Markers for Characterization and Early Detection of Malignancy in Pancreatic Cysts      Damien Tan Meng Yew

3. Procore biopsy needle versus standard aspiration needle for EUS-guided sampling of solid pancreatic masses: a randomized study      Yun Nah Lee

4. Endoscopic pancreatic duct stenting for benign pancreatic duct obstruction in our hospital      Masahiro Itonaga

5. EUS-guided vascular therapy; Coil deployment for gastric varices. -The first case in Japan-      Akane Yamabe

6. A Prospective Feasibility Study of Preoperative Biliary Drainage Using a Fully-covered Self-expandable Metallic Stent for Pancreatic Head Cancer      Osamu Togawa

7. Small cell versus large cell-sized stent for endoscopic bilateral stent-in-stent placement of metallic stents in malignant hilar biliary obstruction      Sang Hyub Lee

8. Endoscopic management of bile leaks after hepato-biliary surgery or percutaneous biliary procedures.      Tomoharu Yamada

**Discusser:**

Takuji Iwashita, Shomei Ryozaawa, Fumihide Itokawa, Ryan Ponudurai,  
 Tiing Leong Ang, Christopher Khor,

**FUJIFILM Corporation Luncheon Seminar (12:20-13:30)**

**Moderator:**

Ichiro Yasuda, Shomei Ryozaawa

Pancreatic Cystic Lesions      Peter Draganov

Recent Progress in Interventional EUS      Yousuke Nakai

## Meeting agenda of T-CAP 2014

**Poster & Exhibition round** (13:30-14:00)

**Session 3 Special Lecture** (14:00-15:15):

**Moderator:** Masayuki Kitano, Sundeep Lakhtakia  
 Endoscopic Management of Ampullary Lesions Nonthalee Pausawasdi  
 Metal stents in benign biliary strictures Arthur Kaffe

**Session 4: T-CAP Statement of management of WON** (15:15-17:30)

**Moderator:** Chris Khor, Hiroyuki Isayama  
 1. Introduction of statement: Hiroyuki Isayama (5minutes)  
 2. The incidence and diagnosis of WON: Tsuyoshi Hayashi (15min + 5min)  
 3. Indication and timing of EN: Tiing-Leong Ann (15min + 5min)  
 4. Technical issues in endoscopic necrosectomy-1: Yousuke Nakai (10min + 5min)

**Discussant:** DW Seo, K Hanada, M Kuwatani, T Itoi, I Yasuda,  
 F Itokawa, J Lau, T Hamada

**Moderator:** Thawee Ratanachu-ek, Shomei Ryozaawa  
 5. Technical issues in endoscopic necrosectomy-2 Natsuyo Yamamoto (10min + 5min)  
 6. Complications, nutrition of EN: Takuji Iwashita (10min + 5min)  
 7. Endpoints, prognostic factors of EN: Rungsun Rerknimitr (10min + 5min)  
 8. Role of ERCP in WON with pancreatic duct disruption (PDD) :  
 Tsuyoshi Hamada (5min + 5min)

**Discussant:** R Ponnudrai, JH Moon, I Maetani, S Lakhtakia, A Irisawa, H Kogure,  
 HP Wang, H Kawakami

**Coffee break** (17:30~18:00)

**TaeWoong & CMI Satellite symposium** (18:00~19:10):

**Moderator:** Hiroyuki Isayama, Thawee Ratanachu-ek  
 Endoscopic treatment for main pancreatic duct injury associated with acute necrotizing pancreatitis  
 Myung-Hwan Kim  
 Place of Hepaticogastrostomy Guided by EUS for Biliary Drainage Manuel Perez Miranda

**TaeWoong & CMI Dinner Party** (19:15~21:00)

## Meeting agenda of T-CAP 2014

**[Jun 28, Saturday]**

**Hitachi Medical Corporation Morning seminar:** (9:00-10:00 The breakfast is not included.)

<b>Moderator:</b>	Takao Itoi, Jong Ho Moon
EUS-guided marker placement for multi-disciplinary cancer care	Norio Fukami
EUS-Guided Tissue Acquisition: State of the Art 2014	Christopher Khor

**Session 5 (10:10-11:10): Current advance in EUS related procedures**

<b>Moderator:</b>	Hiroshi Kawakami, Ryan Ponnudurai
Newly developed EUS guided therapy for pancreas cancer (10min+5min)	Reiko Ashida
Fine needle injection (10min+5min)	Ryan Ponnudurai
EUS-BD for first-line biliary drainage procedure (EUS-BD) (10min+5min)	Kazuo Hara

**Discussers:** Takao Itoi, Atsushi Irisawa, Takuji Iwashita, Yousuke Nakai, Thawee Ratanachu-ek, Do Hyun Park, Manuel Perez Miranda

**Session 6 (11:10-12:10): Recent progress in endotherapy for pancreato-biliary diseases**

<b>Moderator:</b>	Tsuyoshi Hayashi, Amit Maydeo
Recent Progress in endotherapy for pancreato-biliary diseases	
Covered metal stent for Benign Biliary Stricture (10min+5min)	Sundeep Lakhtakia
Endoscopic management of acute cholecystitis (10min+5min)	Fumihide Itokawa
Management of refractory severe pancreatico-biliary strictures (10min+5min)	Hiroshi Kawakami

**Discussers:** Masaki Kuwatani, Ichiro Yasuda, Natsuyo Yamamoto, Nonthalee Pausawasdi Myung-Hwan Kim, Hsiu-po Wang, Arthur Kaffe

**Piolax Medical Devices Corporation Luncheon Seminar (12:10-13:20)**

<b>Moderator:</b>	Iuru Maetani, Jong Ho Moon
Endotherapy of Difficult Biliary and Pancreatic duct stones	Amit Maydeo
Newly developed retrieval basket for pancreato-biliary stone	Hiroyuki Isayama

**Poster & Exhibition round (13:30-14:00)**

**Session 7(14:00-15:00): Endotherapy for altered anatomy**

<b>Moderator:</b>	Shomei Ryozaawa, Dong-Ki Lee
Endoscopic ultrasound-guided antegrade procedures (10min+5min)	Takuji Iwashita
ERCP in patients with surgically altered anatomy (10min+5min)	Akio Katanuma
Recent Progress in ERCP in Patients with Altered Anatomy (15min+5min)	Peter Draganov

**Discussers:** Hiroshi Kawakami, Masayuki Kitano, Iuru Maetani, Hirofumi Kogure, Amit Maydeo, Sundeep Lakhtakia, Arthur Kaffe, Norio Fukami, Thawee Ratanachu-ek

**Coffee break (15:00~15:15)**

**Special lecture(15:15-16:30):**

<b>Moderator:</b>	Atsushi Irisawa, Tiing Leong Ang
New Treatment Modalities for Unresectable Cholangiocarcinoma: Asan's Experience	
	Do Hyun Park
Recent Progress in Stenting for Malignant Distal Biliary Obstruction	Dong Ki Lee

**Awarded Ceremony & Closing remarks(16:30-16:45):** Iuru Maetani & Christopher Khor  
**Best Free Paper Presenter , Best Poster Presenter, Best Discussor**

## Invited Speaker

### • Myung-Hwan Kim, M.D., PhD

(Professor, Department of Gastroenterology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, South Korea)



#### CURRICULUM VITAE

Dr. Myung-Hwan Kim is currently the Professor, Department of Gastroenterology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, South Korea. He is also the director of Center for Pancreatobiliary diseases. He was the former president of Korean Society for Gastrointestinal Endoscopy and was also the former president of Korean Pancreatobiliary Association. Dr. Kim is a gastroenterologist, with special interest in therapeutic endoscopic intervention and autoimmune pancreatitis. He was the former president of Korean Society for Gastrointestinal Endoscopy and was also the former president

## Endoscopic treatment for main pancreatic duct injury associated with acute necrotizing pancreatitis

**Myung-Hwan Kim, M.D., PhD**

(Asan Medical Center, University of Ulsan College of Medicine, Seoul, South Korea)

Pancreatic duct (PD) disruption is defined by free extravasation of contrast media outside the PD system as seen on fluoroscopy after retrograde contrast injection of the main pancreatic duct (MPD) or dorsal duct. PD disruption is defined as 'complete' when the MPD upstream from the site of disruption is not visualized on fluoroscopy and as 'partial' when the MPD is visualized from the site of disruption.

Even though the mechanism of the MPD injury in acute pancreatitis has not been accurately determined, severe acute pancreatitis (AP) often leads to microvascular derangement and tissue necrosis that can produce structural changes in pancreatic ductal system as well as parenchyma. A small leak of pancreatic juice from the side branches may resolve spontaneously by conservative management, whereas persistent leak from a large MPD disruption often requires intervention.

Patients with complete PD disruption are at high risk of development of the "disconnected pancreatic duct syndrome (DDS)", in which viable pancreatic tissue upstream to the disruption leaks digestive enzymes into surrounding tissue, causing persistent fluid collections. Patients with DDS are unlikely to respond to endoscopic transpapillary therapy. Prolonged or permanent transmural stent placement has been adopted as a strategy to maintain the alternative route for pancreatic secretions from the pancreas located above the rupture to the stomach or duodenum.

ERCP is the most reliable imaging modality for the detection of PD leaks. The advantage of ERCP is the visualization of ductal filling and extravasation in real time, and the ability to intervene therapeutically at the time of diagnosis. Noninvasive imaging technique such as MRCP (preferably secretin-stimulated) may be used to identify a disruption in the duct. Our observation suggests the potential utility of MRCP images to the initial suspicion of MPD disruption, thereby initiating ERCP and subsequent transpapillary endoscopic treatment for confirmed ductal leaks.



For the diagnosis of pancreatic ductal leaks in the setting of acute pancreatitis, initial high index of suspicion is important because ERCP is not performed unless there is a likelihood of a common bile duct stone and/or cholangitis. Clinical or radiological clues to the suspicion of PD leaks include persistent or recurrent peripancreatic fluid collections or pseudocyst, amylase-rich ascites or pleural effusion, unusual location of pseudocyst (eg, mediastinum) and persistent drainage of pancreatic juice through an external catheter or drain.

Nonsurgical treatment options of AP patients complicated by MPD disruption and ductal leaks involve conservative management including somatostatin or its analogue along with limited oral intake and endoscopic intervention including transpapillary or transmural drainage. Pancreatic ducts with a partial disruption are more likely to respond to stenting than those with a complete disruption, largely because bridging stents across the area of disruption cannot be readily placed in the latter group. We believe that a bridging stent contributes to better treatment outcomes by sealing the disrupted MPD while the peripancreatic fluid collection is drained transmurally. The more severe cases of AP with a higher incidence of pancreatic necrosis are more likely to have a PD leaks, which is associated with a longer hospitalization. Multidisciplinary care that utilizes the combined effects of the gastroenterologist, the interventional radiologist and the surgeon should be promptly used to detect and control the PD leaks to minimize morbidity and mortality.

## Invited Speaker

- **Prof. Amit Maydeo**

(the Chairman of the Baldota Institute of Digestive Sciences at the Global hospital in Mumbai, India)



### CURRICULUM VITAE

Dr Amit Maydeo is a surgeon by training from the University of Mumbai, India. After training in surgical oncology and GI Surgery, Dr Maydeo was trained at the University hospital of Hamburg, Germany under Prof. Nib Soehendra from 1986 to 1991. Dr Maydeo is presently the Chairman of the Baldota Institute of Digestive Sciences at the Global hospital in Mumbai, India. He has been the pioneer in Therapeutic GI Endoscopy in the Indian subcontinent over the past 20 years. He has been the past president of the Society of GI Endoscopy of India and is presently the founder Chairman of the newly founded Association of Interventional GI Endoscopy Foundation. Dr Maydeo has done original work on the treatment of Variceal GI bleeding, Treatment of Chronic pancreatitis and stones and Endoscopic treatment of large CBD stones. Dr Maydeo has been the first to introduce the POEM procedure for Achalasia cardia in India since the past 2 years. He is on the International editorial board of Gastrointestinal Endoscopy and is a Co-Editor in the newly launched Endoscopy International Open journal. Dr Maydeo has received many awards over the past 20 years and recently in 2013 was awarded the Padmashri which is the Presidents medal for outstanding service in medicine from the President of India. Dr Maydeo has also been an award winner in the 1st World Cup of Endoscopy held in Chicago during the DDW. Dr Maydeo has been the founder of the Indian College of Endoscopy for training aspiring endoscopists from India and abroad.

## Endotherapy of Difficult Biliary and Pancreatic duct stones

**Prof. Amit Maydeo**

(the Chairman of the Baldota Institute of Digestive Sciences at the Global hospital in Mumbai, India)

The Hepato-Pancreato-Biliary system is one of the most complicated areas of human anatomy and physiology. Bile duct stones usually present with pain, jaundice and sometimes fever, whereas pancreatic stones are associated with pain as the predominant symptom associated with steatorrhea and diabetes. Endoscopic therapy of the biliary and pancreatic system became possible only because of the landmark invention of endoscopic sphincterotomy in 1973 by Kawai and Classen simultaneously in Germany and Japan. Small floating stones in the bile duct can be removed quite simply with an endoscopic alone. However, most of the times, we need instruments like baskets and balloons to remove stones from the bile duct. Using instruments like Dormia baskets or balloons, stones from the bile duct can be completely removed in almost 80% of the time.

In 10% to 15% of the times, bile duct stones can be difficult to extract. This happens if the stones are too many, are too hard, too large, located above strictures, if there is a stone conglomerate or if the stones are intra-hepatic. Today we have a gamut of advanced endoscopic technology to help in removing the so called difficult bile duct stones.

When the stones are present in the form of a conglomerate, they are removed by using a wire guided basket enabling multiple strokes in and out of the bile duct without losing the pathway.

If the stone is too large or hard and cannot be pulled out with a normal Dormia basket or balloon, we use the technique of mechanical lithotripsy. This is done by using the through the scope mechanical lithotripters after performing a complete sphincterotomy.

If there is a stone to distal duct discrepancy then the cut ampulla as well as the lower bile duct can be dilated using a large balloon. This technique called as balloon sphincteroplasty akin to a surgical sphincteroplasty and even large stones can be removed without the need of mechanical lithotripsy.

If the bile duct is packed with multiple stones, then we can take the help of ESWL. After placing a NBD, the stones are pulverized under fluoroscopic control and then the fragments can be taken out with normal techniques.

For impacted stones and stones in the intra-hepatic bile duct, we use the technique of cholangioscopy with LASER lithotripsy. Using all these techniques, stones from the bile duct can be removed in almost 98% of the times. If there is no space at all in the bile duct for any intervention, then temporary plastic stenting is a good alternative. A repeat ERCP after a few months can then be done with an attempt at stone extraction.

As against bile duct stones, almost 90% of pancreatic stones are difficult to remove endoscopically as most of them are hard, speculated, multiple, impacted and situated behind strictures.

Small floating pancreatic stones can be removed using a Dormia basket or balloon after doing a proper pancreatic sphincterotomy.

If the pancreatic stones are hard and radio-opaque, they need prior pulverization using ESWL until they are reduced to less than 3mm fragments.

These powdered stones can then be removed using normal extraction techniques with balloons or baskets.

For large radiolucent stones, the pancreatic sphincter too can be dilated using large balloons and then attempt removal of these stones.

There has been an evolution of endoscopic technique and technology since the first biliary sphincterotomy in 1973 and today, most of the bile duct as well as pancreatic stones can be extracted endoscopically without the need of major surgical intervention.

## Invited Speaker

### • Dong-Ki Lee, M.D., PhD

(Department of Internal Medicine Gangnam Severance Hospital, Yonsei University, Seoul)



#### CURRICULUM VITAE

Dr. Dong-Ki Lee is the director of the cancer hospital at Gangnam Severance Hospital, Yonsei University. He is also a founding member and former Secretary General of the Society of Gastrointestinal Endoscopy (SGI), an international organization of medical professionals dedicated in improving public health in gastrointestinal interventions. He been closely involved in many clinical studies for therapeutic ERCP, and has innovated and introduced several unique methodologies to the medical field. He is also a member of the International Editorial Board of Gastrointestinal Endoscopy.

He is currently conducting studies in developing a drug-eluting biliary and enteral stent, the effects of fish oil on the bile and liver, as well as various therapeutic ERCP treatments, such as EPLBD, Magnet compression anastomosis stricture, benign and malignant biliary stricture articles in both international and domestic journals. In the past several years, Dr Dong-Ki Lee has received several awards, namely the Medical-Science Award, by the Korea Society of Gastroenterology, and Korean Society of Gastrointestinal Endoscopy.

## Recent progress in stenting for malignant distal biliary obstruction

**Dong-Ki Lee, M.D., PhD**

(Department of Internal Medicine Gangnam Severance Hospital Yonsei University, Seoul, Korea)

Self-expandable metal stents (SEMS) are widely used for the treatment of malignant biliary obstruction because they have a wider diameter than plastic stents. However, SEMS eventually become obstructed or migrate, and act only as a conduit for bile flow. Patency diverse trials were introduced to overcome this problem and improve SEMS.

Clinical trials have been performed to focus on enhancing stent patency by improving their design. Anti-reflux devices might reduce the risk of ascending cholangitis and provide longer stent patency. Double stents with very long inner covered extensions (15 cm), and those with increasing diameters were introduced and included in clinical trials. Several novel SEM modifications were also introduced to help prevent migration. Data revealed that SEMS using double woven metal mesh had good conformability and exhibited a very low migration rate. In addition, bumpy SEMS were designed to prevent stent migration during the treatment of benign biliary stricture.

Efforts to prolong stent patency by ablating surrounding tumor tissue before stent placement have also revealed important data. Photodynamic therapy (PDT) and endobiliary radiofrequency ablation (RFA) have been used in patients with unresectable malignant obstructive jaundice. Until now, PDT was the only evidence-based endoscopic treatment, other than stenting, that improved patient quality of life and stent patency. In addition, RFA increases the endoscopic armament for the treatment of malignant biliary obstruction. Endobiliary RFA seems to be a user-friendly and cost-effective alternative to PDT. However, an accurate evaluation of the clinical effect of the endoscopic palliation of unresectable bile duct cancers requires additional clinical data.



Currently available stents allow only mechanical palliation of the obstruction, and have no anti-tumor effects. In the vascular field, drug-eluting stents (DES) are highly favored. However, the requirements for a DES in a non-vascular tract differ significantly from those of a vascular DES. A non-vascular DES must suppress tumor proliferation via diverse molecular mechanisms. We recently developed paclitaxel-releasing DES, which are likely to be commercially available in the near future. In addition, clinical trials comparing the use of DES with conventional SEMS are ongoing. Research assessing the molecular mechanisms behind the anti-tumor effects of local drug delivery has reinforced the rationale for the use of DES in malignant biliary obstruction.

## Invited Speaker

- **Peter Draganov, M.D., PhD** (Division of Gastroenterology, Hepatology and Nutrition at the University of Florida)

### CURRICULUM VITAE

Dr. Peter Draganov is a Professor of Medicine and Director of advanced therapeutic endoscopy at the Division of Gastroenterology, Hepatology and Nutrition at the University of Florida. He trained in Medicine and Gastroenterology including advanced therapeutic endoscopy at the Medical University of South Carolina (MUSC) in Charleston.

Dr. Draganov's clinical interest is in advanced therapeutic endoscopy including endoscopic ultrasound (EUS), endoscopic retrograde cholangiopancreatography (ERCP), cholangioscopy, endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), peroral endoscopic myotomy (POEM) and deep small bowel enteroscopy. His research interests are in the areas of outcomes research, new technology evaluation and training in advanced endoscopic procedures.

### Pancreatic Cystic Lesions

**Peter Draganov, M.D., PhD**

(Division of Gastroenterology, Hepatology and Nutrition at the University of Florida)

Pancreatic cystic lesions are a challenging clinical problem. Diagnosis and management are often less than straightforward. Multiple diagnostic tests are available but firm diagnosis of the type of cyst, the presence or absence of malignancy and the rate of progression to malignancy for premalignant lesions may be difficult to establish. EUS with FNA and fluid analysis has become one of our main diagnostic tools. Nevertheless, definitive diagnosis can be hard to achieve with standard fluid analysis test such as cytology and cyst fluid CEA level. DNA markers have been evaluated for diagnostic purposes and recently a commercially available DNA test expands our diagnostic ability. Recently published international guidelines provide a useful framework for evaluation and management of patient with pancreatic cystic lesions but strict adherence to these consensus recommendations is frequently not followed in everyday practice. Due to this significant variability of management strategies, a multidisciplinary approach to patients with cystic lesions that factors local expertise is highly recommended.

### Recent Progress in ERCP in Patients with Altered Anatomy

ERCP in post-surgical anatomy is technically challenging. The most common post-surgical anatomic variants are Billroth II, post-Whipple, Choledocho-jejunostomy, and Roux-en-Y Gastric bypass. There are three main avenues to reach the papilla or the choledocho/pancreatico enteral anastomosis: per oral, per cutaneous and laparoscopy assisted. The type of endoscope that can be used for ERCP in altered surgical anatomy patients include duodenoscope, pediatric colonoscope and overtube assisted enteroscope. The choice of endoscope depends of the type of prior surgery and the type of access (percutaneous or laparoscopic). In general the use of standard duodenoscope provides the best platform for selective duct cannulation and therapy but frequently the area of interest cannot be reached with this type of scope. Enteroscopy based ERCP is typically considered in these patients but it has some significant limitations including difficulty of reaching the papilla/duct-enteric anastomosis, difficulty with cannulation with forward-viewing optics, lack of elevator, need for special "long" devices and finally narrow 2.8 mm therapeutic channel which precludes placement of metal stents and 10 Fr plastic stents. Laparoscopy assisted ERCP has the major advantage that it allows the use of standard duodenoscope but it should be done in the Operating Room in conjunction with a surgical team and can only be done in patients with excluded stomach (e.g. Roux-en-Y Gastric bypass). Data from our center show high success rate and excellent safety record. The ultimate choice of ERCP platform in patient with surgically altered upper GI tract anatomy depends on multiple factors including the type of surgery, the presence of native papilla versus surgical duct-enteric anastomosis, type of devices available and local expertise.

## Invited Speaker

- **Manuel Perez Miranda, M.D., PhD**

(Department of Gastroenterology & Hepatology, Hospital Universitario Rio Hortega Av.)



### CURRICULUM VITAE

Manuel Perez-Miranda, M.D. graduated in Medicine at the University of Navarre in Pamplona, Spain in 1990. Following training in Gastroenterology at Hospital de la Princesa in Madrid, Spain and Advanced Endoscopic Training at Motol University Hospital in Prague (Czech Republic) and Silesian Medical Academy in Katowice (Poland) he joined in 1996 the Interventional Endoscopy Unit at Hospital Universitario Rio Hortega in Valladolid (Spain), a regional referral center for Liver Transplantation and Advanced Endoscopy. He is currently Associate Clinical Professor of Medicine at Valladolid University Medical School and Head of Gastroenterology & Hepatology at Hospital Universitario Rio Hortega. The combined use of ERCP and EUS in pancreatobiliary disease is the main focus of his clinical, teaching and research activity.

## Place of Hepaticogastrostomy Guided by EUS for Biliary Drainage

**Manuel Perez Miranda M.D., PhD**

(Department of Gastroenterology & Hepatology, Hospital Universitario Rio Hortega Av.)

At EUS-guided Hepatico-gastrostomy (EUS-HG) a biliary stent is placed transmurally into the intrahepatic bile duct (IHBD) following puncture, cholangiography and puncture tract dilation over a guidewire. EUS-HG is technically related to the more common EUS-guided choledochoduodenostomy (EUS-CD). The IHBD is a less obvious target for EUS-guided puncture than the common bile duct (CBD) and this is the reason why EUS-CD is favoured over EUS-HG by most authors for malignant distal biliary obstruction. EUS-CD is however not possible for hilar biliary obstruction and in patients with altered gastrointestinal anatomy. In these clinical scenarios, PTBD and antegrade EUS-guided drainage are the potential alternatives to EUS-HG. Compared to PTBD, EUS-HG offers anatomic, logistic and physiologic advantages since it can be performed in the same session of failed ERCP and always result in internal biliary drainage. Recent innovations on EUS-HG relate to learning curve and standardization of technique, risk factors for complications and better patient selection, novel stent designs and the use of EUS-HG as a gateway for biliary endotherapy.

## Invited Speaker

### • Arthur Kaffe, M.D., PhD

(a Gastroenterologist and therapeutic endoscopist at the AW Morrow Gastroenterology and Liver transplant Centre in the Royal Prince Alfred Hospital Sydney)



#### CURRICULUM VITAE

Dr Arthur J Kaffes BSc (med) MBBS FRACP is a Gastroenterologist and therapeutic endoscopist at the AW Morrow Gastroenterology and Liver transplant Centre in the Royal Prince Alfred Hospital Sydney. After completing gastroenterology training in Sydney Australia he underwent 2 years of therapeutic endoscopy training at Westmead Hospital Sydney and then completed an endoscopy fellowship with Dr DN Reddy in Hyderabad India. Dr Kaffes has a member of the ASGE, ESGE and Australian gastrointestinal endoscopy association. Dr Kaffes has a keen interest in 3 areas of therapeutic endoscopy and has published and presented papers and abstracts in all these areas in both local forums and overseas meetings.

1. Pancreatico-biliary endoscopy including support for a tertiary referral upper GI surgical service and liver transplant service. This has led to some new techniques and devices for metallic stenting in benign disease, side-port EUS FNA, and BAE ERCP in altered anatomy.
2. The first DBE procedure in Australia was performed by Dr Kaffes and with the largest experience in Australia he has published and presented in this area.
3. Colonoscopy quality and maximising polyp detection have been a keen research interest with multiple clinical studies in this area on minimising polyp miss rates. Current research interests include polyp characterisation with zoom colonoscopy.

## Metal stents in benign biliary strictures

### Arthur J Kaffes, M.D., PhD

(a Gastroenterologist and therapeutic endoscopist at the AW Morrow Gastroenterology and Liver transplant Centre in the Royal Prince Alfred Hospital Sydney)

Metal stents have traditionally been reserved for malignant biliary strictures. With the development of covered metal stents to improve performance in malignant disease we have seen a minimisation of tissue in-growth making fully covered SEMS (fc-SEMS) suitable for benign biliary strictures (BBS).

Initial case experience quickly boosted confidence for these stents in BBS and larger subsequent series showed a good utility for fc-SEMS in BBS. Limitations still exist with cases of migration including complete passage of the stents, cases of secondary strictures and difficulty in removal. Further development of stents has led to essentially two main groups of stents. Traditional fc-SEMS and novel short intra-ductal fc-SEMS with long removal strings. Recent data show that the novel intra-ductal stents largely overcome stent migration issues seen by traditional stents in cases such as liver transplant anastomotic strictures and post cholecystectomy strictures. We have also seen emerging data supporting traditional stents in distal biliary strictures such as those seen in chronic pancreatitis.

There is very limited randomised data (to date only one study) but this study and other emerging studies show fc-SEMS may provide a superior treatment and can make a cost effective treatment strategy when compared to traditional multi-plastic stenting strategies.

## Invited Speaker

### • Norio Fukami, M.D., PhD

(University of Colorado, Division of Gastroenterology and Hepatology; Denver, CO, USA)



#### CURRICULUM VITAE

Associate Professor of Medicine Director of Endoscopic Ultrasound, Innovative Technology, and Endoscopic Oncology Medical Co-Director of Digestive Health Center Division of Gastroenterology and Hepatology University of Colorado Denver

#### Education

1986-92 Medical School – Kyushu University, Faculty of Medicine; Fukuoka, Japan

1992-93 Residency – Kyushu University Hospital; Fukuoka, Japan

1993-94 Internship – United States Naval Hospital; Okinawa, Japan

1994-95 GI Fellowship – Harasanshin General Hospital; Fukuoka, Japan

1995-98 US Residency – Beth Israel Medical Center; New York, NY, USA

1998-01 US GI Fellowship – University of Texas/MD Anderson Cancer Center; Houston, TX, USA

#### Employment

2001-04 Assistant Professor – Showa University Northern Yokohama Hospital; Yokohama, Japan

2004-06 Assistant Professor – University of Texas MD Anderson Cancer Center, Department of Gastrointestinal Medicine and Nutrition; Houston, TX, USA

2006-10 Assistant Professor – University of Colorado, Division of Gastroenterology and Hepatology; Denver, CO, USA

2010- Associate Professor – University of Colorado, Division of Gastroenterology and Hepatology; Denver, CO, USA

#### Professional Memberships

American Gastroenterological Association – Fellow

American College of Gastroenterology – Fellow

American Society for Gastrointestinal Endoscopy – Fellow

Japan Gastroenterological Endoscopy Society

## EUS guided marker placement for multi-disciplinary cancer care

**Norio Fukami, MD**

(University of Colorado, Division of Gastroenterology and Hepatology; Denver, CO, USA)

To improve the outcome of cancer treatment, image-guided radiation therapy (IGRT) is used more frequently, which provides increased accuracy of targeting tumor and limited radiation exposure to the tumor with radiation. It is expected to reduce the adverse effect from radiation therapy. Targeting the tumor frequently relies on the landmark of human anatomy. It becomes guessing work when it comes to the non-contrast imaging used for IGRT. Markers placed directly within the tissue or tumor can guide the planning for radiation dose more accurately.

Marker placement or tattoo can guide the minimally invasive surgery precisely guiding the target area for surgical therapy.

Endoscopic ultrasound is very useful in guiding the placement of markers especially in deep location in the body, and it would be utilized more and more in future with the benefit of precision under ultrasound and radiology image guidance exposing to minimal adverse event. Newer devices and materials are available recently and certain fiducial markers have limitations in some aspects. Different aspect of EUS guided marker placement will be discussed.

## Invited Speaker

### • Do Hyun Park, M.D., PhD

(Associate professor of Division of Gastroenterology, Department of Internal Medicine, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea)



#### CURRICULUM VITAE

He is the associate professor of Division of Gastroenterology, Department of Internal Medicine, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea. He was a visiting clinical instructor of Medicine, University of California, Irvine in 2010-2011. His main research interests are interventional EUS, ERCP, photodynamic therapy, and pathogenesis of autoimmune pancreatitis. Among them, he is an active clinical researcher on EUS-guided biliary drainage. His more than 120 peer-reviewed publications include NEJM, Gastroenterology, Gut, American Journal of Gastroenterology, Gastrointestinal Endoscopy, Clinical Gastroenterology and Hepatology, and Endoscopy. He is currently conducting studies in developing the dedicated device for EUS-guided biliary drainage. He has several patents on biliary metal stents (anchoring flaps of fully covered metal stent) and devices. He is a member of the International Editorial Board of Gastrointestinal Endoscopy. He has received ASGE Don-Wilson award on 2010 and consecutive 4-year Gastrointestinal Endoscopy (GIE) reviewer award (2011-2014).

## EUS-guided biliary drainage for hilar obstruction

### Do Hyun Park, M.D., PhD

(Associate Professor Division of Gastroenterology, Department of Internal Medicine, University of Ulsan College of Medicine, Asan Medical Center)

Only 20-30% of patients with hilar cholangiocarcinoma (CC) are candidates for potentially curative resection. However, even after curative (R0) resection, these patients have a disease recurrence rate of up to 76%. The prognosis of hilar cholangiocarcinoma (CC) is limited by tumor spread along the biliary tree leading to obstructive jaundice, cholangitis, and liver failure. Therefore, palliative biliary drainage may be a major goal for patients with hilar CC. Endoscopic retrograde cholangiopancreatography (ERCP) with stent placement is an established method for palliation of patients with malignant biliary obstruction. However, there are patients for whom endoscopic stent placement is not possible because of failed biliary cannulation or tumor infiltration that limits transpapillary access. In this situation, percutaneous transhepatic biliary drainage (PTBD) is an alternative method. However, PTBD has a relatively high rate of complications and is frequently associated with patient discomfort related to external drainage. EUS-guided biliary drainage (EUS-BD) has therefore been introduced as an alternative to percutaneous transhepatic biliary drainage (PTBD) in cases of biliary obstruction when ERCP is unsuccessful. To date, there are two approaches to EUSBD (EUS-guided hepaticogastrostomy and EUS-guided choledochoduodenostomy).<sup>1-5</sup> In patients with high grade hilar stricture or occluded biliary metal stent, EUS-guided hepaticogastrostomy may be an effective alternative to PTBD. In this lecture, author will focus on the various roles of EUS-guided hepaticogastrostomy or hepaticoduodenostomy for hilar biliary obstruction.<sup>6</sup>

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## New treatment modalities for unresectable cholangiocarcinoma: Asan's Experience

**Do Hyun Park, M.D., PhD**

(Division of Gastroenterology, Department of Internal Medicine, University of Ulsan College of Medicine, Asan Medical Center)

Cholangiocarcinoma is not uncommon cancer in Asian countries and its overall incidence is increasing. Surgical resection is the main treatment for cholangiocarcinoma, as it offers the only real chance for a cure. However, the substantial portions of patients are found to have an unresectable tumor on presentation. Endoscopic biliary decompression with or without systemic chemotherapy has been considered as best palliative treatment for unresectable cholangiocarcinoma. To date, randomized trials showing a clear survival advantage of chemotherapy or radiotherapy are missing.

In this lecture, new biliary access with combined modalities on EUS-guided biliary drainage of left intrahepatic duct and transpapillary metal stenting of right intrahepatic duct in patients with Bismuth type IV hilar cholangiocarcinoma, new device for EUS-guided biliary drainage, photodynamic therapy with S-1 for unresectable hilar cholangiocarcinoma, and EUS-guided photodynamic therapy with new photosensitizer for cholangiocarcinoma not suitable to conventional treatment will be discussed.

### 1) Combined modalities on EUS-guided biliary drainage of left intrahepatic duct and transpapillary metal stenting of right intrahepatic duct in patients with Bismuth type IV hilar cholangiocarcinoma

Concept: as usual, bilateral or unilateral metal stenting has been used for Bismuth type IV hilar stricture. During follow-up, stent malfunction due to tumor overgrowth or ingrowth is not uncommon. In this circumstance, stent revision through metal stent may be difficult due to complex wire mesh.<sup>1</sup> Thus, PTBD may be required. Our concept is that transpapillary stenting for right anterior and posterior intrahepatic bile duct and EUS-guided left transgastric stenting may allow for easy stent revision and prolonged stent patency.

### 2) New device for EUS-guided biliary drainage

Concept: although EUS-guided biliary drainage (EUS-BD) has been introduced as a promising alternative to PTBD or surgical drainage, no dedicated device for EUS-BD has been available.<sup>1-5</sup> Thus, EUS-BD is only performed by specialized tertiary centers and experienced endoscopists. For generalization of EUS-BD,

dedicated device for EUS-BD should be developed. Recently we developed and tested a new device for EUS-BD in animal study. Based on this, a clinical study is ongoing.

### 3) Photodynamic therapy with S-1 for unresectable hilar cholangiocarcinoma

Concept: In the palliative setting for patients with unresectable hilar cholangiocarcinoma, photodynamic therapy (PDT) is a treatment approach. However, little is known about the role of adding systemic chemotherapy to PDT. Our phase II randomized study, 21 patients were randomly assigned to receive PDT with S-1 chemotherapy or PDT alone. Outcomes will be presented.<sup>6</sup>

### 4) US-guided photodynamic therapy with new photosensitizer for cholangiocarcinoma not suitable to conventional treatment

Concept: PDT with photofrin for hilar cholangiocarcinoma may have a drawback about photosensitivity for 4-6 weeks and shallow depth of penetration about 4-6mm. This may be an obstacle to the generalization of PDT for hilar cholangiocarcinoma. Contrary to new ablation therapy such as RFA, PDT may be a great advantage in terms of selective tumor destruction and less involvement of surrounding normal tissue. If new photosensitizer has shorter duration of photosensitivity and deeper penetration depth compared with photofrin, PDT may have an important position for the local treatment of cholangiocarcinoma. Recently we performed EUS-guided PDT with new photosensitizer having 2 days of photosensitivity and 12mm of penetration depth for cholangiocarcinoma not suitable to conventional treatment.

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## Invited Speaker

### • Nonthalee Pausawasdi, MD

(Associate Professor, Faculty of Medicine Siriraj Hospital Bangkok, Thailand)



#### CURRICULUM VITAE

Nonthalee Pausawasdi received her M.D. degree from Thailand in 1997. After she graduated from medical school, she pursued a research fellowship training at the University of Michigan Gut Peptide Center during 1997-2000 focusing on the cell signaling transduction and molecular biology of gastric parietal cells. Between 2000-2008, She continued her postgraduate clinical training in Internal Medicine, Gastroenterology and advanced endoscopy at the University of Michigan Medical Center where she received many outstanding clinician wards. During her clinical training, her research interest has been in the area of ERCP and EUS, particularly the utility of EUS in the evaluation of pancreatic cystic neoplasms with many publications in reputed journals in both basic research and advanced endoscopy. She is currently an Associate Professor at the Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand. She has also served as a board member of the Thai Association of Gastrointestinal Endoscopy, and a member of the ASGE international committee. She is currently conducting a translational research in the field of pancreatic cancer, and a clinical research in EUS guided tissue acquisition and prevention of post ERCP pancreatitis.

## Endoscopic Management of Ampullary Lesions

**Nonthalee Pausawasdi, MD**

(Associate Professor, Faculty of Medicine Siriraj Hospital Bangkok, Thailand)

### Introduction

Ampullary lesions can be benign, premalignant or malignant. Most of them are adenomas or adenocarcinomas which require definitive treatment<sup>1</sup>. Thus, this article will focus on management of ampullary adenomas. Endoscopic papillectomy has been accepted as alternative treatment to surgery for ampullary adenomas when possible. However, severe complications can occur including pancreatitis, bleeding, perforation and death. Therefore, endoscopists should be familiar with the endoscopic resection techniques and able to recognize and manage complications properly.

### Assessment prior to endoscopic resection

A thorough endoscopic examination is required prior to resection. However, endoscopic appearance alone cannot always distinguish adenomas from adenocarcinomas. Ulcerations, friability and spontaneous bleeding are usually related to malignant lesions<sup>2</sup>. The use of magnifying endoscopic and narrow-band imaging is shown to be helpful<sup>3,4</sup>. Tissue biopsy is required prior to definitive treatment is carried out. However, malignancy can be missed up to 30% and coexisting adenocarcinoma cannot be completely excluded by mucosal biopsy alone<sup>5-7</sup>.

Assessing the extent of the lesion in case of ampullary adenoma is crucial prior to endoscopic resection. Endoscopic ultrasound (EUS) and intraductal ultrasound (IDUS) with 20 MHz frequency probe are helpful in the assessment of bile duct and pancreatic duct involvement. Extension of the tumor into either duct can also be evaluated by endoscopic retrograde cholangiopancreatography (ERCP) if EUS is not available. Tumor with ductal involvement generally requires surgical treatment, however it has been reported that tumor extension of either bile duct or pancreatic duct of less than 1 cm can be resected endoscopically<sup>8-10</sup>. CT and MRI are shown to be sensitive in assessment of nodal or distant metastasis in cases of malignant lesions.

The accepted criteria for endoscopic resection include lesion of less than 5 cm, no evidence of ductal involvement, no evidence of malignancy on biopsy or endoscopic appearance<sup>2</sup>.

## Techniques

Many case series of papillectomy techniques and outcomes have been reported but there has been no guideline or standardization of the techniques published thus far. In general, endoscopic papillectomy can be performed using a standard duodenoscope and polypectomy technique with a hot snare. ERCP can be performed prior to papillectomy to assess the ductal involvement if EUS is not available. The need for prophylactic antibiotic is not well established<sup>11</sup>.

After careful examination of the lesion and assessment of bile duct and pancreatic duct, a standard polypectomy snare and blended electrosurgical current (50-60 J) are generally used until the lesion is transected. The tissue can be retrieved using a Roth-net. If the lesion is large and cannot be resected in one piece, a piecemeal resection can be performed. If residual adenomatous tissue is observed after resection, argon plasma coagulation (APC) can be applied. Some experts reported doing a submucosal injection with diluted epinephrine prior to resection<sup>12,13</sup>. Placement of pancreatic duct is recommended after resection to prevent post ERCP pancreatitis

Post endoscopic papillectomy include perforation, pancreatitis, bleeding and cholangitis and papillary stenosis. The overall complication rate ranges from 8%-35%, with the most common being pancreatitis and bleeding<sup>2</sup>.

## Conclusion

Endoscopic papillectomy is currently the mainstay therapy for ampullary adenomas without bile duct and pancreatic duct involvement. The guideline of papillectomy techniques is not established but generally the resection method is similar to endoscopic polypectomy. Complications can be devastating; therefore early recognition and prompt management are necessary.

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## Invited Speaker

### • Kazuo Hara, M.D., PhD

(Medical director of department of Gastroenterology, Aichi Cancer Center Hospital, Nagoya, Japan)



#### CURRICULUM VITAE

- Nagoya University School of Medicine, March 1996 graduation
- Medical staff of Toyohashi municipal Hospital, May 1996
- Medical director of department of Gastroenterology, Komaki municipal Hospital, April 2000
- Medical director of department of Gastroenterology, Aichi Cancer Center Hospital, October 2001
- Medical staff of department of Gastroenterology, Nagoya University Graduate School of Medicine, July 2003
- Medical staff of department Tumor Biology, Nagoya University Graduate School of Medicine, April 2004
- 21Century COE Research Fellow, from April 2006 to March 2008
- Medical director of department of Gastroenterology, Aichi Cancer Center Hospital, Nagoya, Japan from April 2008 to now

## EUS-BD for first-line biliary drainage procedure (EUS-BD)

**Kazuo Hara, M.D., PhD**

(Medical director of department of Gastroenterology, Aichi Cancer Center Hospital, Nagoya, Japan)

#### (Background)

EUS-BD is now widely spreading in second line biliary drainage for failed ERCP cases. EUS-guided hepaticogastrostomy (EUS-HGS) is effective biliary drainage procedure, but technically difficult, comparatively short stent patency and difficult re-intervention are big problems. On the other hand, EUS-CDS is reported to be technically easy, high success rate, long stent patency and easy re-intervention. So, there is a possibility of first line biliary drainage in EUS-CDS.

#### (Objective)

A prospective clinical study was conducted to evaluate the safety, feasibility, and efficacy of EUS-CDS with direct metallic stent placement using a forward-viewing echoendoscope.

#### (subjects)

We performed EUS-CDS in 18 patients. The indication for EUS-CDS in this study was malignant lower biliary obstruction only, and not failed endoscopic biliary drainage, because the aim was to evaluate EUS-CDS for first-line biliary drainage therapy.

#### (Results)

The technical and functional success rates were 94% (17 /18) and 94% (16 /17), respectively. Mild focal peritonitis was encountered in one patients (5.9 %). No patients developed severe early complications and late complications. During the follow-up period after stent placement (median 187days; range 29–607 days), only three metal stent occlusion events were encountered in two patients, with successful stent cleaning in all three events. Median stent patency was not reached.

#### (Conclusions)

Using covered metal stents in EUS-CDS may prevent the occurrence of peritonitis and prolong the stent patency. EUS-CDS has a possibility of first-line biliary drainage procedure.

## Invited Speaker

• **Reiko Ashida, M.D., PhD**

(Osaka Medical Center for Cancer and Cardiovascular Diseases, Osaka, Japan)



### CURRICULUM VITAE

Dr. Ashida is currently Co-Director of Departments of Cancer Survey and Gastrointestinal Oncology at the Osaka Medical Center for Cancer and Cardiovascular Diseases. She graduated in 1998 and obtained PhD in 2005 from the Graduate School of Medicine, Osaka City University. She started EUS since 1999 and trained EUS-FNA in 2002 at Aichi Cancer Center and had the advanced fellowship program of Interventional EUS under Prof. Dr. Kenneth Chang at University of California Irvine, Medical Center between 2007-2009. Her specialty is mainly endoscopic diagnosis and treatment for pancreatobiliary oncology area, especially interventional EUS.

## Newly developed EUS guided therapy for pancreatic cancer

**Reiko Ashida, M.D., PhD**

(Departments of Cancer Survey and Gastrointestinal Oncology, Osaka Medical Center for Cancer and Cardiovascular Diseases)

EUS has evolved from EUS imaging to EUS-guided FNA, and now to interventional EUS. Currently, CPN/CGN and drainage/anastomosis are commonly performed in Japan. Here I introduce newly developed interventional EUS.

<Brachytherapy> EUS-guided Brachytherapy (BrTx) is a relatively safe procedure in which radiation seeds are delivered directly to the targeted organ, allowing greater intra-organ radiation doses than achievable by traditional external beam radiotherapy (EBRT) alone. EUS-BrTx allows us to approach multiple locations such as malignant biliary strictures, esophageal cancer, rectal cancer, and now pancreatic cancer.

<Tattooing> EUS-guided tattooing is an ideal technique for preoperative marking of lesions to reduce operating times and complications. Indocyanine green (ICG) was injected on the day before surgery using 22G needle into pancreas parenchyma adjacent to the previously diagnosed lesion. During the operation, the tattooed area was easily recognized by direct visualization. Recently, the tattooed area could be detected more clearly with small amount of ICG solution by using ICG fluorescent camera which was called "Hyper Eye Medical System" (HEMS) (Mizuho Medical Co., Ltd.:Japan).

<Microbubble> Microbubbles (MBs) have recently been revealed to act as therapeutic agents such as HIFU sensitizers or carriers of drug delivery system. However it is difficult to deliver MBs efficiently into pancreatic cancer due to hypovascularity of tumor or high sensitivity of MBs to pressure changes. Therefore, we developed MBs precursors which were prepared as droplets but will change into MBs by ultrasound stimulation. This phase change nano droplets were successfully injected using 22G needle and changed into MBs in either in vitro and ex vivo study.

## Invited Speaker

### • Akio Katanuma, M.D., PhD

(Head, Center of Gastroenterology, Teine-Keijinkai hospital)



#### CURRICULUM VITAE

Dr. Akio Katanuma is presently the head of the Center for Gastroenterology, Teine-Keijinkai hospital, which is one of the most high volume hospitals in Japan. Dr. Akio Katanuma graduated from Sapporo Medical University in 1991. He belongs to Japan Gastroenterological Endoscopy Society, Japanese Society of Gastroenterology as council, Japan Pancreas Society, Japan Biliary Association as councilor, Japanese Society of Internal Medicine, and American Society for the Gastrointestinal Endoscopy. His specialty is mainly endoscopic diagnosis and treatment for pancreatobiliary diseases.

## ERCP in patients with surgically altered anatomy

**Akio Katanuma, M.D., PhD**

(Head, Center of Gastroenterology, Teine-Keijinkai hospital)

Endoscopic retrograde cholangiopancreatography (ERCP) in patients with surgically altered anatomy is one of the most challenging procedures for ERCP endoscopists. ERCP requires considerable effort because of the substantially altered anatomical structure. In patients with Roux-en-Y (R-Y) reconstruction or hepaticojejunostomy, the endoscope must be inserted beyond the long afferent limb. The papilla also appears in reverse of the usual appearance. Moreover, in patients with pancreatic or biliary anastomosis, the anastomotic site is occasionally difficult to recognize. Recently, balloon-assisted enteroscopes have become available for such difficult altered anatomy cases. The 2 types of balloon-assisted enteroscopes are 1) single balloon enteroscope (SBE), which is inserted with 1 balloon attached to the overtube by a balloon-assisted method, and 2) double balloon enteroscope (DBE), which is inserted with 2 balloons, one attached to the overtube and the other attached to the enteroscope tip. In addition, because conventional enteroscopes have a working length of approximately 200 cm, various tools for ERCP that can be used in combination have become limited. Short-type DBE (short-DBE) and short-type SBE (short-SBE) with a working length of approximately 150 cm are commercially available or currently under development.

We conducted a questionnaire survey on endoscopic insertion for ERCP in patients with surgically altered anatomy to clarify the current status of scope insertion at 11 high volume centers in Japan. Of the 490 ERCP procedures performed in patients with surgically altered anatomy, SBE was used in 142 procedures (29.0%). Of these 142 procedures, the prototype of the short-SBE was used in 116 procedures. DBE was used in 295 procedures (60.2%), of which 281 procedures used the short-DBE. Other types of endoscopes were used in 53 procedures (10.8%), of which 39 ERCP procedures were performed in patients with Billroth-II reconstruction and an oblique-viewing endoscope was mainly used. Overall, the success rate of reaching the target site was 91.8% (450 of 490 procedures). According to surgical procedures, the success rate of reaching the target site was 89.6% (138 of 154) for R-Y reconstruction, 94.6% (129 of 136) for Whipple resection, 86.4% (89 of 103) for hepaticojejunostomy, 90.0% (18 of 20) for liver transplantation, and 98.6% (68 of 69) for Billroth-II reconstruction. The success rate was not significantly different according to the various types of endoscopes (90.8% [129/142] of procedures with SBE vs 93.0% [267/287] of procedures with DBE (P = 0.4387)).

## Faculty Abstract

### Endoscopic Management of Malignant Hilar Biliary Stricture

**Jong Ho Moon**

(Professor of Medicine Chief, Division of Gastroenterology Director, Digestive Disease Center  
Soon Chun Hyang University School of Medicine, Bucheon / Seoul, KOREA  
Digestive Disease Center Soon Chun Hyang University Bucheon Hospital)



Hilar malignant biliary strictures (MBS) usually present in an already advanced and inoperable condition. Endoscopic biliary stenting allows adequate biliary internal drainage in most patients with MBS. Self-expandable metal stents (SEMSs) are preferred over plastic stents because of their longer patency and fewer additional endoscopic procedures. Although unilateral drainage may provide adequate drainage in some instances, bilateral drainage can provide longer cumulative patency and may drain >50% of the liver volume that is the target volume for adequate biliary drainage. However, bilateral metallic stenting for the hilar MBS remains technically challenging even for expert biliary endoscopists, especially for cases of high-grade MBS. Bilateral metallic stenting for hilar MBS is usually performed using a “side-by-side” technique, where two SEMSs are placed in parallel, or a “stent-in-stent” method, where the second SEMS is placed through the interstices of the first one. Although the stent-in-stent method is technically difficult, recently developed stents have facilitated bilateral stenting for hilar MBS. Bilateral stenting and revision with this new SEMS were feasible and effective for hilar MBS. Thus, the technical challenges of bilateral placement of SEMSs seem to have been overcome to some degree with these advances. However, the duration of stent patency and procedure-free survival remain variable. In addition to biliary drainage, endoscopic intraductal tumor ablation such as photodynamic therapy or radiofrequency ablation is possible and to be a prolongation of stent patency. Technical development and continuous evolution of metal stent can bring the better success and long-term results for hilar MBS.

## Faculty Abstract

### Stent-in-stent technique

**Hirofumi Kogure**

(Department of Gastroenterology, Graduate School of Medicine, The University of Tokyo, Japan)



Endoscopic biliary drainage using self-expandable metallic stents (SEMS) is a preferred procedure for palliation of unresectable malignant hilar biliary obstruction. There are multiple choices for biliary drainage in malignant hilar biliary obstruction: plastic stents or SEMS and unilateral or bilateral and, if bilateral, the side-by-side method or stent-in-stent method. There has been no prospective study to compare the results of stent-in-stent or side-by-side SEMS placement for malignant hilar biliary obstruction.

Bilateral SEMS placement using a stent-in-stent method is not widely carried out as a standard technique due to technical difficulties. Passing a guidewire and stent delivery system into a contralateral biliary system through the mesh of SEMS placed first is sometimes difficult. The other problem with stent-in-stent method is technical difficulty in reintervention. The chance of reintervention is increasing as the prognosis of patients with unresectable malignant biliary obstruction is improving because of recent anticancer treatment developments.

New metallic stents, such as the Niti-S Y-type stent, BONASTENT M-Hilar, and Niti-S large cell D-type stent, have recently been developed for bilateral stent-in-stent procedures to facilitate contralateral stent deployment through the interstices of the first metallic stent. These newly designed stents exhibited high technical success rates, low stent-related complications, and good stent patency. Additionally, endoscopic reinterventions for occluded stents could be performed easily.

## Faculty Abstract

### What Is the Best Management of Malignant Hilar Stricture

#### Discussion “SIS versus SBS”



**Rungsun Rerknimitr, MD**  
(Chulalongkorn University, Thailand)

It is a subject for debate on how to place multiple metallic stents in malignant hilar stricture.

Those who support for the “stent-in stent” technique claim that there are many reasons on the advantage including the largest diameter of metallic stent expansion in the common duct region and this in turn would be more physiologic to normal biliary flow. Moreover, some endoscopists believe that this technique would not increase the risk of portal vein thrombosis when compared with the “side-by-side” technique. In addition certain type of metallic stent requires an almost simultaneous deployment of the two stents and the potential mistake on poor positioning of the stent may occur.

On the other hand, those who prefer to put the “side-by-side” technique explain that this technique is much more easier for the standard biliary endoscopist since it requires less technical skill. Moreover, when the original metallic stent gets occluded, it is much easier to select the side to go for re-intervention. One of the important factors for this re-intervention requirement is that the length of the primary stent has to be long enough to get the distal end across the papilla. Unfortunately, many companies provide only a standard stent with 10 cm. length and this may not be long enough.

To date, there has been no direct comparison study available between the two techniques to state that what is the better technique. Among the experienced endoscopists, the selection of the technique has been played by anecdotal information and personal opinion. To my opinion these two techniques are both acceptable as long as the stents can provide adequate drainage. In addition I would like to propose a new technique that may help to overcome this debate. My new propose is to put a transpapillary stent into the right system and performing a transgastric drainage of the left system with an EUS guidance.

#### **Malignant Hilar Stricture with side-by-side metallic stenting**

Outside from Japan and Korea, side-by side bilateral metallic stenting has been accepted as the preferred technique. It may be postulated that the earlier models of self expandable metallic stent (SEMS) were not designed to be used for stent-in stent technique. Other reason is that many Western endoscopists believe that the side-by-side technique could be easier to practice and require a shorter learning curve than the other. However, there has been only a handful of retrospective series that compared the differences in outcomes of the two techniques and the final conclusion is still controversial. In the author’s opinion, the main advantage of side-by-side stenting is more convenient when the patient requires a re-intervention. However, there are some concerns by the experts on its disadvantages such as the possibility of causing portal vein thrombosis and smaller diameter of stent in the common duct. However, these problems have never been well addressed in the literatures yet. In addition, the length of SEMS for side-by side stenting has to be long enough to cross the ampulla, thereby a 10-12 cm SEMS stent is more suitable.

Recently there has been a new concept of using fully covered SEMS for treating benign hilar stricture and the only technique that can comply with the stent removal process is the side-by side one.

In conclusion, side-by –side SEMS insertion may be useful in malignant hilar obstruction who may require a re-intervention. Benign stricture that required fully covered SEMS is another indication for this technique.

## Faculty Abstract

### Recent Progress in Interventional EUS



**Yousuke Nakai, M.D., PhD**

(Department of Gastroenterology, Graduate School of Medicine, The University of Tokyo)

For pancreatobiliary diseases, ERCP has been the mainstay as diagnostic and therapeutic modalities. Since its introduction, EUS has its main role as a diagnostic tool: imaging and tissue acquisition. However, as the indication of ERCP has moved from diagnosis to treatment, EUS was also destined to expand its indications into treatment when we got the FNA needle. Eventually, EUS has more potential than ERCP since the indication of ERCP is literally limited to “C” (biliary tract) or “P” (pancreatic duct). However, using EUS, we can access wherever you want as long as accessible under EUS guidance.

Interventional EUS has been developed first as an alternative to ERCP: EUS-guided rendezvous or biliary drainage, pseudocyst drainage. High technical success rate has been reported from experts, but some dreadful complications were also reported and long term outcomes are yet to be proved. EUS is now utilized for gallbladder drainage or endoscopic necrosectomy. The unmet needs in this area are the development of dedicated devices for interventional EUS.

The other area of interest is EUS-FNA needle as an access for diagnostic tools: Through-the-needle imaging or biopsy. Recent development of miniature probe-type imaging tool (fiberoptic probe or confocal laser endomicroscopy) enables through-the-needle imaging. These novel imaging techniques are utilized in the diagnosis of pancreatic cystic neoplasms as reported in our DETECT study. We also reported EUS-guided through-the-needle biopsy using a 0.75-mm miniature biopsy forceps, giving additional specimen to regular EUS-FNA with a single pass of 19G needle. This through-the-needle technique will be also utilized for tumor ablation.

In conclusion, the era of interventional EUS has just begun and its role will expand unlimitedly.

## Faculty Abstract

### EUS-Guided Tissue Acquisition: State of the Art 2014



**Christopher Khor**

(Singapore General Hospital, Singapore)

The utility of EUS in making a tissue diagnosis via a safe and minimally invasive technique became apparent about 20 years ago with the development of the linear echoendoscope. Diagnostic yields however have proven to be less than ideal, especially where sampling of pancreatic masses and smooth muscle tumors is concerned. In recent years the components of EUS-FNA have been dissected and studied more closely, leading to refinements in technique and technology. Diagnostic accuracy that is consistently better than 90% is sought.

Several variations of needle passage/sampling techniques have been advocated, with differing levels of supporting evidence. Technical factors such as the use of suction and stylet have been studied to ascertain their contribution to sampling accuracy. Needle factors like size and design can affect diagnostic yield. Tissue cores may now be obtained with certain needle designs. A new needle with modular assembly is now available that allows removal and replacement of the needle.

## Faculty Abstract

### Abstract for fine needle injection



**Ryan Ponnudurai**  
(Prince Court Medical Centre)

The issue of fine needle injection therapy is an evolving area in interventional endoscopic ultrasound.

The first EUS guided intervention performed was celiac plexus neurolysis. Since then accessories have been designed to cater for the need to access areas not possible before. Needle sizes have varied allowing passage of probes, brushes and coils.

Cysts of the pancreas in 2014 will regularly be evaluated by endoscopic ultrasound. Ablating these cysts and now assessing mutational analysis of cyst contents are being explored and results are encouraging.

Implantation therapy using fiducial markers are integral in radiation focused therapy .

EUS guided vascular therapy is an interesting niche area with coil placement, glue and fibrin injection for varices and pseudoaneurysms.

Tumour therapy involving injecting virus, TNF erade, oncogel etc are still in evolution.

Local ablation using radiofrequency ablation has gathered some interest with the emergence of dedicated probes which can fit into the EUS needle channels. Selective small lesions such as pancreatic neuroendocrine tumours might resolve with local therapy.

The lecture will give an overview of this emerging area in therapeutic endoscopic ultrasound. There is a lot of room for further improvement of accessories as well as endoscopes.

## Faculty Abstract

### Recent Progress in endotherapy for pancreato-biliary diseases

#### Covered metal stent for Benign Biliary Stricture



**Sundeep Lakhtakia MD MNAMS DM**

(Senior consultant at Asian Institute of Gastroenterology, Hyderabad, India)

Benign Biliary Stricture (BBS) can occur in variety of medical conditions, each having different natural course and management strategy. Biliary injury during surgery, especially cholecystectomy, is the commonest cause of BBS. Such biliary strictures are usually located in mid or upper CBD. Distal BBS arise from inflammatory injury to the biliary duct, the common causes of which include chronic pancreatitis, CBD stone, primary sclerosing cholangitis, duodenal ulcer and auto-immune cholangiopathy.

The endoscopic management of benign biliary stricture is stricture dilation with placement of multiple side-by-side, large-bore plastic stents at sequential sessions of ERCP. This strategy has been reported to improve long term outcomes of BBS compared with placing 1 or 2 plastic biliary stents. This technique requires initial aggressive stricture dilation with biliary balloon before placing multiple plastic stents.

Self Expanding Metal Stents (SEMS) have been used in recent past in distal BBS by providing large caliber continuous dilation of CBD. SEMS have inherent property to expand in diameter at least 3 times that of standard 10-Fr plastic stents. Moreover SEMS have the advantage of smaller pre-deployment delivery system that does not require aggressive stricture dilation before stent placement. Overall SEMS confer the advantage of requiring one or few procedures to achieve the same end result, compared to use of multiple plastic stents in BBS. SEMS are available as uncovered, partially covered (PCSEMS) or fully covered (FCSEMS) variety.

Uncovered SEMS have a median patency of about one and half year with re-interventions being frequently required, to manage stent occlusion from high rates of reactive tissue hyperplasia. In addition, such bare SEMS embed into the bile duct wall making their removal virtually impossible. These factors limit the use of uncovered SEMS for long-term treatment of BBS.

Partially covered SEMS (PCSEMS) are uncovered at both the proximal and distal ends of the stent. This supposedly decreases the rate of stent migration, but increases the risk of tissue embedment at ends; the latter causing difficulty in removing the PCSEMS.

Fully covered SEMS (FCSEMS) are designed to prolong the duration of patency by preventing occlusion from reactive tissue hyperplasia and preventing in growth. FCSEMS are currently used for biliary stricture limited to the main bile duct, and not for hilar biliary stricture. There is a risk of blockage of biliary ducts on the contra-lateral side if FCSEMS is used in hilar biliary stricture. Removal of FCSEMS is reasonably easy because of no tissue embedding of the metal wires into the bile duct wall. Stricture resolution with FCSEMS in BBS has been reported from 80-100% in few short series. A recent large prospective multicentre study showed bile duct stricture opens up in about 75% after an FCSEMS indwell time of 6-12months. High rates of stent migration have been reported with FCSEMS after the stricture opens up, ranging from 5- 33%. This has caused clinical concern because of theoretical higher risk of biliary re-obstruction, bowel obstruction, or perforation, which is unlike the plastic stents.

## Faculty Abstract

### Endoscopic management of acute cholecystitis



**Fumihide Itokawa**  
(Tokyo medical university)

#### Abstract

Acute cholecystitis is a commonly encountered medical emergency that is managed surgically with excellent results especially laparoscopic cholecystectomy is the treatment of choice with a mortality rate 0.7-2%.

However, acute cholecystitis often occurs in elderly people which have some critically or terminally ill. Cholecystectomy has a significant morbidity and a prohibitive mortality rate in such patients. Percutaneous drainage represents the alternative to surgery with a clinical efficacy. However, its morbidity rate varies from 5-40% due to bile duct injuries, hemorrhage, pneumothorax and catheter displacement.

Endoscopic gallbladder drainage has been proposed as an alternative to percutaneous drainage. There have two approaches (1) transpapillary drainage of gallbladder at endoscopic retrograde cholangiopancreatography (ERCP) by nasocystic catheter or stent placement; and (2) endoscopic ultrasonography (EUS)-guided gallbladder drainage via the transluminal route. We reviewed these two endoscopic approaches outcome.

(1)transpapillary drainage: the pooled technical success rate for the nasocystic drainage-catheter placement technique and gallbladder stenting has been reported to be 80.9% and 96% respectively, with a clinical response of 75.3% and 88%. The rate of pooled adverse events for both techniques is reported at 4.7% with the incidence varying between 0-16%. (2) (EUS)-guided gallbladder drainage: Reports of studies using plastic stents, nasocystic drainage catheters, SEMS, and prototype lumen-apposing stents has been published. In terms of plastic stent and nasocystic drainage both technical and clinical success was reported to be 100%, however pneumoperitoneum was observed in 3 patients(10.3%). In terms of modified covered SEMS. Although the treatment success was 100%, pneumoperitoneum occurred in 2 patients. In another case series of using the novel lumen apposing fully covered SEMS, resolution of acute cholecystitis was observed immediately after stent deployment in all patients.

In conclusion, endoscopic gallbladder drainage seems feasible and effective in resolving acute cholecystitis patients who are not candidates for surgery or percutaneous drainage.

## Faculty Abstract

### Management of refractory severe pancratico-biliary strictures

**Hiroshi Kawakami, Masaki Kuwatani, Kazumichi Kawakubo, Yoko Abe, Syuhei Kawahata,  
Kimitoshi Kubo, Yoshimasa Kubota, Naoya Sakamoto**

(Department of Gastroenterology and Hepatology, Hokkaido University Graduate School of  
Medicine, Sapporo, Japan)



Endoscopic plastic or self-expandable metallic stent placement has been established to improve the severity of jaundice or abdominal pain in selected patients with benign and malignant bile duct (BD) and pancreatic duct (PD) strictures. When a guidewire is passed through the stricture, subsequently, a stent placed at the stricture. While these stents are sometimes placed after dilation of the stricture, dilation may be unnecessary in most cases. Severe BD or PD strictures can usually be dilated using a small-diameter catheter, balloon dilation or a dilation catheter. However, these devices cannot accomplish passage through a BD or PD stricture, only the guidewire can pass through it, and a screwdrill can be used. However, the thick tip of the screw drill can sometimes make dilation of the BD or PD stricture impossible. Several investigator reported that yield of a needle-knife, wire-guided snare forceps or needle catheter for refractory BD or PD strictures. However, the hardness and non-coaxial of these devices may cause a blind technique. We recently revealed another alternative dilation technique using a wire-guided diathermic dilator for refractory BD or PD strictures. More recently, possibility of a wire-guided radiofrequency ablation therapy for BD strictures were also reported. These endoscopic equipment has potential for developing new standard techniques for dilation of refractory BD and PD strictures.

## Faculty Abstract

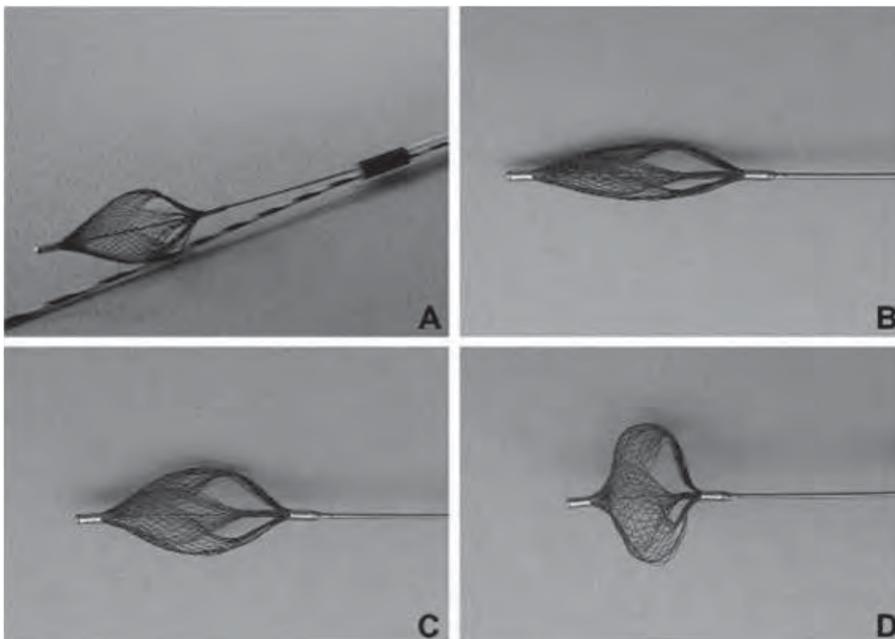
### Newly developed retrieval basket for pancreato-biliary stone

**Hiroyuki Isayama**

(Associate Professor, Department of Gastroenterology, Graduate School of Medicine, The University of Tokyo)



Endoscopic treatment for pancreato-biliary stones was widely accepted procedure. However, retraction of pancreatic and intra-hepatic stones is still difficult, because of lack of special devices. Always, basket catheter for biliary stone was used for pancreatic stone retraction. However, both pancreatic duct in chronic pancreatitis and intrahepatic bile ducts were thine, tortuous and stenotic. In addition, ESWL is available treatment for pancreatic stone, and we should retract fragmented stones. We developed a wire-guided (0.025 inch), novel double-lumen basket catheter composed of nitinol wires with fine reticular structures. This novel basket catheter (Reforma; Piolax Medical Devices Inc, Kanagawa, Japan) is 5.7F in diameter, and possible to adjusts the size of basket to the diameter of duct. To open the basket, we manipulate the handle lever to shorten the axis of the basket. We used this basket to the retraction of pancreatic and intrahepatic bile duct stone, and present the VTR and preliminary results.



## Faculty Abstract

### Endoscopic ultrasound-guided antegrade procedures

**Takuji Iwashita**

(First Dept. of Internal Medicine, Gifu University Hospital)



Endoscopic retrograde cholangiopancreatography (ERCP) has been widely used as a standard management for biliary disorders with high success rates in patients with native upper gastrointestinal. However, even with the application of enteroscopes, ERCP is challenging in patients with surgically altered anatomies. The most common alternative approach for ERCP is the percutaneous transhepatic biliary (PTB) approach which associated with considerable morbidity and occasional mortality. Recently, endoscopic ultrasound (EUS)-guided biliary access techniques, including EUS-guided fistulotomy and EUS-rendezvous technique, have been considered effective alternatives to failed ERCP. More recently, EUS-guided antegrade treatments (AG) for biliary disorders have been described in several reports as effective salvage techniques. Here, we present technical feasibility and safety of EUS-AG for biliary disorders in the patient with surgically altered anatomy.



## Free Paper : Oral Session

### A pilot study of contrast enhanced harmonic endosonography (CH\_EUS) using SONOVUE in the evaluation of suspected pancreaticobiliary and peri-ampullary malignancies

Shannon Melissa Chan<sup>1</sup>, Charing Ching-ning Chong<sup>1</sup>, Anthony Yuen-Bun Teoh<sup>1</sup>, Vivien Wai-Yin Wong<sup>1</sup>, Raymond SY Tang<sup>2</sup>, Francis Ka-leung Chan<sup>2</sup>, James Yun-wong Lau<sup>1</sup>

(<sup>1</sup>Department of Surgery, Prince of Wales Hospital, the Chinese University of Hong Kong <sup>2</sup>Institute of digestive disease, Department of Medicine and Therapeutics, Prince of Wales Hospital, the Chinese University of Hong Kong)

**Introduction and aims:** Confirmation of pancreatico-biliary and periampullary malignancies is always a challenge. This study assessed the utility of CH\_EUS using SONOVUE, a second-generation ultrasonic contrast agent, in the evaluation of suspected pancreaticobiliary and peri-ampullary malignancies.

**Methods:** All patients with suspected pancreaticobiliary and peri-ampullary malignancies underwent EUS were prospectively recruited. CH\_EUS would be performed by the same endosonographer immediately after EUS. The gold standard for diagnosis of malignancy was positive cytology, histology or progressive disease. A negative diagnosis for malignancy was based on negative cytology or histology and benign clinical course. CH\_EUS characteristics were compared with final pathology.

**Results:** Forty patients were enrolled and underwent CH\_EUS. Six patients (15%) had bile duct pathology, 10 patients (25%) with peri-ampullary lesions and 24 patients (60%) had pancreatic lesions. Table 1 summarized the final diagnoses of these 40 patients. Among them, 18 patients harbored malignancy while 22 patients had benign pathology. FNAC confirmed presence of malignant cells in 3 out of the 18 patients (16.7%) with malignant pathology only. Half of them showed atypical cells and 6 of them were non-diagnostic or negative for malignancy. Majority of the masses (28/40, 70%), benign or malignant, appeared hypoechoic on plain EUS. With CH\_EUS, 17/18 (94.4%) malignant lesions had a hypoenhancement while lesions due to benign pathology were characterized by iso- (11/22, 50%) or hyper-enhancement (6/22, 27.3%). ( $p < 0.001$ ). Hypoenhancement on CH\_EUS can detect pancreatico-biliary and periampullary malignancy with a sensitivity of 94.4% and a specificity of 81.0%.

When considering periampullary lesions alone, endoscopic biopsies or EUS-guided FNAC could not detect any malignancy nor atypical cells in 9 out of 10 cases whereas hypoenhancement on EH\_EUS has sensitivity of 100% and specificity of 74.4%. For bile duct lesions, 4 out of 6 cases showed atypical cells on brush cytology. The sensitivity and specificity for hypoenhancement on CH\_EUS to confirm biliary malignancy are both 66.7%. However, no statistical significant relationship between contrast enhancement and histology in peri-ampullary and bile duct lesions can be demonstrated yet. ( $p = .117$  and  $.189$  respectively)

**Conclusion:** CH\_EUS improved the differentiation between benign and malignant masses. It can detect pancreatico-biliary and peri-ampullary malignancy as a result of the hypo-enhancement of these lesions with reasonable sensitivity and specificity.

Table1

		Frequency
Peri-ampullary (n=10)	Ampullary adenoma	4
	Carcinoma of Ampulla	2
	Carcinoma of duodenum	1
	Carcinoma of pancreas	2
	Papilloma	1
Biliary (n =6)	Benign bile duct stricture	3
	Cholangiocarcinoma	3
Pancreatic (n = 24)	Carcinoma of pancreas	6
	Cholangiocarcinoma of distal CBD	3
	IPMN	8
	Serous cystadenoma	2
	Pancreatitis (Autoimmune, chronic)	4

## Free Paper : Oral Session

### Novel Metabolomics Markers for Characterization and Early Detection of Malignancy in Pancreatic Cysts

Tan DMY<sup>1</sup>, Ho YS<sup>2</sup>, Lim KH<sup>3</sup>, Goh BK<sup>4</sup>, Khor CJL<sup>1</sup>

<sup>1</sup>Department of Gastroenterology and Hepatology, Singapore General Hospital

<sup>2</sup>Metabolomics Group, Bioprocessing Technology Institute, A\*STAR

<sup>3</sup>Department of Pathology, Singapore General Hospital

<sup>4</sup>Department of HPB surgery, Singapore General Hospital)

#### Background:

Cyst characterization based on imaging and fluid analysis is not accurate. New technology like metabolomics of cyst fluid obtained via EUS FNA may help differentiate malignant from benign pancreatic cysts. It may also help detect malignant change in premalignant cysts.

#### Objective:

1. Identify via metabolomics differentially expressed metabolites found exclusively in malignant cysts compared to benign cysts.
2. Quantitatively assess whether these metabolites are present in premalignant cyst.

#### Methods:

Metabolomics was performed on 16 cyst fluid samples obtained via EUS FNA or surgery (4 malignant, 4 premalignant and 8 benign) using LC-MS with identification of key differential metabolites using statistical tools. Level of metabolites was correlated to clinical diagnosis based on surgical histology or supportive imaging and standard fluidic analysis.

#### Results:

There was a significant distinction between benign (B) vs. premalignant (B/M) vs. malignant (M) cysts on global profiling. (Figure 1) Differential profiling identified 4 potential metabolites present exclusively or in high amounts in malignant cysts (Figure 2). Extending candidate metabolites to premalignant samples showed a potential increase in levels from premalignant to malignant samples (Figure 3)

#### Conclusion:

Unique metabolites were present exclusively in malignant cysts and with increasing amounts in premalignant cysts. Future studies can then be done to determine on need for surgery or timing of surgery based on the presence and quantity of this metabolite in the pancreatic cyst. If successful, this study can potentially lead to a new generation of novel markers for cancer risk stratification and guiding of therapy for pancreatic cysts.

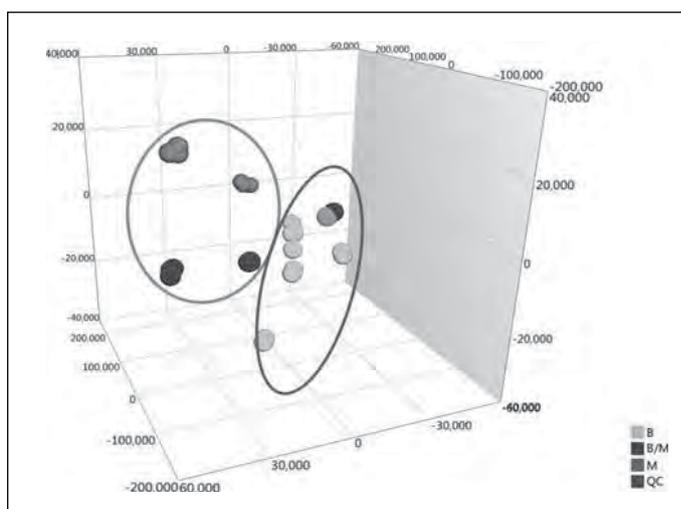


Figure 1: First pass metabolomics results on EUS FNA samples

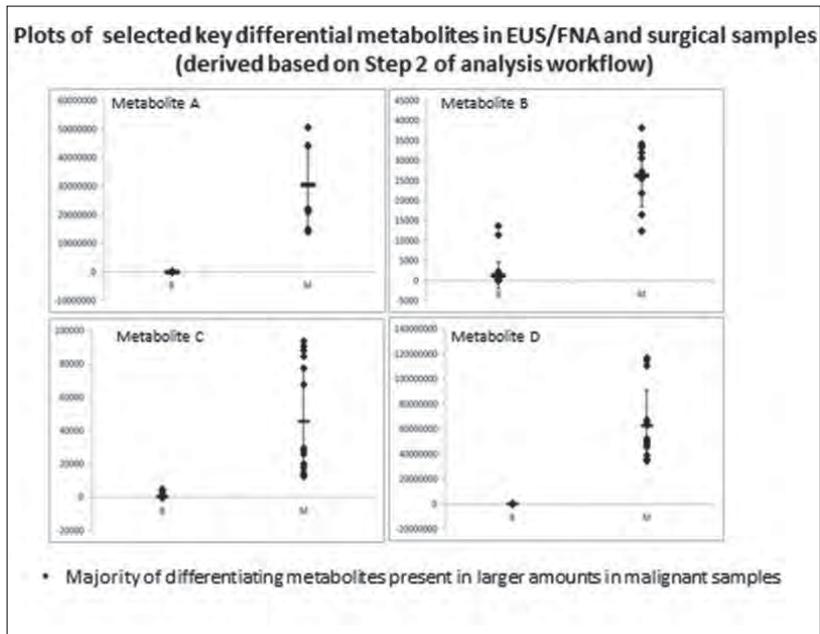


Figure 2: Extended analysis and identification of candidate biomarkers

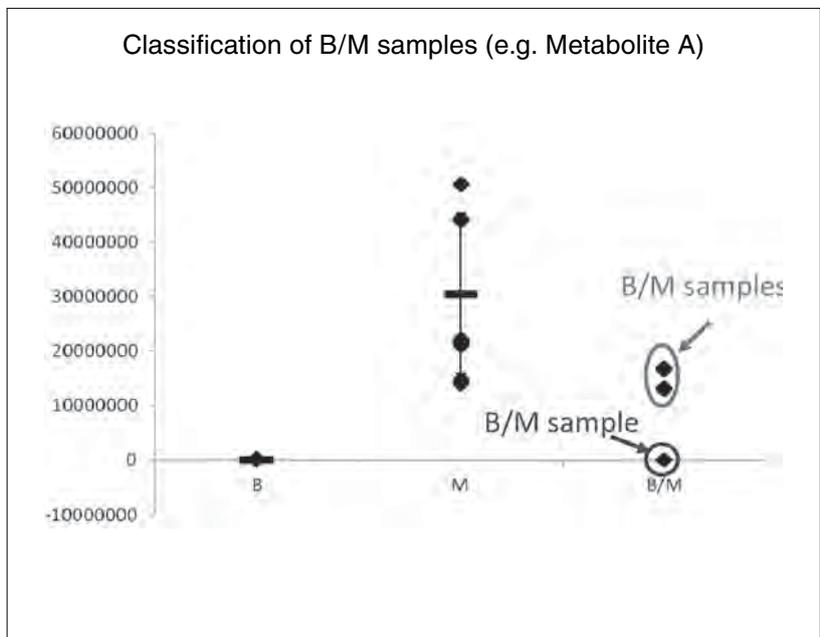


Figure 3: Increase in metabolite levels in premalignant samples

## Free Paper : Oral Session

### Procore biopsy needle versus standard aspiration needle for EUS-guided sampling of solid pancreatic masses: a randomized study-Results of a Multicenter Prospective

Yun Nah Lee<sup>1</sup>, Jong Ho Moon<sup>1</sup>, Hee Kyung Kim<sup>2</sup>, Hyun Jong Choi<sup>1</sup>, Dong Choon Kim<sup>1</sup>,  
Moon Han Choi<sup>1</sup>, Tae Hoon Lee<sup>1</sup>, Sang-Woo Cha<sup>1</sup>, Young Deok Cho<sup>1</sup>, Sang-Heum Park<sup>1</sup>, Sun-Joo Kim<sup>1</sup>

(Digestive Disease Center and Research Institute, Department of Internal Medicine<sup>1</sup> and Pathology<sup>2</sup>,  
SoonChunHyang University School of Medicine, Korea)

**Background and objective:** A new EUS-guided fine-needle biopsy (EUS-FNB) device using a Procore biopsy needle was developed to improve diagnostic accuracy by simultaneous obtaining of cytologic aspirates and histologic core samples. We prospectively compared the diagnostic accuracies of EUS-FNB and EUS-fine needle aspiration (EUS-FNA).

**Methods:** Between February 2012 and May 2013, consecutive patients with solid pancreatic masses were prospectively enrolled and randomized to undergo EUS-FNB using a Procore biopsy needle or EUS-FNA using a standard aspiration needle. The specimen was analyzed by on-site cytology, cytology with Papanicolaou stain and histology. The main outcome measures were the diagnostic accuracies of EUS-FNB and FNA.

**Results:** The overall diagnostic accuracy of combination of on-site cytology, cytology with Papanicolaou stain and histology was not significantly different between the FNB (58 patients) and FNA (58 patients) (98.3% vs. 94.8%,  $p=0.168$ ). Compared to the FNA, the FNB required a significantly lower median number of needle passes for diagnosis (1.0 vs. 2.0,  $p<0.001$ ). Upon subgroup analysis of 111 patients with malignant lesions, the proportion of patients in whom malignancy was diagnosed on the first pass was significantly greater in the FNB than the FNA group (70.7% vs. 37.5%,  $p<0.001$ ).

**Conclusions:** The Procore biopsy needle was not associated with a better histological result but, was superior in terms of obtaining adequate specimens for on-site diagnosis using a lower number of needle passes for the diagnosis of pancreatic solid lesions.

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SoonChunHyang University School of Medicine

## Free Paper : Oral Session

### **Endoscopic ultrasonography-guided rendezvous drainage after failed pancreatic duct stenting under endoscopic retrograde cholangiopancreatography for benign pancreatic duct obstructions.**

**MASAHIRO ITONAGA, KAZUKI UEDA, YUUKI KAWAJI, HIROKO TERADA,  
JUNYA NUTA, TAKASI TAMURA, YASUNOBU YAMASITA, HIROKI MAEDA,  
TAKAO MAEKITA, MIKITAKA IGUTI, HIDEYUKI TAMAI, JUN KATO, MASAO ITINOSE**  
(Second Department of Internal Medicine, Wakayama Medical University)

**[OBJECTIVES]** Recurrent acute pancreatitis and pancreatic pseudocyst as a result of pancreatic duct (PD) stricture require treatment for ductal decompression. Endoscopic PD stenting is a highly effective treatment for these patients. Although Endoscopic PD stenting under endoscopic retrograde cholangiopancreatography (ERCP) is successfully performed in most cases, it is not possible because of complete obstruction or very tight strictures. The development of interventional endosonography allowed access to the pancreatic duct in the case of ERCP failure, using techniques such as rendezvous drainage of the pancreatic duct. The present study aimed to evaluate endoscopic ultrasonography-guided rendezvous drainage (EUS-RD) after PD stenting under ERCP in our hospital.

**[METHODS]** In our hospital, the strategy of PD obstruction was as follows; firstly, we performed transpapillary PD stenting under ERCP. If failed drainage under ERCP, we performed EUS-guided rendezvous drainage. From September 2009 to April 2014, a total of 7 procedures were carried out for EUS-RD because of failed ERCP. We examined the feasibility and safety of EUS-RD.

**[RESULTS]** The subjects included 7 males with the average age of 52.6 and the causative disorders were all cases of alcoholic pancreatitis. Deep cannulation of the main pancreatic duct was not possible because of tight strictures (n=2) or total obstruction (n=5). Pancreatography was successful in all cases. EUS-RD was successful in 4 of 7 procedures (57.1%), but three patients were failed because of unsuccessful guidewire passage antegrade from the main pancreatic duct across duodenal papilla. There was no procedure-related death but we encountered one complication (14.2%).

**[CONCLUSION]** The treatment results of EUS-RD was favorable and safe relatively. If retrograde access to the PD is technically unsuccessful, EUS-RD becomes one of the choices.

## Free Paper : Oral Session

### **EUS-guided vascular therapy; Coil deployment for gastric varices.**

#### **-The first case in Japan-**

**Akane Yamabe, Atsushi Irisawa, Goro Shibukawa, Yoko Abe, Koh Imbe, Koki Hoshi, Ryo Igarashi.**

(Department of Gastroenterology. Fukushima Medical University Aizu Medical Center.)

Recently, EUS-guided coiling therapy for gastric varices (GV) was developed. Several reports showed the EUS-guided deployment of coils in the perforating feeding vein is more effective and safe than cyanoacrylate injection. On the other hand, balloon-occluded retrograde transvenous obliteration (B-RTO) is also performed by injection of sclerosant under occluding the drainage vein of GV using a balloon. We invented the new technique combined coiling and sclerosant (ethanolamine oleate) injection using interventional EUS for isolated GV. We herein reported a case of isolated GV treated by this technique. In our knowledge, this is the first case of EUS-guided vascular therapy in Japan (perhaps in Asia?).

**Case report:** A 64-year-old man with liver cirrhosis presented with hematemesis. An initial endoscopy revealed isolated GV with a white fibrin plug. 3D-CT showed the feeder of GV was a short gastric vein and the drainage route was a gastro-renal shunt. EUS demonstrated large collaterals around the gastric wall, the maximum diameter of GV was 8mm. After recovering his general condition, we tried EUS-guided placement of an embolization coil for GV. At first, we punctured GV using a 19G needle (Echotip Ultra) without a stylet. After confirming back-flow of blood, contrast medium was injected into the GV. Subsequently, a 0.035-inch coil (10mm in diameter) was inserted into the needle and pushed using a 0.035-inch guide wire. After the first coil was deployed in the GV, a color-Doppler image revealed blocking off the blood flow for the most part of the treated GV. However, since the blood flow of other GV was maintained, a second puncture was performed on the other GV. As the contrast medium was still in the GV, ethanolamine oleate was injected and 2 coils were successively deployed in the GV. The major GVs were eradicated through a series of EUS-guided coiling with sclerosant injection. EUS-guided vascular therapy using a coil is expected as a new treatment for GV instead of cyanoacrylate injection therapy.

## Free Paper : Oral Session

### A Prospective Feasibility Study of Preoperative Biliary Drainage Using a Fully-covered Self-expandable Metallic Stent for Pancreatic Head Cancer

Osamu Togawa, Hiroyuki Isayama, Hiroshi Kawakami, Dai Mohri, Tsuyoshi Hamada, Yousuke Nakai, Hirofumi Kogure, Kazumichi Kawakubo, Naoya Sakamoto, Kazuhiko Koike and Hiroto Kita

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**Background:** The efficacy of endoscopic preoperative biliary drainage for pancreatic head cancer is controversial because of high incidence of stent occlusion before surgery. Though the efficacy of self-expandable metallic stents (SEMSs) is established in unresectable pancreatic cancer and is increasingly reported in neoadjuvant treatment settings, plastic stents are still the standard treatment for preoperative drainage in resectable pancreatic cancer without neoadjuvant treatment. The role of SEMSs is not fully elucidated in patients with biliary obstruction by resectable pancreatic cancer. Therefore, we conducted this multicenter, prospective study to evaluate the feasibility of preoperative biliary drainage using a fully-covered SEMS (FCSEMS).

**Methods:** This is a single arm, prospective study performed at 3 academic centers. Patients with malignant biliary obstruction due to resectable pancreatic head cancer were enrolled. A fully-covered biliary Wallflex(TM) (Boston Scientific Corp., Natick, MA), was used in all patients. Surgical resection was attempted after total bilirubin decrease at the discretion of each surgeon. Primary endpoint was pre- and post-operative complications in patients who underwent surgical resection after FCSEMS placement. The study was approved by institutional review board at each center.

**Results:** Between March 2011 and March 2013, 26 patients were eligible for this study. Written informed consent was obtained from all patients. In 1 patient, endoscopic drainage was failed, then percutaneous drainage was performed. Another patient received a plastic stent placement. Thus, FCSEMS placement was successful in 24 of the remaining 26 patients (92%). Seven patients did not undergo surgical resection due to unresectability. The remaining 17 patients (11 males, mean age of 66.0 years old) underwent surgical resection after a mean of 20.8 days from stent placement. The mean total bilirubin prior to drainage and prior to surgical resection was 11.4 and 2.3 mg/dL, respectively. Preoperative complications included one cholecystitis 7 days after biliary drainage, which resolved temporary percutaneous gallbladder drainage. One patient received an ENBD insertion into the FSEMS due to insufficient biliary drainage without stent occlusion. Neither stent occlusion nor pancreatitis was observed prior to surgery. Preoperative complication rate was 12%. Surgical resection was attempted in 17 patients, but resulted in explorative laparotomy alone in one patient due to peritoneal dissemination. Postoperative complications occurred in 8 patients (47%). Those included delayed gastric emptying in 3 patients, intra-peritoneal abscess in 2, wound infection in 2, pancreatic fistula in 2, bile leakage in 1 and hemorrhage in 1.

**Conclusion:** FCSEMS was an effective and feasible for preoperative biliary drainage in patients with resectable pancreatic head cancer. The use of FCSEMSs can potentially reduce preoperative stent-related complications compared with plastic stents.

## Free Paper : Oral Session

### Small cell versus large cell-sized stent for endoscopic bilateral stent-in-stent placement of metallic stents in malignant hilar biliary obstruction

Sang Hyub Lee<sup>1,2</sup>, Jae Min Lee<sup>3</sup>, Kwang Hyun Chung<sup>1,2</sup>, Jin Myung Park<sup>1,2</sup>, Sang Myung Woo<sup>4</sup>,  
Woo Jin Lee<sup>4</sup>, Ji Kon Ryu<sup>1,2</sup>, Yong-Tae Kim<sup>1,2</sup>

(1 Departments of Internal Medicine and Liver Research Institute, Seoul National University College of Medicine, Seoul, Korea

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3 Department of Internal Medicine, Myongji Hospital, Goyang, Korea

4 Center for Liver Cancer, National Cancer Center, Goyang, Korea)

**Background/Aims:** The uniform large cell-sized biliary stent facilitate the contralateral stent deployment through the mesh of the first metallic stent for stent-in-stent (SIS) technique. However, this stent has been typically known to be vulnerable to tumor ingrowth due to the large cell size. The aim of this study was to compare the clinical outcomes of endoscopic bilateral SIS placement according to the cell size of self-expandable metallic stent (SEMS).

**Methods:** A total of 70 patients who underwent endoscopic bilateral SIS placement of SEMS for malignant hilar biliary obstruction were enrolled. Finally, 43 patients with biliary tract cancers who underwent successful stent insertion were included in the analysis, and divided into the small cell-sized stent (SCS; BONASTENT M-Hilar) and large cell-sized stent (LCS; Niti-S large cell D-type biliary stent) groups. We retrospectively compared comprehensive clinical and laboratory data in both groups.

**Results:** There were no significant differences in clinical characteristics between the SCS (n = 21) and LCS (n = 22) groups. Successful drainage was achieved in all 43 patients (100%) and both groups did not differ significantly in procedure-related complications (38.1% vs. 18.2%, P = 0.146), 30-day stent occlusion (0% vs. 9.1%, P = 0.488), 30-day mortality (4.8% vs. 9.1%, P = 1.000), late complications (14.3 vs. 22.7, P = 0.698), and endoscopic reintervention (66.7% vs. 50%, P = 0.650). Kaplan-Meier analysis showed that the stent patency duration and survival period were not significantly different between the two groups (P = 0.086 and P = 0.320, respectively).

**Conclusions:** Endoscopic bilateral SIS placement for malignant hilar biliary obstruction is not different in clinical outcomes according to the cell size of SEMS.

**Keywords:** Cell size; Malignant hilar biliary obstruction; Self-expandable metallic stent; Stent-in-stent.

## Free Paper : Oral Session

### Endoscopic management of bile leaks after hepato-biliary surgery or percutaneous biliary procedures.

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**OBJECTIVE:** A bile leak is an infrequent but potentially serious complication after hepato-biliary surgery or percutaneous transhepatic biliary drainage (PTBD). This study assessed the effectiveness of endoscopic retrograde cholangiopancreatography (ERCP), sphincterotomy(EST), biliary stenting (EBD), nasobiliary drainage (ENBD) and N-Butyl 2-cyanoacrylate injection in the management of bile leaks.

**METHODS:** 24 patients with biliary leakage were referred for initial endoscopic management between July 1999 and September 2013. We retrospectively analyzed those cases, concerning primary disease, pre-procedure, treatment and outcome of biliary leakage.

#### RESULTS:

Of the 24 patients, the pre-procedures before biliary leakage were open cholecystectomy (11 patients: gallbladder stones), laparoscopic cholecystectomy ( 1: gallbladder stones), hepatectomy ( 3: 2 metastatic liver cancer, 1 primary liver cancer) and PTBD ( 9: 6 bile duct cancer, 1 pancreatic cancer, 2 metastatic lymph nodes swelling). 24 patients were subjected to therapeutic procedures including EST with ENBD insertion (13 patients), EST with EBD (2), and N-Butyl 2-cyanoacrylate injection to fistulas (9). We finally managed all but one patient successfully without any major complications or bile leak recurrence. Bile leak was disappeared immediately after N-Butyl 2-cyanoacrylate injection in eight patients with immature PTBD fistula.

#### CONCLUSION:

Endoscopic therapy is safe and effective in the management of bile leaks.

Especially, we found great potential of N-Butyl 2-cyanoacrylate for treating biliary leakage from immature PTBD fistula.



## Free Paper : Poster Session

### 5F plastic stenting without sphincterotomy for highly suspected CBDS and negative ERCP with intraductal US

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**Background/Aims:** Treatment for cholangitis without definite common bile duct stone (CBDS) on ERCP is not established. Endoscopic sphincterotomy (ES) can reduce the recurrence rate of cholangitis but cause complications and permanent loss of sphincter function. The aim of this study is to investigate the usefulness of 5F plastic stenting without ES in patients with negative cholangiogram and intraductal ultrasonography (IDUS).

**Methods:** Total of 187 patients with GB stones and highly suspected CBDS were enrolled. High probability of CBDS was defined as clinical findings of cholangitis, more than two times elevation of liver enzyme including serum bilirubin ( $\geq 3\text{mg/dL}$ ) and CBD dilatation ( $\geq 8\text{ mm}$ ). One hundred and fifty nine patients were excluded from the study because of CBDS on ERCP or IDUS. We performed 5F plastic stenting without ES in 28 patients with negative findings of cholangiogram and IDUS. The stents were removed after 4-8 weeks from cholecystectomy. We investigated the recurrence rate of cholangitis and procedure related complications.

**Results:** The mean age of the patients was 48.85 years, and 12 (42.8%) patients were male. Procedure related complications were not founded. After stenting, cholangitis was improved in all patients. The stents were removed naturally in 6 patients, whereas endoscopic removal was needed in 22 patients (mean time to remove: 78.43 days). There were no recurrent cholangitis or other complications during follow up period (mean: 208.15 days).

**Conclusions:** Only 5F plastic stenting without ES may be safe and effective for the management of cholangitis without definite CBDS on ERCP.

**Key Words:** Suspicious CBDS, IDUS, 5F plastic stent.

### Efficacy and safety of endoscopic treatment for elderly patients with choledocholithiasis.

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Yoshihide Kanno, Takahisa Ogawa, Kaori Masu, Yutaka Noda  
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**Objective:** To clarify the efficacy and safety of endoscopic treatment for elderly patients with choledocholithiasis.

**Patients and methods:** Two hundred fifty-five patients 85 years or older with choledocholithiasis who underwent endoscopic retrograde cholangiopancreatography (ERCP) during the period from 2000 to 2012 were included (group A). Technical success and complication rates of endoscopic treatment for choledocholithiasis in this group were evaluated compared with those of 288 patients 65 years or younger with this condition (group B).

**Results:** Stone diameter was significantly larger in group A than in group B ( $12.1\pm 7.9\text{ mm}$  v.s.  $7.3\pm 4.9\text{ mm}$ ,  $p<0.001$ ). The number of stones was not significantly different between the two groups ( $3.0\pm 3.9$  v.s.  $1.9\pm 3.3$  sessions). The rate of initial complete stone removal was significantly lower in group A than in group B (49.4% v.s. 78.1%,  $p<0.001$ ); however, the final rate of complete stone removal was not significantly different between the two groups (88.2% v.s. 98.6%). The rate of early complications related to ERCP was 12.9% in group A and 13.5% in group B (N.S.). As for details of the complications in group A, pancreatitis, bleeding and cholangitis were observed 7.1% (18), 4.7% (12) and 1.9% (3), respectively. All patients recovered by conservative treatment; moreover, no patients died in either group.

**Conclusions:** Although the rate of initial complete stone removal was significantly lower, endoscopic treatment for elderly patients with choledocholithiasis is effective and safe compared with such treatment in younger patients.

## Free Paper : Poster Session

### Is newly modified endoscopic large balloon dilatation without endoscopic sphincterotomy effective for difficult bile duct stone removal ?

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**Background:** Optimal approaches to stone removal with sphincteroplasty of endoscopic papillary large balloon dilatation (EPLBD) remain controversial, with no consensus reached regarding degree of endoscopic sphincterotomy (EST), balloon selection and dilatation technique. We devised sphincteroplasty which was not performed EST and modified the balloon selection and dilatation technique (a flexible endpoint of waist disappearance or reaching the desired pressure ) to reduce a burden for ampulla of Vater. Our modified sphincteroplasty would be proper procedure for complete stone removal.

**Methods:** From July 2011 to August 2013, we prospectively performed newly modified EPLBD on 41 patients with naïve papillae. We used a retrieval balloon catheter or mechanical lithotripter (ML) to remove stones and assessed rates of complete stone removal, number of sessions, use of ML, and adverse events. Then we compared the presence or absence of waist disappearance with clinical characteristics and endoscopic outcome.

**Results:** Complete stone removal was achieved in 97.5% of cases, and ML was used in 12.2% of cases. The mean number of sessions required was 1.4. Pancreatitis developed in two patients and perforation in one. The rate of waist disappearance was 73.1% (30/41). No significant differences were noted in procedure time, rate of complete stone removal, number of sessions, application of ML, or occurrence of pancreatitis between cases with and without waist disappearance.

**Conclusion:** Newly modified EPLBD is effective, in particular prior EST may be unnecessary. The presence or absence of waist disappearance is not associated with outcome (UMIN0000011533).

### Endoscopic treatment of bile duct stones using a single-balloon enteroscope in patients with surgically altered anatomy

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**Objective:**

To evaluate the usefulness of a single-balloon enteroscope (SBE) for treating bile duct stones in patients with surgically altered anatomy.

**Methods:**

Between April 2008 and December 2013, we performed therapeutic endoscopic retrograde cholangiopancreatography for bile duct stones in 35 patients (61 procedures) with surgically altered anatomy using a SBE. The surgical methods included gastrectomy (Group G) in 23 cases (Billroth-II reconstruction, 6; Roux-en-Y reconstruction, 17) and biliary reconstruction (Group B) in 12 cases (pancreaticoduodenectomy, 6; Roux-en-Y reconstruction, 6). A standard SBE, with a 200-cm working length, was used in 14 cases, and a short SBE prototype, with a 152-cm working length, was used in 21 cases.

**Results:**

The overall success rate of endoscopic management of bile duct stones was 74% (26/35). The endoscopic management success rates in Groups G and B were 83% (19/23) and 58% (7/12), respectively. The mean number of procedures needed to complete stone clearance was 1.4 (range, 1–3). In Group G, scope insertion, bile duct cannulation, and stone clearance failed in 2, 1, and 1 case(s), respectively. In Group B, scope insertion and stone clearance failed in 1 and 4 case(s), respectively. Delayed bleeding occurred in 1 patient in Group B, and the patient required endoscopic hemostasis. No other adverse events were observed.

**Conclusion:**

Endoscopic treatment of bile duct stones using an SBE is a feasible and less invasive method in patients with biliary reconstruction as well as gastrectomy. Endoscopic treatment before percutaneous transhepatic biliary drainage should be considered in patients with biliary reconstruction.

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## Free Paper : Poster Session

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### Evaluation for ERCP using a balloon assisted endoscopy in patients with altered gastrointestinal anatomy : Comparison of a short type double balloon endoscope and a newly developed short type single balloon endoscope

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**Background:** The advent of the short type double balloon endoscope (s-DBE) and the short type single balloon endoscope (s-SBE) radically made the endoscopic approaches feasible for pancreatobiliary diseases in patients with altered gastrointestinal anatomy, which had been considered unpractical. Recently many papers are published to report the efficacy of using these techniques, however, there are so far few studies regarding the comparison of s-DBE and s-SBE.

**Objective:** This present study aimed to evaluate the usefulness of a newly developed s-SBE for therapeutic ERCP in patients with gastrointestinal anatomy, and also to make a comparative assessment of the respective features and the distinctions of s-DBE and s-SBE.

**Patients and Methods:** From March 2013 to November 2013, ERCP using a s-SBE (s-SB-ERCP) was performed in 26 postoperative patients who had a reconstructed intestine in our hospital. We retrospectively evaluated the success rate of reaching the blind end, the mean time required to reach the blind end, the diagnostic success rate, the therapeutic success rate, the mean procedure time, and complications. Among 26 patients, the s-SB-ERCP was applied to those 18 patients who previously had undergone s-DB-ERCP and required the recurrent procedure. It allowed us the unique comparison of the s-DBE and the s-SBE in the same patients analyzing the data of the mean time required to reach the blind end and the mean procedure time.

**Results:** The success rate of reaching the blind end was 92.3% (24/26 patients). As for 2 patients in whom s-SBE failed to reach the blind end, the procedure was successfully accomplished after switching the scope to s-DBE. The mean time required to reach the blind end was 28.6 min. (range, 5–58 min). The diagnostic success rate was 91.7% (22/24 patients). Regarding 2 patients in whom cholangiography was failed using s-SBE, they were the cases with Roux-en-Y gastrectomy and with naïve papilla. Switching the scope to s-DBE, the procedure was successfully accomplished subsequently in both cases. Therapeutic success rate was 100% (24/24 patients). Complication occurred in 1 patient (3.8%; 1/26 patients). Regarding the 18 patients who had previously undergone s-DB-ERCP, s-SB-ERCP was successfully completed in 17 patients. The mean required time of s-SBE to reach the blind end was 24.7 min. (range, 7-50 min.), whereas that of s-DBE was 13.5 min. (range, 3-31 min.). The mean procedure time of s-SB-ERCP was 52.3 min. (range, 16-107min.), whereas that of s-DB-ERCP was 70.4min. (range, 21-168min.).

**Conclusions:** ERCP using a newly developed s-SBE for patients with gastrointestinal anatomy is safe and effective. In comparison with s-DBE, for the present, we conclude that a newly developed s-SBE is advantageous in the point of efficiency of performing ERCP-related interventions.

## Free Paper : Poster Session

### Bismuth classification in associated with requirement for multiple biliary drainage in preoperative patient with malignant perihilar biliary stricture.

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**Objective:** Single preoperative biliary drainage for malignant perihilar biliary stricture occasionally fails to control jaundice and cholangitis. Multiple biliary drainage is required in such cases, but their clinical background is unclear. We determined the clinical characteristics associated with the requirement for multiple biliary drainage.

**Methods:** The consecutive 122 patients with malignant perihilar biliary stricture were enrolled in a single-center retrospective study. Preoperative biliary drainage was initially performed on the future remnant hepatic lobe. Additional drainage was performed if jaundice failed to improve or cholangitis developed in undrained hepatic lobes. Detailed clinical characteristics and the number of preoperative biliary drainage procedures required before operation were analyzed.

**Results:** Thirty-one patients (25.4%) initially underwent multiple biliary drainage. However, 69 (56.7 %) required multiple biliary drainage by the time of the operation. In the univariate analysis, the initial serum bilirubin level, cholangitis, percutaneous portal vein embolization, history of inserted endoscopic biliary stenting, length of preoperative period, operative procedure and Bismuth classification were significant factors. In the multivariate analysis using these factors, Bismuth classification was independently associated with the requirement for multiple biliary drainage. The number of patients who required multiple biliary drainage was higher in those with Bismuth-II (91.9 %), Bismuth-IIIa (65.7 %) and Bismuth-IV (92.9 %) than in those with Bismuth-I (22.2 %) and Bismuth-IIIb (18.2 %).

**Conclusions:** Patients with Bismuth-II, Bismuth-IIIa and Bismuth-IV are at higher risk for multiple biliary drainage. A strategy based on the Bismuth classification for performing preoperative biliary drainage is important for patients with malignant perihilar biliary stricture.

### Evaluation of the axial forces and cell widths of self-expandable metallic stents to aid in their selection for unresectable malignant hilar biliary strictures

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**Background:** There has been a recent increase in the number of facilities using self-expandable metallic stents (SEMSs) as first-line palliative treatment for unresectable malignant hilar biliary strictures. Various SEMSs are commercially available, and it is important to understand the characteristics of each SEMS in order to select the appropriate model.

**Objective:** We evaluated SEMS treatment results in unresectable malignant hilar biliary strictures by comparing the differences between the axial forces (AFs) and cell widths (CWs).

**Methods:** Initial 10-mm SEMSs were inserted endoscopically or percutaneously in 105 patients with unresectable hilar biliary stricture. The following SEMSs with different AF and CW values were used: SMARTeR and LUMINEXX (Group A; n = 11); Diamond, ZA-STENT, and ZILVER (Group B; n = 32); and JOSTENT SelfX (Group C; n = 62). We then conducted a retrospective comparative investigation on the duration of stent patency and reintervention.

**Results:** The patency curve determined by the Kaplan-Meier method indicated a significantly shorter patency duration in Group A than in the other groups; the 50% patency duration in groups A, B, and C was 112, 351, and 363 days (p = 0.0420), respectively. SEMS occlusion occurred in 48 patients, and 5 patients (Group A, 3 and Group B, 2) were maintained on external drainage without a guidewire passing into the mesh of the SEMS in bilateral stenting.

**Conclusion:** SEMSs with low AF and large CW facilitated easy, safe, and effective stent-in-stent placement and reintervention.

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## Free Paper : Poster Session

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### A feasibility study of single-step simultaneous side-by-side placement using 6Fr self-expandable metallic stent

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**[Background]** In the management of unresectable malignant hilar biliary obstruction, multiple metallic stent placement was frequently mandatory, but still technically challenging. There were two types of multiple metallic stent placement; side-by-side and stent-in-stent procedure. Recently, metallic stent with 6Fr delivery system was developed and enable us to simultaneous side-by-side placement. In this study, we evaluated the feasibility of single-step simultaneous side-by-side placement for hilar malignant obstruction.

**[Materials and Methods]** From May to September 2013, all patients who underwent single-step simultaneous side-by-side placement using metallic stent with 6Fr delivery system for hilar malignant obstruction were retrospectively reviewed. Following endoscopic retrograde cholangiography and double guidewire insertion into the intrahepatic bile duct, double metallic stents were simultaneously deployed through the accessory channel of the duodenoscope (TJF260V, Olympus) over the preloaded guidewire.

**[Results]** Thirteen patients (4 men, median age 72 years, cholangiocarcinoma/gallbladder carcinoma: 11/2, Bismuth type II/III/IV: 5/6/2) underwent single-step simultaneous double metallic stent placement by side-by-side method. Technical success was achieved in 11 (84.6% 95%CI [57.8-95.8]) patients. Both two failed patients underwent double metallic stent placement by stent-in-stent method successfully. Median procedure time was 25 minutes. The 30-day mortality was 0%. Early and late complications were observed in 4 (1 stent occlusion, 1 segmental cholangitis and 2 liver abscess) and 6 (4 stent occlusion, 1 segmental cholangitis and 1 cholecystitis) patients. Median stent patency was 263 days (95%CI: 105-263). Five patients (38%) had experienced stent occlusion and successfully managed by endoscopic stent placement.

**[Conclusions]** A single-step simultaneous side-by-side placement of metallic stent with 6Fr delivery system was feasible for the management of malignant hilar biliary obstruction.

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### Evaluation of an electric cautery dilator using a porcine liver segment

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#### Objective

Electric cautery dilators (CDs) are being used increasingly in pancreatobiliary intervention. The objective of this study was to investigate the efficacy of a CD using a porcine liver segment.

#### Method

The CD (Cystgastroset, 6Fr, Endo-flex, Germany) was evaluated and compared with a conventional mechanical dilator (MD, 4-6Fr, Soehendra Biliary dilation catheter, Cook Medical, USA). The ESD-100 (Olympus Medical, Japan) was the electric generator and the pulse-cut mode with various output power capacities (40–120 W) was selected.

The porcine liver segment was punctured and the tract was dilated by the CD or MD. Vertical sections and cross-sections of the dilated tract were observed. Liver segments of 3- and 1-cm thicknesses were punctured and the tract was dilated. A tube was placed on the segment, and colored water was poured into the tube. Leakage of colored water below the segment was evaluated.

#### Results

In the cross-section, the tract was not visually recognized in 80% of the MD cases, whereas all the sections were visible in the CD cases. Median diameter of the CD-tract was 2.87(2.54–3.14) mm, and was negatively correlated with electric output. In the vertical section, the tract tissue had a coagulated appearance in low-output CD-case, although coagulation was intermittently observed in high-output cases. Water leakage was not observed in the MD-tract, but it was observed in 2/10 (20%) and 10/10 (100%) of the 3- and 1-cm CD-tract segments.

#### Conclusion

The effect of CD was greater than that of MD. Each device should be selected for different procedures.

## Free Paper : Poster Session

### Endoscopic transpapillary treatment of communicating pancreatic pseudocyst and the use of N-butyl-2-cyanocrylate for fistula-sealing after ductal drainage failure

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**Objective:** This study aimed at investigating the success rate of endoscopic transpapillary treatment of pancreatic pseudocyst with identifiable fistulas and the feasibility of applying N-butyl-2-cyanocrylate to treating patients with transpapillary ductal drainage failure.

**Methods:** Between May 2004 to March 2014, 15 patients (12 males) with mean age of  $45.6 \pm 6.9$  years (range, 38-56) presenting with symptomatic pancreatic pseudocysts with identifiable fistulas underwent endoscopic transpapillary pancreatic ductal drainage. Demography, symptoms, size of pseudocysts before transpapillary drainage and on follow-up, complications, and drainage duration were analyzed.

**Results:** Of the 15 patients, the mean follow-up was  $32.6 \pm 28.8$  months. Successful sphincterotomy and drainage of pancreatic duct was achieved in all patients, while progressive resolution of pseudocysts was noted in 12 patients (80%). Of the 12 patients, the mean size of pseudocysts before intervention was  $4.8 \pm 3.5$  cm that resolved on an average of  $5.2 \pm 8.8$  months (range, 1.0-32.7 months) after transpapillary drainage. The mean duration of tube drainage was 363.4 days (range, 0–1,320 days). Complications were noted in three patients, including pseudocyst infection after stent removal, persistent fever, and pancreatic pseudoaneurysm, all of which were successfully treated without sequelae. One of the three unsuccessful patients eventually underwent surgery when N-butyl-2-cyanocrylate was unavailable, while the remaining two patients were successfully treated with endoscopic transpapillary sealing of pancreatic fistulas using N-butyl-2-cyanocrylate followed by percutaneous pseudocyst aspiration.

**Conclusion:** Endoscopic transpapillary pancreatic ductal drainage is suitable for patients with communicating pancreatic pseudocysts, while endoscopic sealing of pancreatic fistulas with percutaneous aspiration is feasible after failure of transpapillary drainage.

### Diagnostic ability of EUS-FNA for pancreatic solid lesion with conventional needle using slow pull technique ; A prospective study

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**Objective:** To evaluate the diagnostic ability of SP-FNA with the 22-gauge conventional needle.

**Methods:** A prospective study was undertaken to the patients with pancreatic solid lesion from April 2013 to September 2013 (UMIN000011590). SP-FNA was performed at initial 2 passes with 22-gauge needle (Expect 22G, Boston Scientific) and obtained samples were processed for histological analysis. One dedicated pathologist evaluated the quantity, quality, and blood contamination of the samples into 3 grades (Gr2/1/0). Additional EUS-FNA with suction were performed without limitation to number of needle passes or kind/caliber of needles, and obtained samples were processed for cytology or histology. Measured outcomes were 1) degree of quantity, quality, and blood contamination of the sample obtained by SP-FNA, and 2) diagnostic accuracy of SP-FNA with comparison to those of EUS-FNA with suction.

**Results:** A total of 40 cases were enrolled in this study. Their pancreatic solid lesions (38 malignant and 2 benign) were located at pancreatic head in 13 and body/tail in 27, and their mean size were 38 mm. 1) The assessment of the samples obtained by SP-FNA was Gr2 to quantity in 29 (73%), to quality in 31 (78%), and to blood contamination in 25 (63%). 2) Diagnostic accuracy of SP-FNA was 90% (36/40). There was no difference in accuracy between SP-FNA and EUS-FNA with suction (90% vs 90%; P=1.00, McNemar's test).

**Conclusion:** Adequate, high quality, and unsubstantially blood contaminated samples could be obtained by SP-FNA. Diagnostic ability of SP-FNA appeared to be the same as those of EUS-FNA with suction.

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## Free Paper : Poster Session

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### Feasibility and yield of EUS-FNA using ProCore Needle for mediastinal or retroperitoneal lymphadenopathies

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#### (Background)

EUS-FNA has been a widely accepted technique for various organs, and also applied to mediastinal and retroperitoneal lesions. Recently, ProCore needle (Cook Japan), which allows core biopsy, has been developed and has been used. However, for mediastinum or retroperitoneum, there are only a few reports comparing the ProCore needle and others for these area. We report the yield of EUS-FNA using a ProCore Needle for mediastinal or retroperitoneal lymphadenopathies.

#### (Patient and Methods)

From July 2007 to March 2014, we conducted EUS-FNA total of 248 cases. For mediastinal or retroperitoneal lesions, we performed 52 of 248 cases using ProCore needle or other needle (Expect, Boston Scientific / NA-201SX-4022, Olympus). Of 52 mediastinal or retroperitoneal cases, the ProCore group (9/52) and other needle group (43/52) were divided and compared the feasibility, accuracy, and complications.

#### (Result)

Of 52 cases, ProCore were used to 9 cases (4 mediastinum/ 5 retroperitoneum) and the other needle were used to 43 cases (10 mediastinum/ 33 retroperitoneum). Mean age of both group were 64 years old vs 77 years old, respectively. In both group, EUS-FNA was successfully conducted for all patients. Histopathologically, the accuracy of diagnosis of EUS-FNA was 88.9% vs 83.7% without significant difference. All EUS-FNA were performed without any complication in both group.

#### (Conclusion)

In this case series, we conducted EUS-FNA using a ProCore needle without any difference compared to other needles. ProCore needle provides high accuracies, safeties, and less complication. Since this study has limitations of numbers, further studies are needed for various organs.

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### RAPID ON-SITE EVALUATION BY ENDOSONOGRAPHER DURING ENDOSCOPIC ULTRASOUND-GUIDED FINE NEEDLE ASPIRATION

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**Background and Aim:** Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) is an established diagnostic method for patients with suspected pancreatic ductal carcinoma. Rapid on-site evaluation (ROSE) has been reported to improve the accuracy of this method. An on-site cytopathologist is not routinely available in many institutions. This study aimed to examine whether the diagnostic accuracy of EUS-FNA increased with the use of ROSE by endosonographer and to examine whether diagnostic accuracy increase with the endosonographer's experience with ROSE.

**Methods:** 1: From the 160 EUS-FNA procedures performed by an endosonographer for final diagnosis between January 2009 and August 2013, 49 procedures performed with ROSE (August 2012-August 2013, group A), and 111 procedures performed without ROSE (January 2009-August 2012, group B) were included in this study. The specimens were examined with Diff-Quik stain. When the on-site endosonographer indicated that the amounts of cells were adequate, the procedure was finished.

2: The group A was divided into an anterior half (August 2012-January 2013, period 1) and a posterior half (January 2013-August 2013, period 2). We compared the diagnostic results obtained in period 1 and period 2.

**Results:** 1: The results revealed a sensitivity and accuracy of 90 and 92% in group A, and 77 and 80% in group B.

2: The results revealed a sensitivity and accuracy of 86 and 88% in period 1, 95% and 96% in period 2.

**Conclusions:** ROSE by endosonographer is invaluable for the diagnosis of EUS-FNA. The diagnostic accuracy was found to increase with the endosonographer's experience with ROSE.

## Free Paper : Poster Session

### Histopathological assessment of gastrointestinal submucosal tumors by EUS-FNA using a 19-gauge needle

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**Background:** Gastrointestinal submucosal tumors (SMT) include various diseases from benign to malignant. EUS-FNA is a safe and reliable technique to obtain pathological sample from SMT. However, it is still unclear whether such FNA specimen has sufficient amount and quality for detailed assessment including immunohistological staining, which is mandatory to make a diagnosis of gastrointestinal stromal tumor (GIST).

**Aims:** To evaluate the accuracy of diagnosis of gastrointestinal SMT by EUS-FNA using a 19-gauge needle. Especially in the diagnosis of GIST, the correlation with risk classification between FNA and surgical specimens was also examined.

**Patients and Methods:** Our EUS database between July 2004 and March 2014 was reviewed to identify the patients who had been attempted EUS-FNA using a 19-gauge needle for SMT. In the patients who underwent surgery for GIST, MIB-1 index and Fletcher risk classification were compared between the FNA and surgical specimens and the correlations was assessed by weighted kappa coefficient.

**Results:** A total of 93 patients (52 female; median age 66 [range, 24-86]) were identified. SMT was located at stomach in 76, esophagus in 11, duodenum in 3, and rectum in 3. The median size was 28mm (range, 11-135mm). The final diagnosis was GIST in 60, leiomyoma in 20, schwannoma in 4, ectopic pancreas in 3, metastatic cancer in 2, malignant lymphoma in 2, carcinoid in 1, and lipoma in 1. Adequate specimen for histological assessment was obtained in 87 patients (93.5%). The sensitivity, specificity, and accuracy in the diagnosis of SMT by EUS-FNA were 91%, 100%, and 94%, respectively. Finally, 51 patients underwent surgery and surgical diagnoses were GIST in 44, leiomyoma in 5, schwannoma in 1, and metastatic cancer in 1. Of the 42 patients with surgical diagnosis of GIST, weighted kappa coefficients between FNA and surgical specimens in modified Fletcher risk classification was 0.92. No procedure-related complication was observed.

**Conclusion:** EUS-FNA using a 19-gauge needle was a safe and reliable procedure to obtain the histopathological diagnosis. It is also useful to assess the risk classification of GIST preoperatively.

### Quantitative perfusion analysis with contrast-enhanced harmonic EUS in pancreatic tumors

Shunsuke Omoto, Masayuki Kitano, Kumpei kadosaka, Takeshi Miyata, Ken Kamata,

Kentaro Yamao, Hajime Imai, Hiroki Sakamoto, Masatoshi Kudo

( Department of Gastroenterology and Hepatology, Kinki University Faculty of Medicine, Osakasayama, Japan)

#### Background

The aim of this study was to evaluate whether the quantitative perfusion analysis using "Time intensity curve" with contrast-enhanced harmonic EUS (CH-EUS) characterizes pancreatic tumors.

#### Methods

Consecutive 75 patients with pancreatic tumor who underwent CH-EUS in our institute were analyzed. CH-EUS was performed with intravenous administration of an ultrasonographic contrast agent (Sonazoid®) and a convex echoendoscope (GF-UCT260, Olympus). The time intensity curve (TIC) for pancreatic tumors was generated to depict the changes in signal intensity over time within the region of interest (ROI) in the pancreatic tumors. Based on the analysis of TIC, five different contrast enhancement parameters ; base intensity (BI), peak intensity (PI), time to peak (TTP), intensity gain (IG: PI-BI) and reduction rate (RR) were assessed and compared between pancreatic carcinomas (PC), inflammatory pseudo-tumor (IPT), neuroendocrine tumor (NET), and other tumors (OT).

#### Results

41 PC, 14 IPT, 13 NET, and 7 OT were evaluated by TIC. PI and IG of IPT, NET and OT were significantly higher than those of PC (P<0.001). TTP of these three tumors was significantly shorter than that of PC (P<0.001). RR of NET and OT was significantly lower than that of PC (P<0.05).

#### Conclusions

Pancreatic mass lesions of PC exhibited markedly different patterns of TIC from IPT, NET and OT. This quantitative perfusion analysis may improve accuracy in the differential diagnosis between pancreatic tumors. Quantitative perfusion analysis with contrast-enhanced harmonic

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## Free Paper : Poster Session

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### EUS in pancreatic tumors

Shunsuke Omoto, Masayuki Kitano, Kumpei kadosaka, Takeshi Miyata, Ken Kamata,  
Kentaro Yamao, Hajime Imai, Hiroki Sakamoto, Masatoshi Kudo

(Department of Gastroenterology and Hepatology, Kinki University Faculty of Medicine, Osakasayama, Japan)

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#### Results

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#### Conclusions

Pancreatic mass lesions of PC exhibited markedly different patterns of TIC from IPT, NET and OT. This quantitative perfusion analysis may improve accuracy in the differential diagnosis between pancreatic tumors.

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### Usefulness of contrast-enhanced EUS for IPMN patients with mural nodules.

Mitsuru Fujita, Takao Itoi, Atsushi Sofuni, Fumihide Itokawa, Kentaro Ishii, Takayoshi Tsuchiya, Shujiro Tsuji, Kentaro Kmada,  
Reina Tanaka, Junko Umeda, Ryosuke Tonozuka, Mitsuyoshi Honjo, Shuntaro Mukai, Fuminori Moriyasu  
(Department of Gastroenterology and Hepatology, Tokyo Medical University)

**[Background and objective]** Endoscopic ultrasonography (EUS) is a modality that has a high resolution. In recent years, EUS has made it possible to use new diagnostic imaging techniques, such as contrast-enhanced EUS (CE-EUS). Furthermore, CE-EUS has been reported to be useful in IPMN with mural nodules.

**[Methods]** The usefulness of CE-EUS relative to other imaging methods for detecting mural nodules of IPMN was assessed. In addition, nodule height of surgery patients was compared.

**[Result]** 17 IPMN patients who underwent CE-EUS were enrolled. The male/female ratio was 11:7, mean age was 63.6 years, and mean cyst diameter was 20.5 mm. The modality by which mural nodules were detected was EUS for 5 patients, US for 5, CT for 4 and MRI for 3. Of the 17 patients, nodules were actually found by EUS B-mode in 12, slightly high echo in 3, and low echo in 9. Enhanced image of the mural nodule was seen in 5 of 12 patients by CE-EUS. And the remaining 7, diagnosis is a mucus lump or debris, in these cases surgery were avoided. Surgery was performed in 3 patients. The post-surgery pathological diagnosis was IPMC for 1 and IPMA for 2. Nodular diameter of one IPMC patient by EUS/pathology specimen was 16/13 mm, and for the 2 IPMA patients 11.2/8 mm and 12/12 mm.

**[Conclusion]** By performing CE-EUS, mucus lump, debris, and mural nodule could be differentiated allowing accurate diagnosis of nodular lesions. This procedure is useful in deciding the treatment strategy for IPMN with suspected mural nodules.

## Free Paper : Poster Session

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### The prognostic significance of phosphorylated HSP27 expression in pancreatic cancer.

Mitsuru Okuno <sup>a</sup>, Ichiro Yasuda <sup>b</sup>, Seiji Adachi <sup>c</sup>, Masanori Nakashima <sup>a</sup>,  
Junji Kawaguchi <sup>a</sup>, Shinpei Doi <sup>b</sup>, Takuji Iwashita <sup>a</sup>, Hisataka Moriwaki <sup>a</sup>

( a Department of Gastroenterology, Gifu University School of Medicine

b Department of Gastroenterology, Teikyo University Mizonokuchi Hospital

c Department of Gastroenterology, Gihoku Kousei Hospital)

**Background:** Heat shock proteins (HSPs) are characterized as molecular chaperones which have the property to modify the structures and function of other proteins. HSP27 is expressed in various cancers, including pancreatic cancer, and is related with response to chemotherapy and prognosis. Gemcitabine induces phosphorylation of HSP27. However the role of phosphorylated HSP27 (p-HSP27) in pancreatic cancer is still controversial.

**Objective:** To test if p-HSP27 expression in pancreatic cancer tissue determines the outcome of the patients under Gemcitabine treatment.

**Methods:** We retrospectively assessed 49 biopsied specimens of pancreatic cancer which was obtained by EUS-FNA in advance of Gemcitabine treatment between September 2004 and October 2011.

**Results:** p-HSP27 expression was not related with response to chemotherapy or histological type. However, the median survival time was longer in high p-HSP27 expression group (308 days, n=15) than in low expression group (202 days, n=34) (P=0.0195). Multivariate analysis using COX proportional hazards model identified the histological type, the low p-HSP27 expression, and the progressive disease after chemotherapy as the predictive factors for worse prognosis.

**Conclusion:** p-HSP27 expression in biopsied specimens did not predict the effect of Gemcitabine against pancreatic cancer. However, the higher expression of p-HSP27 correlated with better survival of the patients.

## Free Paper : Poster Session

### Electroacupuncture analgesia for endoscopic ultrasound (EUS): a prospective, randomized, double-blinded, sham-controlled study

Anthony YB Teoh, Sally WY Luk, Wing W Leung, Charing CN Chong,  
Raymond SY Tang, Philip WY Chiu, Ender KW Ng, Francis KL Chan, James YW Lau.

(Institute of Digestive Disease and the Department of Surgery, Chinese University of Hong Kong, Prince of Wales Hospital, Hong Kong.)

#### Objectives

Electroacupuncture (EA) has been used as part of Traditional Chinese Medicine (TCM) for centuries. The aim of this study is to investigate the efficacy of EA in reducing procedure-related pain and the consumption of analgesics during EUS.

#### Methods

This was a prospective randomized, double-blinded, sham-controlled study conducted between Nov 2013 to Feb 2014. Consecutive patients who were aged between 18 and 80 years, undergoing EUS for the first-time were recruited. They were randomized to receive EA or sham EA. EA was applied to acupoints relevant to the treatment of upper abdominal pain and anxiety. Electric stimulation was employed to the needles. The primary outcome of the study was the dose of patient-controlled analgesia consumed (propofol and alfentanil). The secondary outcomes of the study included overall pain score, patients' satisfaction, the willingness to repeat the procedure, endoscopists' satisfaction score, total procedure time, episodes of hypotension, and episodes of desaturation. A scheduled interim analysis was performed when half of the study recruitment was achieved.

#### Results

During the study period, 64 patients were recruited to the study. There were no significant differences between the two groups in background demographics. Patients in the EA group had significantly lower total dosage of propofol requirement ( $P < 0.001$ ), number of PCA demands ( $P < 0.001$ ), overall pain score ( $P < 0.001$ ) and patient satisfaction score ( $P = 0.002$ ). Furthermore, patients in the EA group were also more willing to repeat the procedure ( $P = 0.05$ ). On the other hand, the endoscopists' satisfaction score of the procedure were not different ( $P = 0.110$ ).

#### Conclusions

The study was terminated early as the results convincingly showed that the use of electroacupuncture significantly reduced discomfort during EUS, analgesic requirements and improved patient satisfaction.

Table 1. Main Outcome Measures

	Acupuncture Group N = 32	Sham Group N = 32	P Value
Number of successful PCSA demands (median and range)	2 (1-17)	10 (1-18)	0.001 <sup>c</sup>
Total dose of Propofol consumed (mg/kg, mean SD)	0.22 0.17	0.71 0.41	<0.001 <sup>a</sup>
Patients' pain score (mean SD)	2.1 2.1	6.2 2.5	<0.001 <sup>a</sup>
Patients' satisfaction score (mean SD)	8.7 1.2	7.1 1.9	0.002 <sup>a</sup>
Patients' willingness to repeat the procedure (yes/no)	15/17	8/24	0.05 <sup>b</sup>
Endoscopists' satisfaction score (mean SD)	8.3 1.7	7.3 2.6	0.110 <sup>a</sup>

SD = standard deviation; PCSA = patient-controlled sedation/analgesia.

a Student's t test.

b Chi-squared test.

c Mann-Whitney U test.

## Free Paper : Poster Session

### Injectable high viscous phenol-glycerol with sufficient pain relief: a novel injection material during Endoscopic Ultrasound-Celiac Plexus Neurolysis

Hirotoishi Ishiwatari, Tsuyoshi Hayahi, Michihiro Ono.

(Sapporo Medical University, Department of Medical Oncology and Hematology)

**[Objective]** Inappropriate neurolytic distribution to the celiac plexus is related to insufficient pain relief of endoscopic ultrasound-celiac plexus neurolysis (EUS-CPN). To solve this problem, we planned the use of high viscous neurolytic agent (phenol-glycerol). The aim of this study was to evaluate the safety, the efficacy, and the distribution of neurolytic agent in EUS-CPN using phenol-glycerol.

**[Methods]** Patients with epigastric pain caused by upper abdominal neoplasms and graded 4 or higher on the Numeric Rating Scale (NRS) were eligible for inclusion. This study was conducted in two phases. Central EUS-CPN was performed and the concentration of phenol was fixed at 7 % in both phases. In phase I, for determination of recommended concentration of glycerol, a concentration-escalation study of glycerol (0%, 30%, and 60%) was conducted to assess the safety. Additionally, the distribution of neurolytic agent was evaluated. In phase II, the pain relief was evaluated in patients treated by phenol with recommended concentration of glycerol.

**[Results]** In phase I, 9 patients (3 patients at each concentration) were enrolled and no concentration limiting toxicity was observed. Appropriate distribution was observed only in 60% of glycerol group, thus 60% was determined as recommended concentration. In phase II, a total of 9 patients included 3 patients in phase I was evaluated. The rate of positive response (NRS decreased to 3) at day 7 was 89 % (8/9). The median duration of pain relief was 19.1 weeks.

**[Conclusion]** EUS-CPN using high viscous phenol-glycerol is safety and effective for cancer pain with appropriate distribution to the celiac plexus.

### Plastic stent versus biflanged metal stent placement under EUS guidance for the treatment of walled-off necrosis: a single center retrospective analysis

Shuntaro Mukai, MD, Takao Itoi, MD, Atsushi Sofuni, MD, Fumihide Itokawa, MD, Takayoshi Tsuchiya, MD, Kentaro Ishii, MD, Shujiro Tsuji, MD, Nobuhito Ikeuchi, MD, Reina Tanaka, MD, Junko Umeda, MD, Ryosuke Tonozuka, MD, Mitsuyoshi Honjo, MD, Mitsuru Fujita, MD, Takuji Gotoda, MD, Fuminori Moriaysu, MD

( Department of Gastroenterology and Hepatology, Kinki University Faculty of Medicine, Osakasayama, Japan)

**Objective:** Recently, a novel fully covered and biflanged metal stent (BFMS) dedicated to the drainage of walled-off necrosis (WON) has been developed. The aim of this study is to retrospectively evaluate the safety, efficacy and cost performance of drainage of WON using a novel BFMS compared with a traditional plastic stent.

**Methods:** Seventy patients with symptomatic WON were treated under EUS guidance. Initial drainage using the single gateway technique with placement of one or more plastic stents (PS) or a BFMS. When ineffective, direct endoscopic necrosectomy (DEN) was performed.

**Results:** There were no statistically significant differences in technical, clinical and adverse event rates between PS and BFMS though the size of WON in BFMS group was significantly larger than that in PS group (77.1 mm vs 105.6 mm,  $p = 0.003$ ). The mean procedure time of 1st EUS-guided drainage and mean procedure time of re-intervention was significantly shorter in the BFMS group than the PS group ( $28.8 \pm 7.1$  vs.  $42.6 \pm 14.2$ , respectively;  $p < 0.001$  and  $34.9 \pm 8.5$  vs.  $41.8 \pm 7.6$ , respectively;  $p < 0.001$ ). There was no statistically significant difference in total cost between PS and BFMS in treatment of WON (\$5352 vs. \$6274,  $p = 0.25$ ).

**Conclusions:** PS and BFMS are equally safe and effective for the treatment of WON. In particular, BFMS placement seems to be preferable at initial EUS-guided drainage and additional reintervention like DEN to reduce the procedure time. Prospective randomized controlled trial is warranted.

## Free Paper : Poster Session

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### Utility of EUS-guided gallbladder drainage for rescue treatment of malignant biliary obstruction.

Hajime Imai, Masayuki Kitano, Masatoshi Kudo

(Department of Gastroenterology and Hepatology Kinki University Faculty of Medicine)

**BACKGROUND:** Endoscopic transpapillary biliary drainage (EBD), a gold standard for treatment of malignant obstructive jaundice, is sometimes difficult due to duodenal stenosis et al. Recently, EUS-guided gallbladder drainage (EUS-GBD) was applied to decompression of acute cholecystitis.

**AIM:** To assess EUS-GBD for treatment of obstructive jaundice and acute cholecystitis caused by malignant biliary stricture.

**PATIENTS AND METHODS:** Between Jan 2006 and Dec 2012, in a total of 16 patients, gallbladder drainage was performed under the guidance of EUS and fluoroscopy, via needle puncture, guidewire insertion, puncture tract dilation and stent placement. The technical and functional success rate, the complication rate, re-intervention rate, patient survival and stent patency in patients with EUS-GBD were evaluated and compared with those with EUS-guided biliary drainage (EUS-BD) methods (n=102).

**RESULTS:** The technical (94%vs 92%), function success (93%vs91%), complication (13% vs 22%) and re-intervention rates (7% vs 9%) of EUS-GBD and EUS-BD did not differ significantly. Two complications (cholecystitis and bile leak) occurred after EUS-GBD, which improved with re-intervention and conservative treatment, respectively. The overall patients survival (median: 75 vs 93 days, P=0.23), stent patency (median: 386 vs273 days, P=0.21) and patient survival without stent dysfunction (median: 75 vs 69 days, P=0.20) for EUS-GBD were not significantly different from those for EUS-BD.

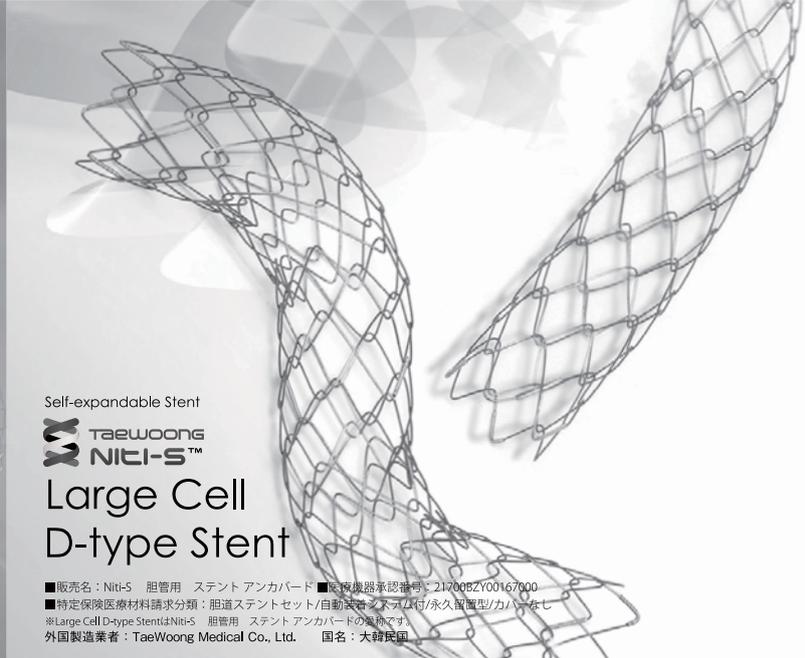
**CONCLUSION:** EUS-GBD is a possible alternative route for decompression of the biliary system when EBD and EUS-BD are unsuccessful.





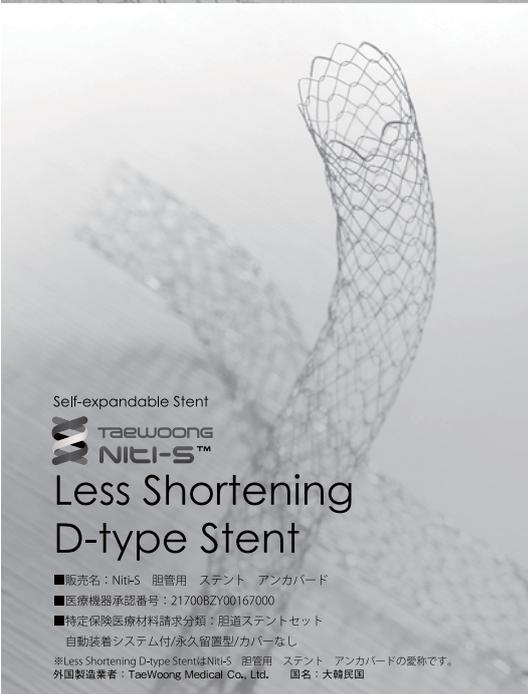
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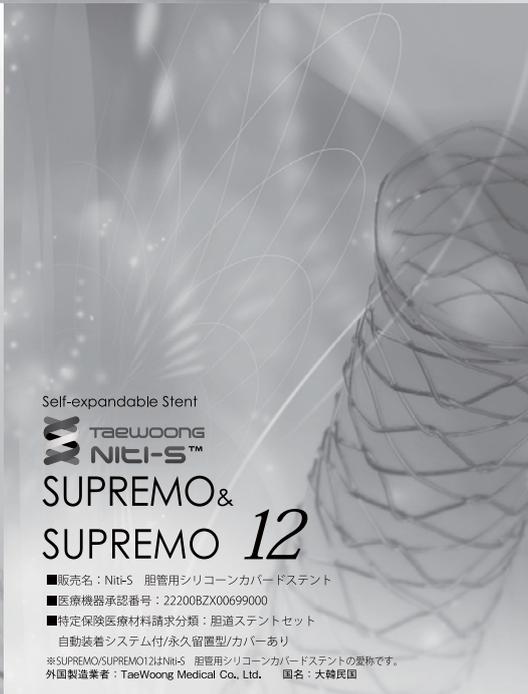
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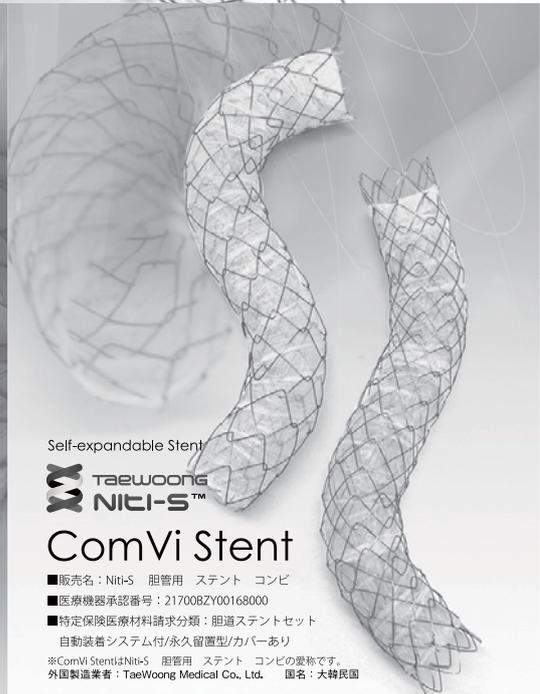
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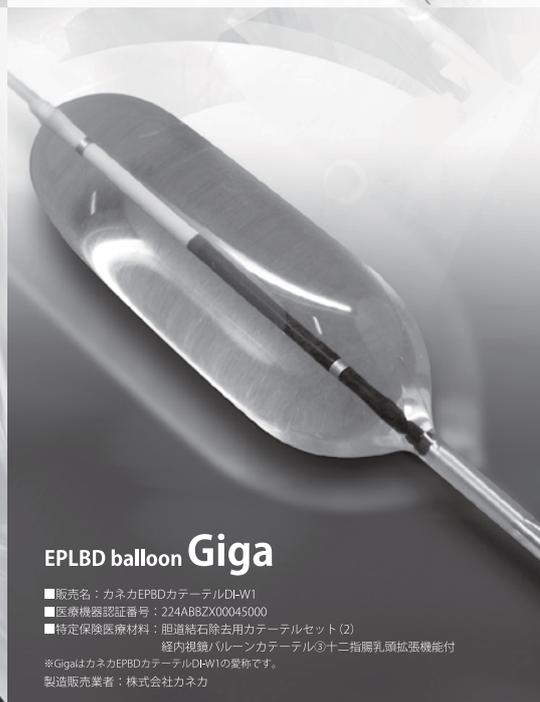
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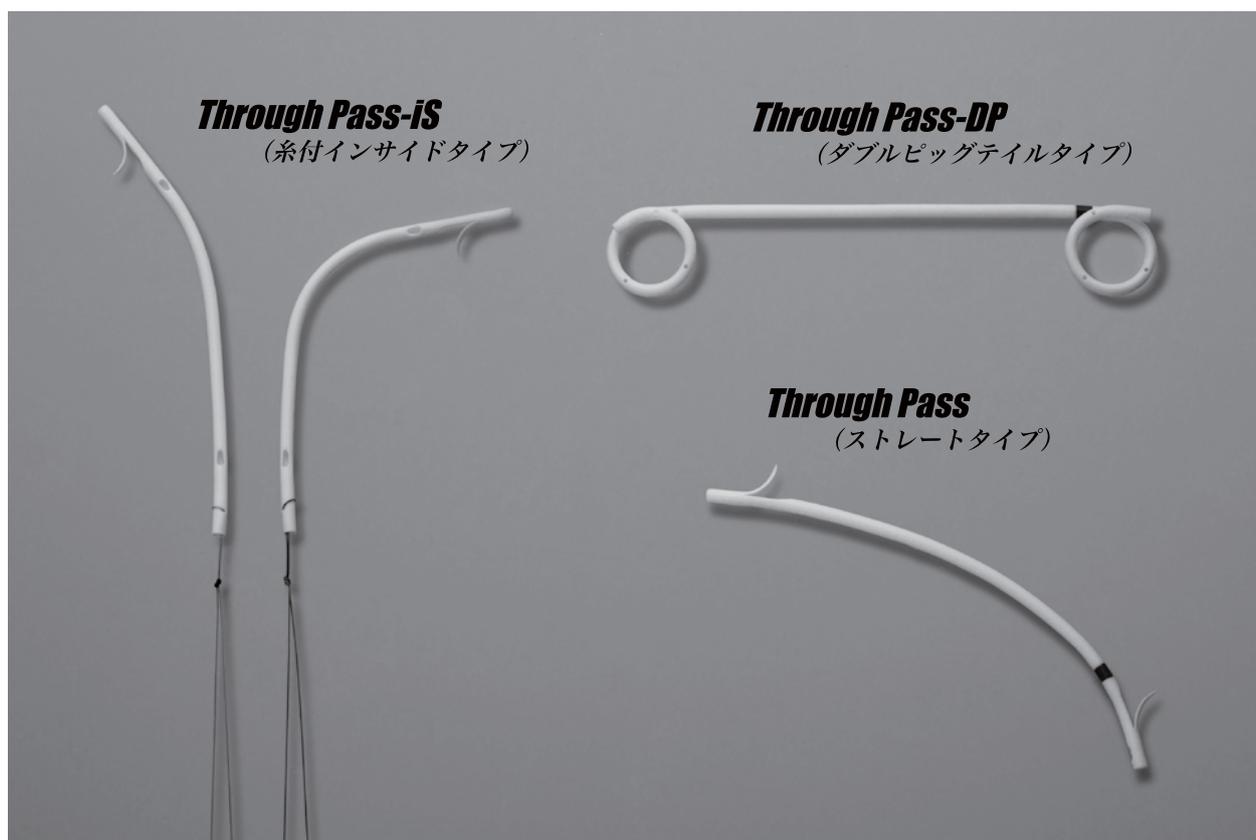
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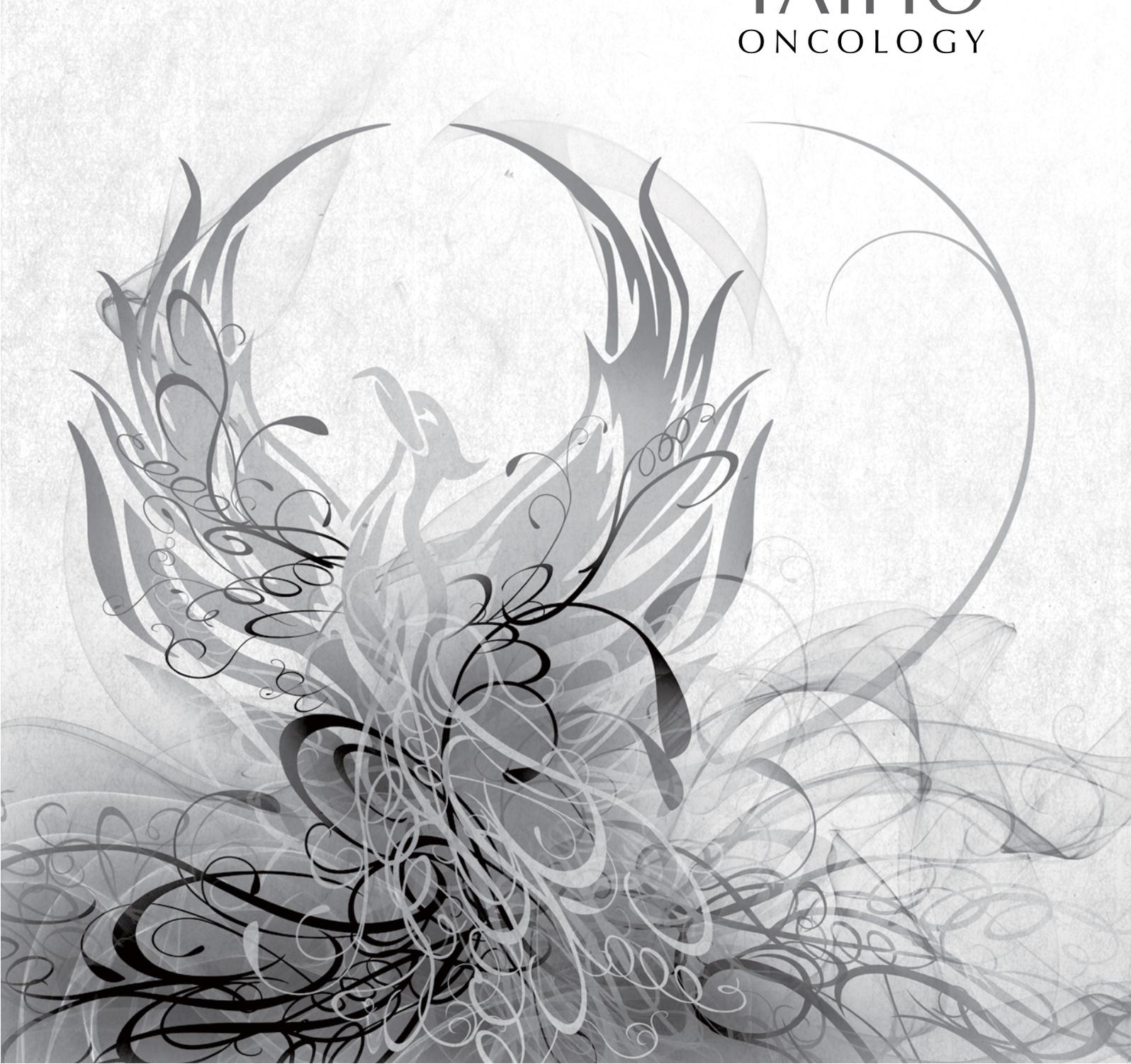
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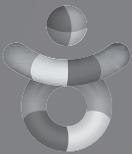
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