

**APDW 2009 - Update on Endoscopic Research presented at the 2009 Asia Pacific Digestive Disease Week, Taipei**  
**Edited by Mitsuhiro Fujishiro, MD, The University of Tokyo, Graduate School of Medicine, Tokyo, Japan**

Introduction

The following report is an overview of the endoscopic research presented at Asian Pacific Digestive Disease Week 2009 which was centered on the theme “New Frontier in Digestive Medicine”, as reported by young Japanese endoscopists. This year, 190 invited lectures, 8 young-investigator-award presentations, 35 oral presentations for selected abstracts, and one-day transmission of live demonstration were made in the main halls of Taipei International Convention Center during the four scheduled days. Almost all of the accepted abstracts from endoscopists in the Asian Pacific region were presented as a poster presentation. This review covers outstanding abstracts from oral and poster presentations concerning endoscopic research, those are categorized into 8 topics (upper GI diagnosis, upper GI treatment, small intestine, lower GI diagnosis, lower GI treatment, pancreato-biliary diagnosis, pancreato-biliary treatment, new technologies). Readers will be informed of current innovative scientific works from Asian-Pacific endoscopists by this review.

Upper GI diagnosis

Reporter: Noriya Uedo, MD

Affiliation: Osaka Medical Center for Cancer and Cardiovascular Diseases, Osaka, Japan

Upper GI treatment

Reporter: Mitsuhiro Fujishiro, MD

Affiliation: The University of Tokyo, Graduate School of Medicine, Tokyo, Japan

Small intestine,

Reporter: Kinichi Hotta, MD

Affiliation: Department of Gastroenterology, Saku Central Hospital, Nagano, Japan

Lower GI diagnosis

Reporter: Takahisa Matsuda, MD, PhD

Affiliation: Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan

Lower GI treatment

Reporter: Hisatomo Ikehara, MD

Affiliation: Shizuoka Cancer Center Hospital, Division of Endoscopy, Shizuoka, Japan

Pancreato-biliary diagnosis

Reporter: Kazuo Hara, MD

Affiliation: Aichi Cancer Center, Nagoya, Japan

Pancreato-biliary treatment

Reporter : Takayoshi Tsuchiya, MD

Affiliation : Department of Gastroenterology and Hepatology, Tokyo Medical University,  
Tokyo, Japan

NOTES & new technologies

Reporter: Kazuhiro Yasuda, MD

Affiliation: Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan

## **Upper GI diagnosis**

**Reporter: Noriya Uedo, MD**

**Affiliation: Osaka Medical Center for Cancer and Cardiovascular Diseases, Osaka, Japan**

### *Characteristics of synchronous early gastric neoplasm which had not been realized during first endoscopic resection*

SJ Kim, IK Chung, TH Lee, CK Lee, HS Kim, SH Park, and DC Hyun  
Soonchunhyang University, Cheonan Hospital, Cheonan, Korea

Detection and treatment of synchronous multiple neoplasms after endoscopic treatment of gastric cancer are important by means of achieving excellent long term outcomes. Kim et al. investigated characteristics of synchronous multiple neoplasia by a retrospective analysis of 195 patients who underwent EMR or ESD for early gastric cancers between Sep 2006 and Sep 2008. Synchronous multiple lesions were present in 21 of 195 patients (10.7%) and 23 lesions were detected after mean follow-up period of 4.6 month. Newly detected lesions were smaller ( $p=0.054$ ) and were likely to be flat ( $p<0.01$ ). Authors alerted that special attention should be paid to find any possible synchronous lesion at index endoscopy.

### *Narrow-band imaging in detection of esophageal disorder using transnasal-EGD*

T Kawai, K Yamamoto, M Fukuzawa, K Yanagisawa, T Yamagishi, K Yagi, T Ohshima, M Fukuzawa, M Kataoka, K Kawakami, Y Sakai, F Moriyasu, Y Takagi, and T Aoki.  
Endoscopy Center, Forth Department of Internal Medicine, Third Department of Surgery, Tokyo Medical University Hospital, Tokyo, Japan

In this study, authors evaluated the diagnostic ability of NBI for detection of “esophageal disorder” defined as distinct iodine-unstained lesion by transnasal thin endoscopy (EVIS XP-260N, Olympus) in 104 patients receiving screening endoscopy. Study design was a non-randomized comparative study. A total of 50 esophageal disorders (2 squamous cell carcinoma and 4 dysplasia and 44 esophagitis) were detected and sensitivity and specificity of white light image were 24.0% and 100%, while those of NBI were 58.0% and 96.2%, respectively. NBI diagnosed two squamous cell carcinomas whereas only one of them was diagnosed by white light.

### *Clinical significance of extrinsic compression resembling submucosal tumor in the stomach*

DY Ryu, BE Lee, JN Lee, SH Park, HS You, DU Kim, J Heo, GH Kim, and GA Song  
Department of Internal Medicine, Pusan National University School of Medicine and Medical Research Institute, Pusan, Korea

Ryu, et al. reported a case series of 91 patients with extrinsic compression that were diagnosed as submucosal tumor by standard videoendoscopy. EUS revealed that 64 of

them had normal abdominal structure and reminder of them had pathological condition such as hepatic cyst, distended gall bladder with sludge, splenic cyst, hepatic hemangioma, polycystic renal and hepatic cysts, pancreatic cysts, renal cysts, calcified lymph node and hepatocellular carcinoma. They confirmed usefulness of EUS on diagnosis of extrinsic compression mimicking submucosal tumor of the stomach.

*Precholecystectomy esophagogastroduodenoscopy in patients presenting with non-specific abdominal symptoms at metropolitan medical center: a 1 year retrospective review*

O Mallillin, PEE Samonte, WR Acuesta, RS Purwanta, R De Guzman Jr, and E Ong  
Section of Gastroenterology, Department of Internal Medicine, Metropolitan Medical Center, Philippine

Mallillin, et al. conducted retrospective descriptive study to disclose a role of esophagogastroduodenoscopy (EGD) in patients with cholelithiasis who presented with non-specific abdominal symptom. They identify 48 patients who received EGD before surgery among 312 patients undergone cholecystectomy between January and December 2007, and analyzed their clinical manifestation and endoscopic findings. A total of 13 of 48 patients had abdominal symptom and 9 of them (69.2%) showed abnormal endoscopic finding such as gastritis or esophagitis and were treated adequately. Authors suggested that importance of EGD before cholecystectomy to find concomitant upper gastrointestinal diseases.

*Gauze pledgetting versus endoscopic-guided aerosolized spray for nasal anesthesia before transnasal esophagogastroduodenoscopy: a randomized, prospective, controlled study*

CT Hu

Division of Gastroenterology, Department of Internal Medicine, Buddhist Tzu Chi General Hospital and Graduate Institute of Clinical Medicine, School of Medicine, Tzu Chi University, Hualien, Taiwan

In this prospective randomized controlled study of 240 patients presented with epigastric discomfort, authors investigated whether cotton-tipped applicator primed with gauze pledgetting (CTNA-GP) or endoscopy-guided aerosolized spray (EGNA-AS) was better method of topical anesthesia for ultrathin transnasal endoscopy. They found that the patients prepared by CTNA-GP indicated significantly less pain during insertion through inferior ( $p=0.006$ ), middle ( $p=0.002$ ) nasal meatus and upper esophageal sphincter ( $p=0.005$ ) and elicited less unpleasant taste, gagging episode and throat pain after examination. Examination success rate and safety profiles were similar in both groups. They concluded that CTNA-GP was better than EGNA-AS for preparation of ultrathin transnasal endoscopy in Taiwanese patients.

*Can using trans nasal endoscopic biopsy forceps alter the results of rapid urease test and histological diagnosis?*

JK Kim

Division of Gastroenterology, Department of Diagnostic Radiology, Ajou University School of Medicine, Suwon, Korea

Transnasal esophagogastroduodenoscopy (TN-EGD) offers higher degree of patient tolerance but only small size of biopsy specimen can be obtained because of the use of thin biopsy forceps. Kim studied whether biopsy using 1.8 mm forceps affects a result of rapid urease (CLO) test and histological diagnosis. In 100 patients who presented for esophagogastroduodenoscopy, results of CLO test by 1.8 mm and 2.2 mm forceps from the same area of gastric mucosa were compared. Positive rate of CLO test by 1.8 mm forceps was 35% whereas that by 2.2 mm was 53% (Concordance rate of 83% and  $\kappa$  value of 0.64). In another 100 patients, CLO test results of (1) one sample and (2) two samples by 1.8 mm and (3) one sample by 2.2 mm forceps were 28%, 42% and 47%, respectively (Concordance rate of 92% and  $\kappa$  value of 0.83). There was excellent concordance for histological finding among the each biopsy method. Authors concluded that endoscopists should be cautioned against taking biopsy sample for CLO test with TN-EGD.

*An adequate level of training for technical competence in screening and diagnostic unsedated transnasal endoscopy: a prospective assessment of the learning curve.*

JK Kim, KM Lee, SJ Sin, JC Hwang, SG Lim, JY Cheong and JH Kim

Division of Gastroenterology, Department of Diagnostic Radiology, Ajou University School of Medicine, Suwon, Korea

To clarify technical competence of unsedated transnasal esophagogastroduodenoscopy (UT-EGD), Kim, et al. prospectively evaluated changes of technical success rate, procedure time, complication rate, frequency of belching and vital signs in four trainees who were competent to conventional endoscopy but were beginner of UT-EGD among each 10 UT-EGD examination from their embankment and the results were compared with those of competent endoscopists as reference controls. From the first 10 patients to the 5th 10 patients [reference control], mean success rates were 85%, 90%, 92.5%, 90% and 100% [98%]; mean intubation time to esophagus were 55.1, 42.0, 38.3, 31.1 and 29.8 [31.5] seconds; mean intubation time for duodenal second portion were 130, 121, 110.5, 102.5 and 98.5 [100.9] seconds; and mean frequency of belching were 2.45, 2.24, 1.89, 1.68 and 1.05 [1.39]. There were no significant difference of complication rate between beginner and competent endoscopists. Authors suggested that endoscopists who are competent to conventional endoscopy could obtain acceptable results from the beginning of UT-EGD, although 30 cases experience provide similar excellent results to expertized endoscopists.

*Novel intervention of nasal patency in transnasal endoscopy*

T Nagata, R Miyahara, M Nakamura, H Kawashima, A Itoh, N Ohmiya, Y Hirooka, O Watanabe, T Ando and H Goto  
Department of Gastroenterology, Nagoya University Graduate School of Medicine,  
Department of Endoscopy, Nagoya University, Aichi, Japan

Recently, transnasal esophagogastroduodenoscopy (TN-EGD) has been popular but sometimes patients complain nasal pain, nausea or choking during examination. In this case series study, authors investigate whether rhinomanometric study could predict patients' discomfort during TN-EGD. The authors found that the nasal resistance that was calculated from nasal ventilation measurement had significant correlation with nasal pain but not with nausea and choking. They suggested possible usefulness of rhinomanometric study for prediction of nasal pain during TN-EGD.

*Peppermint oil solution is an effective antispasmodics on gastroscopy.*

S Park, HJ Chun, HS Choi, HJ Cho, KG Lee, J Kim, JJ Hyun, ES Kim, SC Park, B Keum, YS Seo, YT Jeon, SH Um, CD Kim and HS Ryu  
Institute of Digestive Disease and Nutrition, Department of Internal Medicine, Korea University College of Medicine, Seoul, Korea

Anticholinergic agents are commonly used for reducing peristalsis during diagnostic and therapeutic endoscopy but it could cause adverse events such as tachycardia, urinary retention or blurred vision. Park, et al., therefore, conducted a randomized study to compare antispasmodic effect between patients who received endoscopic spray of 1.6% peppermint oil 20 ml (PO group, n=40) and those who were administered hyoscine butylbromide 15 mg i.v. (HB group, n=37). The decline of a number of peristalsis ( $3.70 \pm 3.27$  vs.  $4.63 \pm 2.60$ ,  $p=0.202$ ) and the difference of intensity score of peristalsis ( $1.80 \pm 1.32$  vs.  $2.20 \pm 0.81$ ,  $p=0.148$ ) were similar among the each group. The increase of pulse rate was significantly more in the HB group compare to PO group. Authors suggested that PO could provide similar antispasmodic effect to that of HB without any side effect.

*Endoscopic findings and risk factors for peptic ulcer in the symptomatic patients who received antiplatelet therapy*

TJ Tsai, PI Hsu and KH Lai

Division of Gastroenterology, Department of Internal Medicine, Kaohsiung Veterans General Hospital and National Yang-Ming University, Kaohsiung, Taiwan

Endoscopic finding of aspirin users are well studied, but the gastroduodenal injury by clopidogrel remains unclear. This study was conducted to elucidate the prevalence and risk factors of gastroduodenal injury in consecutive symptomatic patients who are taking clopidogrel (n=57) or aspirin (n=109). Authors reported that prevalence of erosions and peptic ulcer were 46% and 19% in patients taking clopidogrel and 55% and 23% in patients taking aspirin. Multivariate analysis indicated that history of gastrointestinal

bleeding (Odds ratio of 3.8 with 95% interval of 1.3 to 11.2) and *H. pylori* infection (Odds ratio of 2.9 with 95% interval of 1.1 to 7.6).

*Is it necessary of swallowing maneuver during endoscopic esophageal inlet insertion?*

CR Hsieh, CC Chang, HM Lou, C Tiong, SH Chen, and S PAN

Division of Gastroenterology, Department of Internal Medicine, Taipei Medical University Hospital, Taipei, Taiwan

Most endoscopists customarily ask examinee to swallow an endoscope during insertion to esophageal inlet. Hsieh et al. evaluated the meanings of this maneuver by a randomized controlled trial in 202 consecutive patients receiving screening endoscopy. They demonstrated that the swallowing maneuver resulted more discomfort ( $p < 0.01$ ), requirement of more insertion action ( $p < 0.001$ ), longer time for passing from upper incisor to esophageal inlet ( $p < 0.001$ ) and severer gagging reflex ( $p < 0.005$ ).

*Feature of the portal hypertensive gastric mucosa on narrow band imaging with magnifying endoscopy*

FP Zheng, XP Ye and LI Tao

Department of Gastroenterology, The Third Affiliated Hospital, Sun Yat-Sen University, Guangzhou, China

In this prospective study, authors studied whether high-resolution magnifying endoscopy with narrow band imaging (NBI-ME) can characterize endoscopic features of gastric mucosa with portal hypertension (PHT) and correlation between endoscopic finding and clinical parameters. Patients with PHT ( $n=64$ ) and those with chronic superficial gastritis ( $n=47$ ) were enrolled in this study. They found that 1) characteristic findings of PHT in NBI-ME were erythema, red spot, mosaic-like pattern and gastric antral vascular ectasia; some endoscopic finding that were classified according to gastric pits and microvascular architecture, and appearance of collecting venules were related to presence and severity of PHT and 3) the gastric mucosa type has an association with a grade of esophageal varices and size of the spleen.

*A study on the microstructure of chronic gastritis under narrow band-imaging and their chlinicopathological significance*

FP Zheng, YH Lu, LI Tao and XY Lin

Department of Gastroenterology, The Third Affiliated Hospital, Sun Yat-Sen University, Guangzhou, China

This study was conducted to investigate diagnostic performance of high-resolution magnifying endoscopy with narrow band imaging (NBI-ME) on chronic atrophic gastritis including chronic atrophic gastritis and *Helicobacter pylori* (*H. pylori*)-associated gastritis. A total of 64 patients with chronic atrophic gastritis were enrolled and gastric mucosa was observed by conventional white light endoscopy and magnifying endoscopy

with NBI, and then biopsies were taken as a reference standard. Appearance of gastric pits were classified into A, round spot; B: short rod; C, branched; D, reticular and E, villous. Appearance of the collecting venules was classified into R, regular; I, irregular and D, disappeared. There was a positive correlation between gastric pit appearance and pathological grade of gastritis ( $p < 0.01$ ), and between collecting venule appearance and positivity of *H. pylori* infection ( $p < 0.01$ ). Diagnostic accuracy (sensitivity/specificity) of white light images and pit appearance in NBI for chronic gastritis were 25.8%/94.5 and 90.3%/91.7%, respectively, and that of collecting venule appearance in magnifying NBI for *H. pylori*-associated gastritis were 81.0%/93.5%, respectively. Authors suggested that NBI-ME could guide the invasive method of *H. pylori* and improve detection of *H. pylori*.

*Chlinicopathological features of polypoid lesion of gastroesophageal junction: analysis after endoscopic resection*

CJ Lin, WP Lin, YP Ho, CT Chiu, PC Chen and RC Wu

Department of Gastroenterology and Hepatology, Department of Pathology, Chang Gung Memorial Hospital, Taoyuan, Taiwan

Lin, et al. reported case series study of 62 sessile polypoid lesions (mean size 10.3 mm) at gastroesophageal junction in 58 patients (34 men, 24 women, mean age 52 y.o.) who underwent endoscopic resection. The lesions consisted of 35 hyper plastic polyps, 9 inflammatory polyps, 8 fundic gland polyps, 3 adenomatous polyps, 3 adenocarcinoma, 3 hamartomatous polyps and 1 papilloma. Reflux erosive esophagitis was observed in 24 patients. All adenocarcinoma and most (2/3) of adenomatous polyps were larger than 10 mm and were developed in patients older than 70 years old. Authors suggested that endoscopic resection could be undergone polypoid lesions larger than 10 mm in patients older than 70 years old or with reflux esophagitis.

*Inter-observers agreement in the diagnosis of endoscopically suspected Barrett's esophagus: an Asian multicenter study*

YC Lee, M Cook, S Bhatia, WH Chow, H Goto, JT Lin, YQ Li, PL Rhee, P Sharma, JJ

Sung, J Wong, JCY Wu and KY Ho on behalf of the Asian Barrett's Consortium

Department of Internal Medicine, National Taiwan University Hospital, Taiwan,

Hormonal and Reproductive Epidemiology Branch, Division of Cancer Epidemiology

and Genetics, National Cancer Institute, USA, Department of Gastroenterology, Seth GS

Medical Collage and KEM Hospital, India, Department of Gastroenterology, Nagoya

University Graduate School of Medicine, Japan, Department of Internal Medicine, E-Da

Hospital and I-Shou University, Kaohsiung County, Taiwan, Department of

Gastroenterology, Qilu Hospital, Shandong University, China, Department of Medicine,

Sungkyunkwan University School of Medicine, Samsung Medical Center, Korea,

Division of Gastroenterology and Hepatology, University of Kansas School of Medicine,

USA, Department of Medicine & Therapeutics, Prince of Wales Hospital, the Chinese

University of Hong Kong, Hong Kong, Yong Loo Lin School of Medicine, National

University of Singapore, Singapore

This interesting international multicenter study in Asian countries were conducted in order to assess inter-observer agreement in the diagnosis and grading of endoscopically suspected Barrett's esophagus using standard criteria in various Asian countries. A total of 26 experienced endoscopist from Asian countries (6 from India, 3 from Japan, 5 from Korea, 5 from Singapore and 7 from Taiwan) graded 18 endoscopic video clips of patients with suspected Barrett's esophagus for four parameters including circumferential extent of Barrett's segment (the C value), maximum extent of Barrett's segment (the M value), location of endoscopic insertion the gastro-esophageal junction and location of endoscopic insertion of the diaphragmatic hiatus. The overall reliability coefficients (range) that express inter-observer agreement value of the four parameters were 0.92 (0.86-0.98), 0.94 (0.86-0.98), 0.86 (0.73-0.95) and 0.83 (0.81-0.93), respectively, indicating excellent agreement. Subgroup analysis showed experience of the endoscopist did not affect agreement, whereas length of Barrett's esophagus (<1 cm) causes low agreement for the C and M value suggesting future definition may needed for criteria of short segment Barrett's esophagus. They concluded that the endoscopists involved in this study were uniformly good in grading Barrett's esophagus warranting further collaborative studies in this region.

## **Upper GI treatment**

**Reporter: Mitsuhiro Fujishiro, MD**

**Affiliation: The University of Tokyo, Graduate School of Medicine, Tokyo, Japan**

*Can undifferentiated early gastric cancers be involved in expanded indications for endoscopic submucosal dissection (ESD)?*

JY Cho, WY Cho, YH Chung, YG Cho, TH Lee, HG Kim, JO Kim, SY Jin.

Gastric Cancer Research, Soonchunhyang University Hospital, Seoul, Korea.

It is still controversial to expand ESD indication for undifferentiated early gastric cancer (EGC). In this study, a total of 461 patients (487 lesions) with EGC treated by ESD during 5 years were analyzed in terms of clinicopathological characteristics and clinical outcomes between differentiated EGCs and undifferentiated EGCs. Significant differences were observed between two groups in the macroscopic type (44% vs. 57% for depressed type), location (64% vs. 40% for lower third), presence of ulcer (30% vs. 43%), submucosal cancer (11% vs. 46%), complete resection rate (83% vs. 38%), and complication rate (5% vs. 17%), respectively. All lesions with elevated type, without ulcer, and < 2 cm in size were completely resected. This paper concluded that the appropriate indication for ESD of undifferentiated EGC was elevated mucosal cancer without ulcer and < 2 cm in size.

*Endoscopic treatments of Dieulafoy lesion and risk factors for rebleeding*

TO Kim, SM Lee, HS You, Y Ryu, GA Song.

Pusan National University School of Medicine, Busan, Korea.

This study was conducted to assess the efficacy of endoscopic treatment and to identify the possible predictive factors for rebleeding after endoscopic hemostasis. A total of 44 patients with Dieulafoy bleeding during 2 years were analyzed. Primary endoscopic hemostasis was achieved in 39 patients (89%). Among several clinicopathological factors, there was a significant difference in the use of NSAIDs or anticoagulants and in the Forrest classification of bleeding. This paper concluded that endoscopic hemostasis for Dieulafoy bleeding was safe and effective and the use of NSAIDs or anticoagulants and the Forrest classification of bleeding were risk factors for rebleeding.

*Risk factors of complication after endoscopic removal of foreign bodies in upper gastrointestinal tract*

KO Kim, BI Jang, SH Lee, W Lee, EJ Choi, KA Jang, YG Kim, SH Lee, TN Kim.

Division of Gastroenterology, Department of Internal Medicine, Yeungnam University, College of Medicine, Korea.

This study was conducted to investigate the clinical characteristics of patients with endoscopic removal of foreign bodies and risk factors of complications. A total of 216 patients (mean age of 45 years) with endoscopic removal of foreign bodies during 8 years

were analyzed. The most frequent one was fish bone which was observed in 77 patients (36%). In the younger patients (< 50 y.o.), coin was the most frequent one (71%). The most frequent involved site was upper esophagus (43% of the patients). Foreign body removal succeeded in 92% of the patients. Mucosal injury was observed as an endoscopic finding in 51% of patients. Perforation or laceration as a complication for endoscopic removal was experienced in 15 patients (7%), and 7 patients needed surgical rescue. By multivariate analysis, the risk factors for complication were duration from ingestion and visit to hospital and mucosal injury. This paper concluded that further careful treatment was necessary for the patients with delayed visit to the hospital and mucosal injury.

*Comparison of the efficacy of rigid dilators and balloon dilators for benign esophageal strictures –a meta-analysis*

N Estanislao, HB Florees, E Ang, AD Salvana, ES Tripon, ME Velasquez, ML Daez.  
Philippine General Hospital, Manila, Philippine

This study was conducted to elucidate the superiority of two different dilation methods of esophageal stricture, bougienage and balloon dilation. Meta-analysis was performed by using articles which were obtained from Pubmed and Cochrane search concerning this issue. From 3 randomized clinical trials, 363 patients were analyzed in terms of recurrence of dysphagia in 1 to 2 years, which resulted in no significant difference between two methods (0.93 (0.65-1.31)). This paper concluded that no difference in efficacy was observed between bougienage and balloon dilation for esophageal stricture.

*Prediction of early rebleeding and mortality in acute variceal haemorrhage*

YYN Lui, V Wong, FKL Chan, JJY Sung.  
Institute of Digestive Disease, Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Hong Kong, China.

This study was aimed to elucidate the prognostic factors of early rebleeding and mortality in acute variceal haemorrhage. A total of 122 patients with acute variceal haemorrhage were analyzed and there were 58 cases of hepatocellular carcinoma (HCC), 60 cases of early rebleeding and 39 cases of early mortality. Early rebleeding was associated with spurters on varices (Odds ratio (OR); 3.9), presence of HCC (OR; 3.2), hemoglobin levels < 10 g/dl (OR; 2.4), and male sex (OR; 0.3). Early mortality was associated with presence of HCC (OR; 8.3), high MELD scores (OR; 1.1), and high pulse rate (OR; 1.03). This paper concluded that the above predictive factors were associated to poor prognosis in acute variceal haemorrhage and careful management was necessary.

*A study on low cost variceal banding ligation kits turned out from urinary catheters suitable for developing countries- The Sri Lankan experience*

RL Satarasinghe, MAR Jayawardana, UDUK Wickramashingha, AAA Riyaz, R Samarasinghe, R Wijesinghe, KPK Dias

Department of Medicine, Sri Jayewardenepura General Hospital and Post graduate Training Center, Thalpathpitiya, Nugegoda, Sri Lanka

This study was conducted to investigate the efficacy of low cost variceal banding ligation kits turned out from urinary catheters (bands from a sliced 14 G catheter molded on to a ligating unit) for esophageal variceal treatment. A total of 267 patients with Grade III-IV esophageal varices during 6 years were enrolled. In both of alcoholic group (199 patients) and non-alcoholic group (67 patients), the low cost devices are very safe and effective in arresting variceal bleeding. This paper concluded that the low cost banding set is an ideal alternative for developing countries.

*The efficacy and safety of ESD for nonampullary duodenal neoplasia*

T Shinohara, T Oyama, A Tomori, K Hotta, A Takahashi, Y Kitamura, Y Miyata.  
Department of Gastroenterology, Saku Central Hospital, Nagano, Japan

This study was conducted to elucidate the clinical outcomes of 19 cases of nonampullary duodenal neoplasia treated by ESD during 7 years. Among 19 cases, one case was given up resection due to technical difficulty. En bloc resection rate and R0 resection rate were 72% (13/18) and 94% (17/18), respectively. Perforation rate was 11% (2/18) and delayed perforation was experienced in one case. Postoperative bleeding rate was 17% (3/18). Local recurrence was observed in one case, which was managed by additional endoscopic treatment. This paper concluded that ESD for nonampullary duodenal neoplasia was an effective treatment with substantial risk.

*Endoscopic resection of esophageal submucosal tumors*

L Su, W Wang, HZ Pan, XZ Lai, XL Chen, Y Xu, HL Pang, MY Hong.  
Department of Gastroenterology, Haikou People's Hospital, Xiangya School of Medicine, Central South University, Haikou, China

This study was conducted to elucidate the clinical outcomes of esophageal submucosal tumor treated by ESD during 6 years. In total of 56 cases, 36 were located at the muscular mucosa and 20 were located at the muscular proper. The former was resected in an average operation time of 7 minutes and the latter was resected in that of 110 minutes. All the cases were treated without complication in an en bloc fashion and histological examination revealed leiomyoma in all cases. This paper concluded that ESD was an effective and safe treatment for esophageal submucosal tumors.

*A randomized trial of endoscopic cyanoacrylate injection for acute gastric variceal bleeding: 0.5 ml versus 1.0 ml.*

CJ Chang, MC Hou, HC Lin, HS Lee, WC Liao, FY Lee, SD Lee.  
Division of Gastroenterology, Department of Medicine, Taipei Veteran General Hospital, National Yang-Ming University School of Medicine, Taipei, Taiwan

This study was conducted to compare the clinical outcomes of acute gastric variceal bleeding between 0.5 ml and 1.0 ml of cyanoacrylate injections. Forty-four patients with 0.5 ml injection and 47 patients with 1.0 ml injection were investigated. Endoscopic hemostasis was obtained in approximately 90% in both groups and rebleeding rates were 39% in 0.5% group and 30% in 1.0 ml group. Other clinical outcomes showed no significant differences between two groups, neither. This paper concluded that this study had a limitation in single center study with the small sample size, which might lead to the negative results.

*The feasibility of en-bloc resection for subepithelial tumor in UGI tract by ESD method*

IL Lee, PY Lin, CS Wu

Department of Gastroenterology, Chia-Yi Chang Gung memorial hospital and Chang Gung University, Taiwan

This study was conducted to elucidate the clinical outcomes of subepithelial tumors treated by ESD in the upper GI tract. In total of 62 lesions in 60 patients (9 esophageal and 53 stomach lesions), 44 (1 esophageal and 43 stomach lesions) were derived from the muscularis propria layer. Overall en bloc resection rate was 78% and perforation occurred in 7 cases (11%), but none was needed surgical rescue. This paper concluded that ESD was an effective treatment with substantial risk for subepithelial tumor in the upper GI tract.

*Multi-centre evaluation of the utility of the Coagrasper in upper and lower gastrointestinal tract bleeding- preliminary results*

W Tam, M Zimmerman, P Craig, M Shetti, R Singh.

Department of Gastroenterology, Lyell McEwin Hospital, Adelaide, Royal Perth Hospital, Perth, St George Hospital, Sydney, Australia.

This study was conducted to elucidate the usefulness of Coagrasper, a novel monopolar electrosurgical haemostatic forceps with a tapered, rotatable tip, for GI bleeding. A total of 21 patients (15 upper GI and 6 lower GI) were enrolled in this study. Ten patients had dual therapy with Coagrasper and initial haemostasis was achieved in all patients. One patient rebled, which was successfully stopped by Coagrasper. This paper concluded that Coagrasper seemed to be an effective hemostatic device in the upper and lower GI tracts and a larger multi-center study is necessary.

*The endoscopic metal stents for the palliation treatment in different location of malignant upper gastroduodenal obstruction has the same role?*

HT Cheng, NJ Liu, JH Tang, CS Lee, CH Lin, CL Cheng, YK Tsou.

Division of Digestive Therapeutic Endoscopy, Department of Gastroenterology and Hepatology, CGMH, Linkyo, CGU College of Medicine, Taoyuan, Taiwan

This study was conducted to elucidate the usefulness of enteral metal stent in different location of malignant gastroduodenal obstruction. In total of 61 patients with stent insertion, all placements were successfully performed and GOODD scores were significantly reduced in the all situations, those were duodenal obstruction, gastric outlet obstruction without OP, and gastric outlet obstruction s/p OP. This paper concluded that metal stent insertion for palliative treatment of upper GI tract was useful.

*Efficacy of argon plasma coagulation for bleeding peptic ulcer: comparison with hemoclips*

YC Peng, CF Tung, WK Chow, HZ Yeh, CS Chang.

Department of Emergency, Division of Gastroenterology, Taichung Veterans General Hospital, Taichung, Taiwan.

This study was conducted to elucidate the usefulness of argon plasma coagulation (APC) for peptic ulcer bleeding in comparison with hemoclips. In total of 194 patients with peptic ulcer bleeding, 110 received APC and 84 received hemoclips. Although the one-week and one-month rebleeding rates, mortality, requirements of surgery and blood transfusion were not significantly different between the two groups, the hospital stay was longer in hemoclips group. This paper concluded that APC showed similar efficacy with hemoclips for peptic ulcer bleeding.

*Anchoring with endoscopic clips for prevention of enteral stent migration in patients with malignant gastric outlet obstruction*

JH Park, JH Lee, MD Kim, KT Yoon, CW Choi, HW Kim, DH Kang

Department of Internal Medicine, Medical Research Institute, Pusan National University School of Medicine and Medical Research Institute, Yangsan, Korea

This study was conducted to evaluate clinical efficacy of endoscopic clipping for prevention of stent migration in the treatment of malignant gastric outlet obstruction (GOO). During 2 years, a total of 20 patients with GOO were treated by a double-layered combination stent with three-clip application to the proximal end of the stent. Technical and clinical success rates were 100% and 90%, respectively. No stent migration was observed. This paper concluded that metal stent insertion with clips was useful to prevent migration.

*Nonsurgical management for perforation during endoscopic submucosal dissection for gastric neoplasms*

T Tanaka, H Ono, N Kakushima, K Takizawa, M Tanaka, H Ikehara, Y Yamaguchi, H Matsubayashi

Endoscopy division, Shizuoka Cancer Center, Shizuoka, Japan

This study was conducted to elucidate the clinical outcomes after perforation during gastric ESD. Among 1591 gastric neoplasms in 1371 patients treated by ESD during 6

years, perforation was experienced in 84 lesions (5.3%) in 83 patients. Immediate closing of the perforations by endoclips with intensive conservative treatments resulted in nonsurgical rescue in all but one. This paper concluded that perforation during gastric ESD was manageable by endoclips with intensive conservative treatments.

*Emergency endoscopic intervention has a beneficial role in acute gastrointestinal bleeding in the elderly*

DW AHN, SH Lee, JH Hwang, JW Kim, YS Park, NY Kim, SH Jung, DH Lee  
Seoul National University, Bundang Hospital, Seongnam, Korea

This study was conducted to elucidate the clinical outcomes after endoscopic hemostasis in acute upper GI bleeding. In total of 99 elderly patients (> 65 y.o.), 55, 5, 9, 4, and 7 patients had peptic ulcer, varices, Mallory-Weiss tear, Dieulafoy lesion, and malignancy as the source of bleeding, respectively. Endoscopic hemostasis was attempted in 53 patients and all but two underwent successful hemostasis. Emergency endoscopy defined as endoscopy within 6 h from admission significantly shortened hospital stay in elderly patients (5.8 vs. 8.8 days). This paper concluded that emergency endoscopy was beneficial for upper GI bleeding especially in elderly patients.

*The feasibility and safety of ESD in elderly patients with gastric neoplasm: non-Japanese group*

S Park, Y Lee, G Jung, J Kim, Y Cho, J Cho  
Department of Internal Medicine, Presbyterian Medical Center

This study was conducted to elucidate the clinical outcomes of gastric ESD in elderly patients from non-Japanese group. During 2 years, 126 patients with 139 gastric neoplasms were treated by ESD including 16 elderly patients (> 75 y.o.) with 18 lesions. Comparative analysis between elderly group and younger group revealed that complete resection rate was significantly lower in elderly patients (71.4% vs. 94.8%). Other outcomes including en-bloc resection rate and complications, were not significantly different. This paper concluded that ESD in elderly patients was performed effectively as similar operative risks with younger patients, although lower complete resection rate should be taken into consideration.

*Endoscopic balloon dilatation for upper gastrointestinal stricture caused by corrosive injury*

YC Chiu, SK Chuah, KL Wu, YP Chou, TH Hu, SS Chiou, CS Changchien  
Division of Hepato-gastroenterology, Department of Internal Medicine, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Chang Gung University, College of Medicine, Taiwan

This study was conducted to evaluate clinical efficacy of balloon dilation for esophageal stricture (ES) and gastric outlet obstruction (GOO) caused by corrosive injury. During 5

years, a total of 91 patients with corrosive injury were enrolled and 30 (37%) developed problems of intake. Endoscopy revealed ES in 17 patients (21%), GOO in 6 patients (7%), and both in 7 patients (9%). The success rate to achieve persistent symptom relief by balloon dilatation was significantly higher in ES group than that in the others. (83% vs. 46%). The complication rate in ES group was significantly lower than that in the others (0% vs. 31%). This paper concluded that stricture by corrosive injury could be manageable by balloon dilatation, but substantial risks and persistent symptoms should be considered in case of GOO.

*Predictors of recurrent bleeding after endoscopic epinephrine injection therapy based on proton pump inhibitor use in bleeding peptic ulcers*

ML Hu, YC Chiu, KL Wu, WC Tai, KW Chiu, SK Chuah

Division of Hepato-gastroenterology, Department of Internal Medicine, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Chang Gung University, College of Medicine, Taiwan

This study was aimed to elucidate clinical outcomes of epinephrine injection therapy with normal use of proton pump inhibitor (PPI) for peptic ulcer bleeding.

A total of 175 patients with peptic ulcer bleeding were treated by epinephrine injection therapy with PPI. Permanent hemostasis was obtained 82% of patients (144/175). In multivariate analysis, old age, severe anemia, higher injection dose and fresh blood in emesis and stool were the independent predictors of recurrent bleeding. This paper concluded that the above predictive factors were associated to poor prognosis in epinephrine injection therapy with PPI and combination therapy with epinephrine injection should be considered as an endoscopic hemostatic method.

## **Small intestine**

**Reporter: Kinichi Hotta, MD**

**Affiliation: Department of Gastroenterology, Saku Central Hospital, Nagano, Japan**

*Double balloon enteroscopy for gastrointestinal stromal tumors of small intestine-experience of one medical center*

CH Chen, MY Su, WP Lin, CM Hsu, CM Sung, CT Chiu, TS Yen, RC Wu  
Chang Gung Memorial Hospital, Linkou Medical Center, Chang Gung University, College of Medicine, Taipei, Taiwan

This study was conducted to clarify the usefulness of double balloon enteroscopy (DBE) and laparoscopic surgery for small bowel GISTs. A total of 11 patients with small bowel GISTs investigated by DBE were included. All patients were demonstrated submucosal tumors or mass lesion by DBE, six of them showed ulcers. All patients underwent surgical resection. Seven of them underwent laparoscopic-assisted bowel surgery (LABS) after enteroscopic tattooing localization. They concluded that DBE and LABS were useful and safe techniques and appeared to be good diagnostic/therapeutic combination of modalities for patients with small bowel GISTs.

*With or without bleeding risk factor is helpful for choosing double-balloon enteroscopy in obscure gastrointestinal bleeding*

WP Lin, MY Su, CT Chiu, CM Hsu, PC Chen  
Department of Gastroenterology and Hepatology, Chang Gung Memorial Hospital, Linkou Medical Center, Chang Gung University College of Medicine, Taoyuan, Taiwan

This study was conducted to clarify bleeding risk factor is helpful for choosing double balloon endoscopy (DBE) in obscure gastrointestinal bleeding (OGIB). One hundred fifty seven patients of OGIB were included. In the three different setting: patients with bleeding risk factor but can be corrected, with factors but cannot be corrected, without factors, diagnostic yields are: 67%, 84%, 58%; intervention are performed in 70%, 87%, 84%; and re-bleeding rates are: 7%, 59%, 30%. In the subgroup with bleeding risk but can be corrected, the re-bleeding rate is lowest. In the subgroup but cannot be corrected, the re-bleeding rates is high, whether intervention or not; and attempt to perform total

enteroscopy is suggested. In the subgroup without factors, the diagnostic yield is the lowest; capsule endoscopy first to detect possible bleeder, followed by DBEF or therapeutic intervention is recommended.

*Combined computed tomography and barium contrast study is powerful for diagnosing small bowel neoplastic lesions*

WP Lin, MY Su, CT Chiu, CM Hsu, PC Chen

Department of Gastroenterology and Hepatology, Chang Gung Memorial Hospital, Linkou Medical Center, Chang Gung University College of Medicine, Taoyuan, Taiwan

This study was conducted to analyze the diagnostic yields of computed tomography (CT) and barium contrast study (BCS) for small bowel neoplastic lesions. Twenty eight patients diagnosed as small bowel neoplastic lesions were included. The diagnostic yields of CT and BCS are: 93%, 84%. Two lesions missed by CT were detected by BCS. In the three lesions missed by BCS, two lesions were detected by CT. They concluded that combined CT and BCS study is powerful for diagnosing small bowel neoplastic lesions. Before double balloon endoscopy, CT and BCS should be considered for checking small bowel lesions.

*Histomorphologic parameters of terminal ileal mucosa in microscopic colitis*

KK Prasad SK Sinha, V Devraj, DK Bhasin, K Singh

Department of Super-speciality of Gastroenterology, Postgraduate Institute of Medical Education & Research, Chandigarh, UT, India, Department of Internal Medicine, Postgraduate Institute of Medical Education & Research, Chandigarh, UT, India

This study was conducted to investigate the terminal ileal mucosal histomorphologic alternations in cases of microscopic colitis (MC). In this prospective study terminal ileal mucosa of 55 patients with MC (37 with lymphocytic colitis (LC) and 18 with collagenous colitis (CC)) were examined. The terminal ileal mucosa biopsies revealed intraepithelial lymphocytosis without crypt hyperplasia 24 (43.6%), intraepithelial lymphocytosis with crypt hyperplasia 14 (25.5%), villous atrophy 6 (11%), villous atrophy with thickened subepithelial collagen band 2 (3.6%) and thickened subepithelial collagen band in 4 (7.3%) patients. All cases with LC revealed intraepithelial lymphocytosis, whereas all the 6 cases with thickened subepithelial collagen band were

associated with CC. They concluded that the terminal ileum is frequently involved in patients with MC and may be involved but similar pathogenic process as the colon in LC and CC.

*Recurrence of ulcers after the small bowel resection in patients with Crohn's disease and the efficacy of infliximab in the treatment of these ulcers were assessed by double-balloon endoscopy*

O Watanabe, T Ando, H Goto

Department of Gastroenterology, Nagoya University Graduate School of Medicine, Nagoya, Japan

This study was conducted to evaluate the recurrence of ulcers in the small bowel after the small bowel resection for Crohn's disease (CD) and the effect of infliximab (IFX). Double balloon endoscopy (DBE) was performed at 6 and 18 months after resection in 10 patients with CD who underwent resection of small bowel. ESR was significantly higher in patients with active ulcers than the other. Scheduled maintenance treatments with IFX were started when active ulcers were detected in the small bowel by DBE and followed their clinical course. Active ulcers were observed in 3 of 10 patients at 6 months. Three patients with active ulcers were treated with IFX. All patients were in clinical remission after 18 months. Mucosal healing was observed in two and exacerbation of ulcers was detected in one. After 18 months 4 of 7 without active ulcers in 6 months were detected active ulcer and undertook IFX treatment. They concluded that it is necessary to treat CD patients whose ESR is high with IFX early after small bowel resection.

*Is jejuna diverticular hemorrhage remain a 'dangerous entity' in the era of double-balloon enteroscopy*

HH Yen, YY Chen, MS Soon

Department of Gastroenterology, Changhua Christian Hospital, Changhua, Taiwan, Graduate Institute of Medical Sciences, Chang Jung Christian University, Taiwan, Taiwan

This study was conducted to evaluate the clinical features and management of jejuna diverticular hemorrhage found during double balloon enteroscopy (DBE). A total of 55

patients received DBE for obscure gastrointestinal bleeding. Fifteen patients were diagnosed to have jejunal diverticular disease. Diverticular disease is attributed for bleeding in 12 patients. Two had Dieulafoy's lesion, 4 had active bleeding ulcers and 6 had ulcers without bleeding. Six received endoscopic hemostasis and one received emergent operation due to uncontrolled bleeding. They concluded that DBE is useful to diagnose and treat jejunal diverticular disease.

*Double-balloon endoscopy for obscure gastrointestinal bleeding: experience of a single medical center in Taiwan*

HH Yen, YY Chen, MS Soon

Department of Gastroenterology, Changhua Christian Hospital, Changhua, Taiwan, Graduate Institute of Medical Sciences, Chang Jung Christian University, Taiwan, Taiwan

This study was conducted to evaluate the usefulness of this endoscopic system for obscure gastrointestinal bleeding (OGIB) during the past 5 years. Fifty five patients with OGIB underwent double-balloon endoscopy (DBE). Forty seven (85%) patients were found potential bleeding source. Fifteen diverticulosis, 10 angiodysplasia, 9 ulcer, 6 malignant tumors, 2 benign tumors, 1 lymphangiectasia, 1 varix, 1 PJ syndrome and 1 colon cancer were included. Three complications occurred, included one intestinal necrosis, one self-limited parotitis one jejunal diverticular hemorrhage. They concluded that DBE was high diagnostic tool for OGIB.

*Long-term outcome of patients with obscure gastrointestinal bleeding investigate by double-balloon endoscopy*

S Shinozaki, H Yamamoto, T Yano, K Sunada, T Miyata, Y Hayashi, M Arashiro, H Shinhata, Y Miura, H Sato, N Nishimura, K Sugano

Department of Medicine, Division of Gastroenterology, Jichi Medical University, Tochigi, Japan

This study was conducted to evaluate the diagnostic yield and long-term outcome of patients with obscure gastrointestinal bleeding (OGIB) using double-balloon endoscopy (DBE). DBE was performed in 200 consecutive patients with OGIB. Follow up data were available on 151 patients for 29.7 (6-78) months. DBE detected bleeding sources

in 155 of 200 patients (77.5%). The most frequent source was small intestinal ulcers/erosions, in 64 patients. Patients who underwent DBE within 1 month after last episode of overt bleeding had better yield of positive findings than the other (84% vs 57%,  $P=0.002$ ). The overall rate of control of OGIB was 64%. Patients with small intestinal vascular lesions had significantly lower rate of control of OGIB than those with other small intestinal lesions (40% vs 74%,  $P=0.012$ ). They concluded that DBE is useful for diagnosis of patients with OGIB and should be performed as soon as possible after overt OGIB. Patients with small intestinal vascular lesions should be followed with particular care.

*Initial experience on the clinical application of single-balloon enteroscopy in the diagnosis and treatment of small intestinal disease in Taiwan: 48 procedures in NTUH*

TC Lee, MS Wu, JT Lin, HP Wang

Department of Internal Medicine, National Taiwan University Hospital and College of Medicine, National Taiwan University, Taipei, Taiwan, Department of Internal Medicine, E-Da Hospital and College of Medical Science, I-Shou University, Kaohsiung, Taiwan, Department of Internal Medicine, National Taiwan University Hospital Yun-Lin Branch, Yun-Lin, Taiwan

This study was conducted to evaluate the efficacy of single balloon enteroscopy (SBE) for small intestinal disease. A total of 48 SBE were performed in 41 patients. Most frequent indication was obscure gastrointestinal bleeding. Overall diagnostic yield was 68%. Thirteen small intestinal erosions/ulcerations and 11 angioectasia were frequent diagnosis in them. After 17 attempts of endoscopic hemostasis, 3 cases experienced persistent bleeding. There was no case of perforation or pancreatitis. Two patients developed high fever within 3 days after SBE and were treated successfully with intravenous antibiotics. They concluded that SBE is a useful tool both in diagnosis and endoscopic therapies for small intestinal diseases.

*Follicular lymphoma of the small intestine: clinical aspects and endoscopic features*

K Hotta, T Oyama, T Shinohara

Department of Gastroenterology, Saku Central Hospital, Nagano, Japan

This study was conducted to clarify clinical aspects and endoscopic features of follicular

lymphoma (FL) of the small intestine. A total of 12 pts were newly diagnosed as having FLs and underwent double balloon endoscopy (DBE) both antegrade and retrograde approaches. Nine pts were asymptomatic and detected by screening EGDs. The endoscopic features were diagnosed by EGD and DBE; 1 gastric lesion, 1 duodenal bulb lesion (multiple whitish granules (MWG)), 11 duodenal second part lesions (11 MWG), 10 duodenal third part lesions (9 MWG and 1 nodule/mass), 11 jejunal lesions (11 MWG and 2 nodule/mass), and 5 ileal lesions (5 pinkish multiple granules and 1 nodule/mass). They concluded that the major endoscopic findings of the small intestine with FLs were MWG of the duodenum and the jejunum. All pts with nodule/mass were advanced stage.

## **Lower GI diagnosis**

**Reporter: Takahisa Matsuda, MD, PhD**

**Affiliation: Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan**

### *Implications of the American College of Radiology recommendations for reporting CT colonography findings on asymptomatic population in Asia*

JJY Sung, KKF Tsoi, MCS Wong, B-Y Suen, DJY Luo for the Asia Pacific Working Group. Chinese University of Hong Kong, Hong Kong.

Colorectal cancer screening with diagnostic imaging by CT colonography (CTC) can detect polyps. Recent guidelines from American College of Radiology (ACR) recommends that polyp  $\leq 5$  mm need not be reported and patients with 1 or 2 polyps 6-9 mm can be offered reported CTC in 3 years without polypectomy. This study was conducted to assess the possibility of missing advanced colonic neoplasm (ACN) using these criteria in the Asian asymptomatic populations. Among 1752 subjects, ACN were found in 68 (3.9%). Using the ACR criteria, 5/68 (7.4%) ACN sized 1-5 mm will be reported as normal and 19/68 (27.9%) ACN sized 6-9 mm will have polypectomy delayed for at least 3 years. This paper concluded that current recommendation by ACR for CTC reporting will lead to substantial delay in management of ACN.

### *QuantiFERON<sup>®</sup>-TB gold test in the differential diagnosis of intestinal tuberculosis and Crohn's disease*

G Moon, JH Lee, HJ Kwon, WJ Chung, JC Kim, JD Lee. Hana, Song Do Hospital, Song Do Colorectal Hospital, Digestive Endoscopy Center and Department of Pathology, Seoul, Korea.

Intestinal tuberculosis (ITB) has symptoms similar to those of inflammatory bowel diseases such as Crohn's disease (CD) and is difficult to diagnose. The QuantiFERON<sup>®</sup>-TB gold (QFT-G) test is more specific than the tuberculosis skin test. This study was conducted to evaluate the usefulness of the QFT-G test in the differential diagnosis of patients with ITB and CD. The QFT-G test was performed on whole blood samples. The sensitivity of the QFT-G test in the diagnosis of ITB was 90.0%. On the contrary, positive QFT-G test results were found in only 6 CD patients (14.6%) as compared to 2 normal volunteers (6.7%). This paper concluded that the

QFT-G test may be useful not only in diagnosing ITB with non-typical histologic findings but also in differentiating ITB from CD.

*Risk factors of recurrent Clostridium difficile-associated diarrhea*

HS Ryu, S C Choi, G S Seo, S Young-Woo, C S Choi, K H Kim. Division of Gastroenterology, Department of Internal Medicine, Digestive Disease Research Institute, Wonkwang University College of Medicine, Iksan, Korea.

Clostridium difficile-associated diarrhea (CDAD) is a common nosocomial infection with substantial morbidity, mortality and costs of medical care. Even though most patients initially respond to therapy with either metronidazole or vancomycin, about 15-20% of patients experience recurrences. This study was conducted to analyze risk factors related to a recurrent CDAD (RCDAD). A total of 294 patients had CDAD, 32 (10.8%) of whom experienced RCDAD. Risk factors for RCDAD included anemia, congestive heart failure, respiratory infection, time from admission to CDAD diagnosis, duration of antibiotics therapy before CDAD diagnosis, tube feeding and gastrointestinal endoscopy. Multivariate analysis revealed that tube feeding was associated with recurrence. This paper concluded that targeting these patients for preventive strategies may contribute to reduce incidence of RCDAD.

*Comparison of guaiac-based and immunochemical faecal occult blood tests for the detection of advanced colonic neoplasm in an asymptomatic population in Hong Kong*

KKF Tsoi, MCS Wong, KWK Ling, DJY Luo, JJY Sung. Chinese University of Hong Kong, Hong Kong.

Fecal occult blood tests are recommended as the first line non-invasive screening method for colorectal cancer. Fecal immunochemical test (FIT) may be more accurate than guaiac-based fecal occult blood test (GFOBT) in Asian population. This study was aimed to compare the sensitivity and specificity of FOBTs for detection of advanced colonic neoplasm (ACN) among Chinese asymptomatic adults above 50 years. A total of 1086 subjects were recruited and completed GFOBT or FIT. Colonoscopy identified ACN in 81 patients. For the detection of ACN, the specificity and NPV of FIT were significantly higher than that of GFOBT (90.6% vs. 79.2%, and 97.1% vs. 86.6%, respectively), but no significant difference was found on sensitivity and PPV (16.7% vs.

14.3%, and 5.4% vs. 8.9%, respectively). This paper concluded that the sensitivity and PPV of both GFOBt and FIT were low and hence annual or biannual testing will be required.

*The risk of colorectal adenoma in patients with gastric adenomas*

MH Yang, HJ Son, MH Kim, JY Kim, JH Lee, MS Choi, DK Chang, YH Kim, PL Rhee, JJ Kim, JC Lee. Center for Health Promotion, Departments of Internal Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea.

Gastric polyps are found frequently in various colonic polyposis syndromes. However, it is not established that patients with gastric adenomas are high risk for colorectal adenomas. This study was conducted to investigate the prevalence rate of colorectal adenoma in patients with gastric adenomas and to determine the association between the presence of gastric adenomas and synchronous colorectal adenomas. There were 87 patients with gastric adenoma. Colorectal adenomas were identified in 42 (48.3%) of 87 cases and in 58 (33.3%) of 174 controls ( $p=0.022$ ). The prevalence of colorectal adenoma was significantly higher in gastric adenoma group than in control group. This paper concluded that screening colonoscopy may be necessary for patients with gastric adenomas to find colorectal adenomas.

*Ulcerative colitis in Singapore: epidemiology and clinical features*

A Kwek, KM Fock, EK Teo, J Ong, TL Ang, J Tan, J Ang. Gastroenterology, Changi General Hospital, Singapore.

This study described the epidemiology of Ulcerative Colitis (UC) in a tertiary hospital in Singapore. There were 116 patients with UC during the study period. Most patients (69%) had mild severity at presentation. 18.6% had moderate severity and 12.4% severe disease. The most common endoscopic features were granularity (40.4%) or spontaneous bleeding/ulceration (40.4%). Severity of disease at onset was not predictive of the subsequent relapse rate. Complications of megacolon (2 patients), massive bleeding (1) and dysplasia/cancer (2) were encountered. This paper concluded that further analysis of epidemiological factors and disease pattern of UC in Asia may provide insight into the similarities, differences and peculiarities of this emerging disease in Asia.

*Actual number of tumor budding; a novel indicator of lymph node metastasis in T1 colorectal carcinoma*

T Masaki, H Matsuoka, T Kobayashi, M Sugiyama, Y Atomi. Dept of Surgery, Kyorin University, Tokyo, Japan.

Several studies suggested that tumor budding at the invasive margin is associated with tumor aggressiveness. This study was conducted to assess the clinical importance of this histological feature in T1 colorectal carcinoma. Five (6.6%) out of 76 tumors had lymph node metastasis (LNM). Univariate analysis showed that histology and tumor budding were significantly associated with the presence of LNM. Logistic regression analysis using these two factors as independent variables showed that tumor budding alone was significantly associated with LNM. The probability of LNM was calculated as follows;  $Z = 0.062 \times (\text{budding counts}) - 3.638$ ,  $\text{Probability} = 1 / (1 + e^{-Z})$ . This paper concluded that actual number of tumor budding is useful in determining additional surgery after endoscopic treatment of T1 colorectal cancers.

*Predictors for mortality in acute lower intestinal bleeding*

PS Tan, KM Fock, TL Ang, EK Teo, JYL Tan, JPL Ong, KBL Lim, PY Loh. Division of Gastroenterology, Changi General Hospital, Singapore.

Lower intestinal bleeding (LIB) accounts for a third of gastrointestinal bleeding with mortality rate as high as 4%. This study was conducted to identify predictors for in-hospital mortality for patients with LIB. 501 patients were admitted for LIB between 2004 and 2006. The 3 most common LIB were ano-rectal disorders (45.5%), diverticular disease (32.9%) and colorectal tumors (11.6%). Multivariate analysis showed that the number of packed red blood cells (PRBC) transfusion, delaying colonoscopy to more than 48 hours after admission and etiology of LIB to be significant risk factors for mortality. This paper concluded that patients with clinical indicators of severe LIB who required large amount of blood transfusion had higher risk of death.

*Differences in characteristics of colorectal polyp between young and elderly in single center database*

YG Kim, BI Jang, EJ Choi, SH Lee, KA Chang, JW Lee, KO Kim, SH Lee. Department of Internal Medicine, Yeungnam University College of Medicine.

This study was conducted to clarify the differences of clinical characteristics of colorectal polyps between the elderly and young Korean patients. Patients who discovered colorectal polyps were classified into two groups: the older age group (aged  $\geq 50$  years) and the younger age group (aged  $< 50$  years). Among 340 patients enrolled, a total of 656 colon polyps were found. Malignancies in colorectal polyps were more often found in the elderly patients (4.7%, 8/170) than in the young patients (0.6%, 1/170). This paper concluded that the chance of detecting colorectal polyps by colonoscopy was higher in the elderly patients because of multiple, both sided and greater sized lesions.

*Colonoscopic polyp miss rates determined by back-to-back colonoscopies: a prospective single-center study*

YS Hyun, DS Han, JH Bae, HS Park, SB Ahn, TY Kim, CS Eun, YC Jeon, JH Sohn. Department of Gastroenterology, Hanyang University College of Medicine, Guri Hospital, Korea.

Several studies reported colonoscopic polyp miss rates of 15-48%. This study was conducted to determine the polyp miss rates and to analyze subgroup according to miss rates by same day back-to-back colonoscopies. A total of 125 patients underwent two consecutive same day colonoscopies by same examiner. The overall miss rates for all polyps and adenomas were 17% and 18%, respectively. In the multivariate analysis, bowel preparation and withdrawal time were associated with adenoma miss rate. This paper concluded that the size and the number of adenoma were important for missed lesions.

*The factors affecting the quality of bowel preparation prior to colonoscopy*

EK Baek, CH Choi, SJ Hwang, SY Lee, BK Cha, KS Kim, HW Lee, HJ Kim, JH Do, SK Chang. Department of Internal Medicine, Chung-Ang University College of Medicine, Seoul, South Korea.

This study was conducted to analyze the factors affecting the quality of colon cleansing for colonoscopy. A total of 469 out-patients who received colonoscopy were prospectively enrolled. The frequency of the relatively inadequate preparation was significantly higher in subjects with BMI <25 kg/m<sup>2</sup>, in functional constipation group, and in PEG group. This paper concluded that NaP solution provided a better quality of colon cleaning than PEG solution and was more tolerable without serious side effect. Patients with functional constipation may require more intensive bowel preparation regimen for proper colonic cleansing.

*Different prevalence of colorectal polyp between the patients who underwent endoscopic resection for gastric dysplasia or early gastric cancer and normal healthy subjects*

JK Hwang, MK Joo, J-J Park, SG Hong, JH Kim, JE Yeon, JS Kim, KS Byun, Y-T Bak.  
Korea University College of Medicine.

This study was conducted to compare the prevalence of colorectal polyp or adenocarcinoma between patients who underwent EMR or ESD for gastric dysplasia or early gastric cancer (EGC) and normal healthy subjects. 372 patients were enrolled in this study. Among them, overall colorectal polyp was detected in 124 (33.3%), high risk polyp in 44 (11.8%) and adenocarcinoma in 10 (2.7%). The prevalence of overall polyp and high risk polyp was significantly higher in ESD group than control group. This paper concluded that we should consider screening colonoscopy more actively among the patients who had EMR or ESD for gastric dysplasia or EGC to detect colorectal dysplastic or cancerous lesions.

*Usefulness of narrow band imaging with magnification in the diagnosis of localized colorectal lesions*

H Kashida, Y Wada, M Misawa, K Wakamura, T Hosoya, T Hayashi, N Ikehara, F Yamamura, K Otsuka, S-E Kudo, S Hamatani. Department of Pathology, Digestive Disease Center, Showa University Northern Yokohama Hospital, Yokohama, Japan.

This study was conducted to clarify the efficacy of NBI system for tissue characterization and differential diagnosis of colorectal lesions. A total of 2539 lesions were resected and evaluated. They could differentiate between neoplastic and

non-neoplastic lesions with sensitivity of 84.6% and specificity of 98.5% and accuracy of 98.1%. Regarding the depth diagnosis by irregular and sparse pattern, the sensitivity, specificity and accuracy was 94.3% , 98.1% , and 90.3% , respectively. This paper concluded that NBI system with magnification is useful for distinguishing neoplastic from non-neoplastic lesions, as well as for predicting the degree of cancer invasion.

*Factors affecting adenoma detection during colonoscopy: a prospective study*

JE Shin, HY Lee, SU Yun, BH Lee, HD Shin, SY Yun, SB Kim, HJ Kim, IH Song.  
Department of Internal Medicine, Dankook University College of Medicine, Cheonan, Korea.

Adenoma detection rate is increasingly used as a quality indicator for colonoscopy. This study was conducted to identify factors that predict adenoma detection during colonoscopy. A total of 457 patients who underwent colonoscopy by six colonoscopists were enrolled. The range of detection of at least one adenoma per colonoscopy was 31.6, 30.9, 31.2, and 42.9% for colonoscopists who had performed 100 -500, 500 -1000, 1000-2000, and >2000 total examinations, respectively. This paper concluded that who performed the procedure can be important in predicting adenomas at colonoscopy.

## **Lower GI treatment**

**Reporter: Hisatomo Ikehara, MD**

**Affiliation: Shizuoka Cancer Center Hospital, Division of Endoscopy, Shizuoka, Japan**

*The iatrogenic complications of therapeutic colonoscopy: a multicenter retrospective study in Korea*

MH CHOI<sup>1</sup>, YS CHOI<sup>1</sup>, CS SO<sup>1</sup>, DH KOH<sup>1</sup>, SJ KIM<sup>2</sup>, WG SHIN<sup>5</sup>, KO KIM<sup>3</sup>, HJ, JANG<sup>1</sup>, CH PARK<sup>3</sup>, KH KIM<sup>5</sup>, JB KIM<sup>4</sup>, IH BAEK<sup>4</sup>, KH BAIK<sup>2</sup>, SH KAE<sup>1</sup>, J LEE<sup>1</sup>, HY KIM<sup>5</sup>

<sup>1</sup> Department of Internal Medicine, Hangeang Sacred Heart Hospital, Hallym University College of Medicine, Seoul, Korea, <sup>2</sup> Department of Internal Medicine, Chuncheon Sacred Heart Hospital, Hallym University College of Medicine, Chuncheon, Korea, <sup>3</sup> Department of Internal Medicine, Hallym University Sacred heart hospital, Hallym University College of Medicine, Pyeongchon, Korea, <sup>4</sup> Department of Internal Medicine, Kangnam Sacred Heart hospital, Hallym university college of Medicine, Seoul, Korea, <sup>5</sup> Department of Internal Medicine, Kangdong Sacred heart hospital Hallym University College of Medicine, Seoul, Korea

Therapeutic colonoscopy is an effective tool for treatment of colonic polyps. But iatrogenic complications by therapeutic colonoscopy may be occurred. This study reviewed retrospectively the medical records of colonoscopic examination at 5 hospitals. A total of 26,773 colonoscopies and 4,123 therapeutic colonoscopies were performed. The overall rate of complications was 1.04% (44/4123). Perforation occurred in 0.19% (8/4123), and bleeding occurred in 0.85% (35/4123). The rate of bleeding was snare polypectomy (0.05%), EMR (1.09%), and ESD (7.14%). The rate of bleeding was snare polypectomy (0.8%), EMR (1.09%), and ESD (3.57%). The complication rate of ESD showed higher than EMR and snare polypectomy ( $p < 0.05$ ). Endoscopic clipping was performed in 25% of perforation and 66.7% of bleeding. Conservative treatment was successful in 75% of perforation and 100% of bleeding. This paper concluded that therapeutic colonoscopy is a safe procedure for treatment of colonic polyps.

*Outcome of self-expanding metal stent placement according to the type (uncovered versus covered stents) in malignant colorectal obstruction: retrospective single-center study*

JK PARK, BM KO, SG KIM, SJ HONG, CB RYU, YS KIM, JH MOON, JO KIM, JY CHO, JS LEE, MS LEE, CS SHIM, BS KIM

Department of Internal Medicine, Soon Chun Hyang University College of Medicine, Bucheon and Seoul, Korea

Self-expanding metal stents (SEMSs) have been used as definitive palliative treatment or bridge to surgery, to allow stabilization of a patient's condition before surgery. This study conducted 100 patients who underwent endoscopic SEMSs placement for malignant colorectal obstruction: uncovered stents in 73 patients and covered stents in 27 patients. The SEMS was inserted into the obstructive site by using the through-the-scope method. The technical and clinical success rates were not different between uncovered and covered stent group (98.6% vs. 100%,  $p > 0.05$ ). The overall stent occlusion and migration rate were 10% and 15%, respectively. Stent occlusion occurred in nine cases of 73 uncovered stents (12.3%), and in one of 27 covered stents (3.7%). Although the stent occlusion rate was higher in the uncovered stent group, no significant difference was detected between the groups ( $p=0.549$ ). This paper concluded that no statistically significant difference was observed although minor differences in outcome were detected according to the stent type.

*Standardization of ESD to rectal neoplasm's*

N HIRANO<sup>1</sup>, N YAHAGI<sup>1</sup>, Y KUROKI<sup>1</sup>, T MITANI<sup>1</sup>, T OTSUKA<sup>2</sup>, S SATO<sup>2</sup>, Y IGARASHI<sup>2</sup>

<sup>1</sup> Department of Gastroenterology, Toranomon Hospital, <sup>2</sup> Department of Gastroenterology and Hepatology, Omori Medical Center, Toho University

This study was conducted to investigate the efficacy and safety of ESD for rectal neoplasms. 336 lesions of colorectal neoplasm located rectum (95 lesions, Group A) or located colon (241 lesions, Group B) and their clinical outcomes were compared. The mean procedure time of group A ( $65.0 \pm 43.8$  min) was significantly shorter than group

B ( $86.9 \pm 59.5$ ), ( $p < 0.01$ ). The complication rate such as bleeding, perforation, and required emergency operation were not different between group A and group B. But required emergency operation because of complication, group A was no case (0/95, 0%) and group B was 6 cases (6/241, 2.5%). ( $p=0.12$ ). This paper concluded that ESD is the extremely effective treatment for rectal neoplasms and also is possible to be performed safely.

*Feasibility of endoscopic submucosal dissection for colonic neoplasms using IT knife2*

H IKEHARA, Y YAMAGUCHI, N KAKUSHIMA, M TANAKA, K TAKIZAWA, H MATSUBAYASHI, H ONO

Division of endoscopy, Shizuoka Cancer Center, Shizuoka, Japan

This study was conducted to investigate the efficacy of ESD for colonic neoplasms using IT knife2. ESD was performed on 151 patients with 153 epithelial neoplasms. En-bloc resection was achieved in 132 (86.3%) lesions. Median operation time was 86 min. Three (2.0%) perforations were successfully treated endoscopically, and three (2.0%) delayed perforations were observed including one case that required surgical intervention. Delayed bleeding, observed in seven cases (4.6%), was successfully treated endoscopically. Ten (6.5%) lesions could not be removed by ESD because of technical difficulty. During a median follow-up of 6.6 months (range 0.4 – 36.5), two local recurrences (1.3%) were found and treated endoscopically. This paper concluded that ESD using IT knife2 is a promising endoscopic treatment for large colorectal neoplasms.

*Incidence and management of colonic perforations after colonoscopy*

E LEE, J LEE, E YOUK, D KWAK, D LEE, H KIM, S CHOI, K LEE, M KANG, H PARK, Y CHOI, J SUH, D KIM, D LEE

Department of Surgery and Internal medicine, Deahang Hospital, Seoul, Korea

This study was conducted to review the perforation cases. A total of 159,151 colonoscopies and 55,703 therapeutic procedures were performed during study period

(between Jan 2002 and May 2009). There were 85 cases of colonic perforations (24 diagnostic perforations and 61 therapeutic perforations). Among 85 cases, 72 cases occurred in our hospital. There were 18 cases (0.01%) of diagnostic perforations and 54 cases (0.1%) of therapeutic perforations (37 cases; endoscopic submucosal dissection). Forty-nine patients were treated with conservative management and the remaining 36 patients required surgical management (Primary repair; 30 cases, colon resection; five cases, irrigation; one case). Two patients required colostomy and 20 operations were performed through laparoscopy. Since 2007, endoscopic clipping have been performed in 36 patients and conservative management was possible in 33 patients (three diagnostic perforations included). Three patients of unsuccessful clipping received operations.

This paper concluded that endoscopic repair with clips can reduce the need of surgical intervention.

*Endoscopic submucosal dissection (ESD) for rectal tumors*

E YOUK, E LEE, J LEE, S LEE

Daehang Hospital, Seoul, Korea

This study was conducted to investigate the efficacy of ESD for rectal neoplasm. 55 consecutive patients with rectal tumors were enrolled. The rate of en-bloc resection with tumor free margin was 91.7%. The median operation time was 71.2 min (20-180 min). No patient had the complication of problematic bleeding. Perforation during ESD occurred in one patient (2.7%), who was managed with conservative treatment after endoscopic closure of the perforation. This paper concluded that ESD is applicable in the rectum and improve the patient's quality of life.

*Endoscopic resection of large colorectal neoplasm: a single center 5-year experience*

YL LEONG, YT CHANG, MC CHANG, SC WEI, JM WONG

Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

This study was conducted to investigate the outcome of endoscopic removal of colorectal polyps 2cm in size. A total of 18,453 colonoscopies in 15132 patients were performed and in which 3460 polyp resections in 3062 patients were done. Three hundred thirty-one large colorectal polyps (LCPs) in 303 patients were resected endoscopically. In these series, Fifty-seven LCPs were located in the rectum, 136 in the sigmoid colon. Ninety-nine polyps were sessile, 129 pedunculated, 43 pseudopedunculated, and 50 flat (including 33lateral spreading tumor). At histology, most of the polyps (292) were adenomas including 16 polyps with focal severe dysplasia, 18 focal adenocarcinomatous change and two invasive adenocarcinoma. Five (1.5%) perforations and three managed by surgery and two endoscopically. Four (1.2%) acute bleeding, five (1.5%) delayed bleeding and four (1.2%) fever were occurred. Only 153 (50%) patients have received follow-up colonoscopy, and 13 (8.5%) residual or recurrent polyps were detected. Piecemeal resection methods were used in 10 of those 13 case. This paper concluded that endoscopic resection of LCPs was relative safe and follow up colonoscopy should be performed for residual or recurrent polyp especially those in piecemeal resection method.

## **Pancreato-biliary diagnosis**

**Reporter: Kazuo Hara, MD**

**Affiliation: Aichi Cancer Center, Nagoya, Japan**

*The utilities and complications of the endoscopic transpapillary forceps biopsy for diagnosis of the biliary strictures*

H KAWASHIMA, Y HIROOKA, H GOTO.

Nagoya University Graduate School of Medicine, Nagoya, Japan.

This study was conducted to assess the efficacy and complications of the endoscopic transpapillary forceps biopsy for diagnosis of the biliary strictures.

A total of 123 cases were analyzed. The final diagnosis was decided by surgical specimens or clinical follow-up more than 6 months. Conclusion of this study indicated that at least triple transpapillary forceps biopsies might improve the sensitivity in cancer detection with respect to biliary strictures. The incidence of complication is high in the female, minor papilla malfunction, and post EST cases.

*Predictive values of neoplastic gallbladder polypoid lesion : more than 10mm sized 210 cases which performed cholecystectomy, single center study*

BH CHA, SH LEE, SY KIM.K

Internal Medicine, Seoul National University College of Medicine, Seoul, South Korea

This study was conducted to investigate the clinical and sonographic predictive values of neoplastic gallbladder polyps compared with non-neoplastic polyps. A retrospective analysis was made of 210 patients who were diagnosed polypoid lesions of gallbladder by trans-abdominal ultrasonography or endoscopic ultrasonography (EUS) and underwent laparoscopic cholecystectomy between March 1, 2003 and April 30, 2009. Among 210 cases, 146 were revealed non-neoplastic polyps (69.5%: 47 no polyps, 8 gallbladder stones, 78 cholesterolosis or cholesterol polyps, 10 adenomyomatosis, 2 inflammatory polyps, 1 papillary hyperplasia) and 64 cases were neoplastic polyps (30.5%; 29 adenoma low grade dysplasia, 6 adenoma high grade dysplasia, 29 adenocarcinoma). In sonographic findings, solitary lesion (OR = 0.342, 95%CI, 0.176–0.664, p = 0.001), inhomogeneous internal echo pattern (OR = 2.037, 95%CI, 1.120–3.702, p = 0.019), papillary surface (OR = 4.265, 95%CI, 2.021–9.000, p = 0.000) were statistically significant correlation with neoplastic polyps.

*Natural history of intraductal papillary mucinous neoplasms (IPMNs) based on contrast-enhanced EUS (CE-EUS) findings focusing on malignant alteration and development of ductal cancer of the pancreas*

Y HIROOKA, A ITOH, H GOTO.

Nagoya University Graduate School of Medicine, Nagoya, Japan.

This study was conducted to elucidate the natural course of long-term followed cases by evaluating serial changes of mural nodules in CE-EUS findings. Two hundred forty-nine

patients with IPMNs were examined by CE-EUS as the initial study since January, 2001. As to the follow-up cases, EUS and/or CT were/was performed every 6 months. They assessed carcinogenic rate of IPMNs and investigated the relationship between the morphological changes of mural nodules by CE-EUS and the histological changes. Median follow-up term was 39.9 months (6–116 months). Coexistence of IDC developed in five of 155 (3.2%). Three of those cases were unresectable. Three-year and 5-year incidence rate of IDC and malignant alteration rate were respectively, 1.5% and 3.6% (IDC), 7.9% and 15.1% (IPMC). As to 36 patients (23.2%) resected in the follow-up period. Comparison benign and malignant IPMNs, MPD size ( $3.8 \pm 2.5$  mm vs.  $7.8 \pm 3.6$  mm ( $p = 0.005$ )), Nodule size ( $4.5 \pm 2.4$  mm vs.  $11.6 \pm 11.3$  mm ( $p = 0.0106$ )), MPD enlargement ( $p = 0.0015$ ) and Nodule growth rate ( $2.8 \pm 1.8$  mm/year vs.  $6.9 \pm 6.5$  mm ( $p = 0.0104$ )) were significant predictors of malignancy.

*Narrow-band imaging in tumor of major duodenal papilla: evaluation of the lateral margins for the treatment of endoscopic papillectomy*

T TSUCHIYA 1)2), T ITOI 2), F MORIYASU 2)

1)Gastroenterology and Hepatology, Kosei Hospital, Tokyo, Japan, 2)Gastroenterology and Hepatology, Tokyo Medical University Hospital, Tokyo, Japan

This study was conducted to access the lateral margins of tumor of duodenal papilla for the treatment of endoscopic papillectomy (EP) using NBI. Twelve tumors of the major duodenal papilla were eligible for this study as they were scheduled for endoscopic papillectomy. Observation of papilla was performed by the newly available NBI system. At first, after major duodenal papilla was rinsed sufficiently with an isotonic sodium chloride solution, it was observed under conventional using NBI after observation by white light imaging. Next, indigocarmine was sprayed to the major duodenal papilla to evaluate the visualization compared with NBI. In all lesions, either IC or NBI were superior to conventional while light imaging. Essentially, the ability of NBI observation to identify both the tumor margin was as good as or better than IC observation. EP was performed for a reference in tumor margin which became apparent by NBI. A narrow-band imaging may make it possible to allow an accurate diagnosis for evaluation of horizontal tumor margins of major duodenal papilla.

*Clinical usefulness of 18F-FDG PET-CT for patients with gallbladder cancer and Cholangiocarcinoma*

SW LEE, MD, HJ KIM, MD

Department of Internal Medicine, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea

This study was conducted to elucidate the clinical usefulness of 18F 2-fluoro-2-deoxy-D-glucose integrated positron emission and computed tomography (18F-FDG PET-CT) for patients with gallbladder cancer and cholangiocarcinoma. Ninety-nine patients with gallbladder cancer and cholangiocarcinoma who underwent both PET-CT and MDCT for initial staging were included in our study. The results of the two imaging modalities for evaluation of primary tumors, regional lymph nodes and distant metastasis were

compared with the final diagnoses based on pathological or clinical findings. Maximum standardized uptake value (SUVmax) of 3.65 was determined as the best cutoff for detection of malignant tumor. The overall values for sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and accuracy of PET-CT and MDCT for the detection of primary tumor were 90.2%, 70.6%, 93.7%, 60.0%, 86.9% and 84.2%, 70.6%, 93.2%, 48.0%, 81.8%, respectively. PET-CT demonstrated no significant advantage over MDCT for the diagnosis of primary tumor. PET-CT showed significantly higher PPV (94.1% vs. 77.5%,  $P = 0.003$ ) over MDCT in the diagnosis of regional lymph nodes metastasis. Additionally, PET-CT showed significantly higher sensitivity (94.7% vs. 63.2%,  $P = 0.001$ ) over MDCT in the diagnosis of distant metastasis.

*De-novo bile infection is common and predicts early stent dysfunction in malignant biliary obstruction*

V BHATIA, A SINGHAL, P GARG.

Department of Gastroenterology, All India Institute of Medical Sciences (AIIMS), New Delhi, India

This study was conducted to assess the frequency of de-novo biliary infection in malignant biliary obstruction, and correlate it with stent dysfunction and patient outcome. 100 patients (22 periampullary-, 16 cholangio-, 30 pancreatic-, 27 gallbladder-, and 5 patients with metastatic-carcinoma) were included. All received peri-procedure parenteral antibiotics. Bile was aspirated after crossing the stricture before contrast injection, and cultured. A 10-F straight plastic stent was placed in all. The most common isolates were *Escherichia coli* (29.4%), *Pseudomonas* (26.5%), and *Klebsiella* (11.8%). Incidence of positive cultures was similar in hilar and lower end obstructions ( $p = 0.49$ ). Patients with infected bile had higher incidence of early stent dysfunction requiring stent change [29.4% vs. 9.1%;  $p = 0.009$ ]. Early stent dysfunction was unrelated to the site of malignancy ( $p = 0.42$ ). There was no difference in 30-day stent dysfunction and 30-day mortality between patients with infected and sterile bile. Around one-third of patients with malignant biliary obstruction have de-novo biliary infection resulting in early stent dysfunction.

## **Pancreato-biliary treatment**

**Reporter : Takayoshi Tsuchiya, MD**

**Affiliation : Department of Gastroenterology and Hepatology, Tokyo Medical University, Tokyo, Japan**

APDW Session : Endoscopy (A) – Biliary Tree and Pancreas

Chairman ; Hsiu-Po Wang, Hiroyuki Maguchi

Sunday, Sep 27, 2009

09:00-10:40

*Endoscopic Treatment for Pancreatic Disease*

Jong Ho Moon

Digestive Disease Center, Department of Internal Medicine, Soon Chun H Yang University School of Medicine, Bucheon and Seoul, Korea

Postoperative pancreatic leakage can be managed with ERCP intervention with high success rates with rare complications. Transluminal endoscopic necrosectomy after complicated acute pancreatitis has been tried and shows good results and low complications. Benign stricture of the main pancreatic duct with upstream ductal dilatation can be treated by both a pancreatic and biliary sphincterotomy followed by insertion of a plastic pancreatic stent with or without stricture dilation. Multiple pancreatic stenting can be advocated for longer clinical improvement. Future study necessary to evaluate the efficacy of multiple pancreatic stenting comparing with single retrieval full covered metal stent insertion. Endoscopic management of pancreatic disease can be a first-line therapeutic approach because it is minimally invasive, generally safe, and often effective.

APDW Poster presentations

*EUS-guided choledochoduodenostomy for the patients with lower malignant biliary stenosis*

K Harai<sup>1,2</sup>, N Mizuno<sup>1</sup>, S Hijioka<sup>1</sup>, H Imamura<sup>1</sup>, A Sawaki<sup>1</sup>, Y Kobayashi<sup>1</sup>, K Matsumoto<sup>1</sup>, H Goto<sup>2</sup>, K Yamao<sup>1</sup>

<sup>1</sup> Department of Gastroenterology, Aichi Cancer Center Hospital, Japan, <sup>2</sup> Nagoya

University Graduate School of Medicine, Department of Gastroenterology, Nagoya, Japan

The aim of this study was to show the safety and the efficacy of EUS-CDS. A total 24 patients with lower malignant biliary strictures from 2003 to 2009 have been treated by EUS-guided Choledochoduodenostomy (EUS-CDS). The stent (7Fr or 8.5Fr) insertion was technically successful in 23 patients (23/24, 96%). All 23 patients were through the first portion of the duodenum. Liver dysfunction was improved in all 23 patients. The early complications were one case of the pneumoperitoneum, three cases of mild abdominal pain. But no serious complications. The late complications were stent occlusion (17 events) and external stent migration (1 event). Average time to stent occlusion was 138 days. This paper concluded that EUS-CDS was technically successful without any serious complications, offering clinically effective drainage in all patients, with a comparatively long patency period.

*A randomized controlled trial to compare plastic with metallic stents for unresectable hilar bile duct stricture*

T Mukai<sup>1</sup>, I Yasuda<sup>2</sup>, M Nakashima<sup>2</sup>, S Doi<sup>2</sup>, K Iwata<sup>1</sup>, E Tomita<sup>1</sup>, H Moriwaki<sup>2</sup>.

<sup>1</sup> Department of Gastroenterology, Gifu Municipal Hospital, Gifu, Japan, <sup>2</sup> Department of Gastroenterology, Gifu University Hospital, Gifu, Japan

The aim of this study was to compare the efficacy of plastic (PS) and self-expandable metallic stents (SEMS) for unresectable hilar bile duct stricture. Prospective randomized controlled trial with 60 patients were randomly assigned to PS or SEMS group (n=30 each). The SEMS used was Jo-stent SelfX (Abbott) and the PS was 7Fr Flexima biliary stents (Boston Scientific). The 6-month patency rate was significantly higher in the SEMS (81%) than PS group (19%; p=0.0006). Kaplan-Meier analysis showed significantly longer patency in the SEMS than PS group (p=0.0003); the 50%-patency period was a median of 359 days and 114 day, respectively.

This paper concluded that SEMS has longer patency than PS in patients with unresectable hilar bile duct stricture. Absence of ascites and implementation of chemotherapy also contributed to longer patency.

*Utility of precut papillotomy with needle-knife for selective biliary cannulation*

M Ohtsubo, H Maguchi, K Takahashi, A Katanuma, M Osanai

Center for Gastroenterology Teine-Keijinkai Hospital, Sapporo, Japan

The aim of this study was to evaluate the effectiveness and complication rate of selective biliary deep cannulation with needle-knife precut papillotomy. Between August 2006 and April 2009, ERCP was performed 2423 times at our institution. 990 of these cases involved native papilla requiring therapeutic biliary cannulation. Needle-knife precut papillotomy was required in 35 (3.5%) of 990 cases. In 25 (72.9%) of the 35 cases, pancreatic stent was also performed. In 29 (82.9%) of the 35 cases, biliary access was achieved readily with the needle-knife precut, and in 4 (66.7%) of the 6 remaining cases it was achieved during repeated procedure 2-7 days later. Thus, in total, the biliary access success rate was 33 (94.3%) of 35. Complications occurred in 4 (11.4%) of 35 patients. All patients recovered with conservative management. This paper concluded that precut papillotomy with a needle-knife is a useful procedure for selective biliary cannulation.

## **NOTES & new technologies**

**Reporter: Kazuhiro Yasuda, MD**

**Affiliation: Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan**

*Hybrid NOTES: endoscopic full-thickness gastric resection (EFTGR) of early gastric cancer and laparoscopic regional lymph node dissection – 5 human cases*

JY Cho, WY Cho, YJ Kim, YG Cho, TH Lee, HG Kim, SH Lee, IK Chung, JO Kim  
JS Lee, SY Jin

NOTES Research Group, Soonchunhyang University Hospital, Seoul, Korea

Cho reported a series of 5 patients with early gastric cancer who underwent EFTGR with laparoscopic assistance. EFTGR consisted of the following procedures: (i) laparoscopic regional lymph node dissection; (ii) local resection of the stomach with ESD and laparoscopic technique; (iii) laparoscopic closure of the resection margin. In all 5 patients, EFTGR was successfully accomplished without any intraoperative and postoperative complications. Pathological diagnoses were 2 mucosal cancers and 3 submucosal cancers, and all tumors underwent complete resection.

*Hybrid NOTES: endoscopic-laparoscopic cooperative surgery for gastric submucosal tumor – 5 human cases*

JY Cho, WY Cho, YJ Kim, YH Chung, TH Lee, HG Kim, SH Lee, IK Chung, JO Kim,  
JS Lee, SY Jin

NOTES Research Group, Soonchunhyang University Hospital, Seoul, Korea

Cho also applied EFTGR with laparoscopic assistance to 5 patients with gastric submucosal tumor. All procedures were successfully performed without complications and postoperative course was uneventful. The mean tumor size was 1.6cm and the mean operation time was 174 minutes.

*Natural orifice transgastric oophorectomy using submucosal tunnel technique with survival in a porcine model*

K Kawaguchi, K Yasuda, K Suzuki, F Yoshizumi, M Inomata, N Shiraishi, S Kitano  
Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan

Kawaguchi presented the results of experimental study evaluating the feasibility of transgastric oophorectomy using submucosal tunnel technique. Five pigs were included in the study. The submucosal tunnel was made using the ESD technique, and a gastroscope was introduced into the peritoneal cavity through the tunnel. After ligation of the fallopian tube with an endoloop, snare cautery was performed. The submucosal tunnel was closed with fibrin glue. All procedures were successfully accomplished without intraoperative complications. During the 7-day postoperative period, there were no clinical signs of peritonitis in all pigs. Necropsy revealed the complete healing of the

submucosal tunnel, and peritoneal fluid culture showed no evidence of bacterial growth. The authors concluded that transgastric oophorectomy using the submucosal tunnel technique was feasible and safe in a porcine model.

*Peroral transgastric endoscopic peritoneoscopy for preoperative staging in a pancreatic cancer patient: our initial experience*

K Yasuda, F Yoshizumi, K Kawaguchi, K Suzuki, T Akagi, M Inomata, N Shiraishi, S Kitano

Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan

Yasuda reported the initial experience of peroral transgastric endoscopic peritoneoscopy for preoperative staging of pancreatic cancer. A 5-cm-long submucosal tunnel was created using the ESD technique. The endoscope was advanced into the peritoneal cavity via the myotomy in the distal end of the submucosal tunnel. CO<sub>2</sub> insufflation was used through the endoscope. After confirmation of the operative curability, the mucosal entry site was closed with endoclips. Since April 2008, five patients have undergone transgastric peritoneoscopy. The procedure was successfully performed without any complications in all patients. Transgastric peritoneoscopy provided an excellent view and showed no peritoneal and liver metastases. After confirming the operative curability, the patients underwent standard open operation on the same day. The postoperative course was uneventful in all patients. The authors concluded that the transgastric peritoneoscopy was feasible and safe and was one of the preferred choices for preoperative cancer staging.

*Video-thoracoscopic enucleation of esophageal leiomyoma*

SP Luh, SM Fang, CC Lo, MJ Chen, MD Chung, CJ Wang

Department of <sup>1</sup>Surgery and <sup>2</sup>Gastroenterology, St Martin De Porres Hospital, Chia-Yi City, Taiwan, <sup>3</sup>Professor of Biomedical Engineering, National Chiao-Tung University, Shinju City, Taiwan, <sup>4</sup>Department of Surgery, Chia-Yi Christial Hospital, Chia-Yi City, Taiwan

Luh reviewed 12 cases of esophageal leiomyoma treated by video-thoracoscopic enucleation. Right sided approach was used in 8 patients and left sided in 4. Four patients required a small thoracotomy (4-6 cm) for better exploration and manipulation. The mean operation time was 95 minutes and there were no major complications. The authors concluded that enucleation of esophageal leiomyoma using video assisted thoracoscopic surgery was safe and effective treatment.

*Laparoscopic distal pancreatectomy for pancreatic neoplasm*

T Ogawa, Y Iwashita, S Kai, T Masuda, T Hirashita, H Eguchi, M Ohta, S Kitano

Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan

Ogawa reported a case series of 22 patients who underwent laparoscopic distal pancreatectomy for benign or borderline malignant pancreatic tumors. Using five trocars, the body and tail of the pancreas were mobilized from the surrounding tissues dissecting the ligaments around the spleen. The location of the tumor was confirmed using intraoperative ultrasonography and the pancreas was transversely transected with a laparoscopic linear stapler. Mean operation time was 268 minutes and mean blood loss was 221 g. Conversion to laparotomy was required only in one patient. The postoperative course was uneventful in all patients. The authors concluded that laparoscopic distal pancreatectomy is safe and feasible in patients with benign or borderline malignant tumors of the pancreas.

*Laparoscopic surgery for rectal cancer – single institute phase II study*

M Inomata, Y Ueda, M Tojigamori, T Etoh, K Yasuda, T Noguchi, N Shiraishi, S Kitano  
Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan

Inomata reported a single institution experience of laparoscopic surgery for rectal cancer. A total of 92 patients underwent laparoscopic rectal surgery, including 30 high anterior resection, 36 low anterior resection, 8 ultra low anterior resection with inner sphincter resection and 18 Miles' operation. Mean operation time was 263 minutes and mean blood loss was 85 g. Postoperative complications occurred in 10 patients (11%), including wound infection in 6, intestinal obstruction in 2, anastomotic leakage in 1 and pneumonia in 1. Disease-free survival rate was 96.7% for stage I disease (n = 20), 94.8% for stage II (n = 40) and 79.6% for stage III (n = 32). The authors concluded that laparoscopic was safe and useful in treatment for patient with rectal cancer.