sample are the only methods to diagnose the pancreatic rejection in transplant recipients. Different techniques to obtain pancreas tissue samples were described, however till now duodenal sampling were reported only under special circumstances (as temporal enterostomy). Double-balloon enteroscopy (DBE) is a new method that allows visualization, biopsy and carrying out endoscopic intervention in small bowel. Aim: The aim of our study was to establish feasibility of DBE for visualization and biopsy of donor duodenum in SPK patients and also safety and clinical usefulness of this method. Methods: Double balloon enteroscopy (Fujinon EN-450 TS) was performed by the oral route (in fasting state) in 12 patients (6M, 6F; mean age 41) who received SPK transplant with enteric drainage. The patients were sedated with propofol. The mean duration of the procedure was 30 min. The transplanted duodenal segment was from 30 cm to 100 cm below the Treitz' ligament. Biopsies were obtained from donor and recipient duodenum. Results: In 11 cases visualization of donor's duodenum and recipient's intestinal anastomosis was feasible. The samples of donor duodenum and recipient bowel were taken. All taken biopsies were diagnostic. In one case examination wasn't completed because of aspiration of gastric content during sedation. In 9 cases endoscopic and histological examination were unremarkable. In 2 cases focal erosive duodenitis of donor's duodenum were seen, in one case histological examination revealed rejection of donor's duodenum. Conclusion: DBE is feasible in recipients of pancreatic transplant. Our initial experience seems to indicate that it is a safe procedure in SPK recipients. It makes possible to directly visualize duodenal graft and tissue sampling. It might be employed for diagnostic and therapeutic procedures in SPK patients. To our knowledge this is the first report on use of this technique in recipients of pancreas transplant.

T1641

Clinical Impact of Double Balloon Endoscopy On the Diagnosis of Malignant Small Bowel Tumors: A Single Center Experience

Hirokazu Yamagami, Nobuhide Oshitani, Takehisa Suekane, Noriko Kamata, Mitsue Sogawa, Hirotoshi Okazaki, Kenji Watanabe, Kazunari Tominaga, Toshio Watanabe, Yasuhiro Fujiwara, Tetsuo Arakawa

Background: Small bowel tumors account for 1-2% of all gastrointestinal neoplasms. Malignancy in these tumors is rare, and a diagnostic challenge. Double balloon endoscopy (DBE) has recently entered the clinical arena, allowing endoscopic diagnosis of malignant small bowel tumors (MSBT). This study evaluates the usefulness of DBE in the diagnosis of these tumors. Patients and methods: Between December 2003 and October 2007, 358 patients with suspected or confirmed small bowel disease underwent 677 consecutive DBE procedures. Results: Fourteen patients with MSBT underwent DBE. The most common histological type was primary carcinoma (8 cases; 57%), followed by metastatic carcinoma (3 cases, one of each originating in the lung, kidney and a VIPoma), and malignant lymphoma (3 cases). A majority of the patients presented with obscure gastrointestinal bleeding (OGIB) (7 cases; 50%), with ileus the next most common presentation (3 cases). The remaining cases underwent DBE for investigation of abnormal findings on abdominal CT or MRI (3 cases), or for known malignant lymphoma (1 case). The most common location of MSBT was the jejunum (12 cases; 86%), with tumors in the third part of the duodenum, and both jejunum and ileum in one case each. Eleven of fouteen cases (79%) were diagnosed by biopsy. In one of the fouteen cases, biopsy could not be performed due to the risk of hemorrhage. In the remaining two cases, biopsies were non-diagnostic, and the diagnosis was made following surgical resection or autopsy. The serum level of carcinoembryonic antigen (CEA) was raised in 4 of 8 cases of primary carcinoma, and was not raised in the three cases of metastatic carcinoma. Small bowel barium studies were performed in five cases, with lesions detected in three. Conclusions: DBE allowed histopathological diagnosis of MSBT in eleven of fourteen cases (79%). Of 170 patients with OGIB (in a series of 322 cases who underwent DBE), MSBT accounted for just 8.2%, however 50% of patients with MSBT suffered from OGIB. OGIB is an important symptom of small bowel malignancy, which can often be diagnosed by DBE.

T1642

Usefulness of Double Balloon Endoscopy in Patients with Surgically Distorted Intestinal Anatomy

Do Hoon Kim, Jeong-Sik Byeon, Kee Don Choi, Byong Duk Ye, Soon Man Yoon, Mi Young Do, Seunghyun Kwon, Byunggyu Kim, Seung-Jae Myung, Suk-Kyun Yang, Jin-Ho Kim

Background: Double-balloon endoscopy (DBE) is a new enteroscopic method with a capability for complete observation of whole small bowel. Distorted intestinal anatomy by previous operation makes endoscopic evaluation of the afferent small bowel loop difficult. This study evaluated the feasibility, the diagnostic yield, and the therapeutic potential of DBE in patients with surgically distorted intestinal anatomy. Patients and Methods: From Jan 2005 to Aug 2007, 158 patients with suspected small bowel disease underwent a total of 211 DBE procedures. Out of these patients, 15 patients with surgically distorted intestinal anatomy were included in this study. Surgically distorted intestinal anatomy included anastomosis in deep small bowel with long afferent loop such as Roux-en-Y anastomosis after gastrectomy, hepatobiliary, or pancreatic surgery. 8 were men and the median age was 57 years (range, 40-68 years). Indications of DBE were suspected small bowel bleeding (n = 13), chronic diarrhea (n = 1), and recurrent acute pancreatitis (n = 1). Because bleeding recurred in 1 patient and DBE was performed again, total cases analyzed were 16. The main outcome measurements included completeness of the observation of afferent loop, diagnostic yield, changes in therapeutic management based on DBE findings, and DBE complications. Results: The observation of afferent loop was complete in 13 of 16 cases (81%). The overall diagnostic yield of DBE was 69% (11/16 cases). Out of 11 cases in which DBE detected abnormalities, 6 cases (55%) showed definite lesions and 5 cases (45%) showed probable lesions. Of the 11 cases in which abnormalities were found, 7 (64%) showed lesions in afferent loop. Of the 6 cases in which definite lesions were found, 4 (67%) showed lesions in afferent loop. Of the 14 cases with obscure gastrointestinal bleeding, definite bleeding foci were found in 5 cases (35.7%), which included varix, angiodysplasia, ulcer of unknown etiology, mucosal laceration, and Meckel's diverticulum. Argon plasma coagulation was performed in 2 patients with angiodydplasia and mucosal laceration. Other 5 cases showed probable lesions. In 1 patient with recurrent pancreatitis of unknown cause after total gastrectomy, endoscoic retrograde cholangiopancreatography by DBE was successfully performed in the afferent loop of Roux-en-Y limb and we could exclude anatomical abnormalities such as stenosis of ampulla of Vater. The only major complication was small bowel perforation in one case (6%). Conclusion: DBE is a useful tool for the diagnosis and endoscopic therapy of lesions in the afferent loop in patients with surgically distorted intestinal anatomy such as Roux-en-Y anastomosis.

T1643

Indications and Diagnostic Yield of Double Balloon Enteroscopy in a Tertiary Care Setting: An Analysis of 527 Cases with Suspected Small Bowel Diseases

Jumpei Kondo, Shingo Tsuji, Hideki Iijima, Masahiko Tsujii, Tsutomu Nishida, Katsumi Yamamoto, Shusaku Tsutsui, Norio Hayashi, Osaka University Affiliated Hospitals Small Bowel Study Group

Background and Aims: Double-balloon enteroscopy (DBE) has been recognized as a good tool for diagnostic and treatment means. However, selection of the cases and diagnostic yields, and optimal setting of this modality remain subjects to debate. This study evaluated the diagnostic value of the double-balloon enteroscopy using a multi-center database in tertiary care general hospitals. Methods: Between July 2004 and August 2007, 527 patients with suspected small-bowel disease were examined for by DBE (1083 procedures) in endoscopic centers within 6 general hospitals in an urban area of Japan. Indication, endoscopic findings, and patients' demography were registered to and analyzed in the database. Results: The subjects included 224 female and 303 male (mean age: 60.0 years), all of whom were referred from primary care physician, secondary care institution or hospitals' own open-access clinics to the centers. DBE were performed after hospitalization. The indications for DBE included obscure gastrointestinal bleeding (n = 233), incomplete total colonoscopy (n = 54), stenotic symptoms (n = 51), abdominal pain/discomfort (n = 45). Positive diagnosis was obtained by DBE in 256 cases, including ulcers or erosions (n = 151), tumors or polyps (n = 48), vascular diseases (n = 39). In the 264 DBE cases with obscure bleeding or anemia, 30 cases revealed angiodysplasia followed by Crohn's disease (n = 12) and malignant lymphomas (n = 5) small bowel cancers (n = 4). There were some cases with Meckel's diverticula, and submucosal tumors. In contrast, no relevant pathology was found in 129 cases (49%). Conclusions: This large multi-center series shows that DBE is a well tolerated technique with a high diagnostic yield in patients with small bowel disease. Furthermore, DBE offers hemostases and other treatment modalities for small bowel lesions, which is appropriate for tertiary care hospitals. The results warrant further study for optimal time window and optimal indication of DBE in order to establish higher diagnostic efficacy for the obscure GI bleeding.

T1644

The Efficacy of ''Mother-Baby Technique'' Enteroscopy for Patients with Small Bowel Strictures of Crohn's Disease

Shuhei Hosomi, Kenji Watanabe, Naoto Hirata, Takehisa Suekane, Noriko Kamata, Mitsue Sogawa, Hirokazu Yamagami, Kazunari Tominaga, Toshio Watanabe, Yasuhiro Fujiwara, Nobuhide Oshitani, Tetsuo Arakawa

Background: The usefulness of capsule endoscopy (CE) and double-balloon endoscopy (DBE) for small bowel Crohn's disease have been reported in recent years. However, retention of CE due to small bowel strictures and unsuccessful deep insertion of DBE to small bowel caused by small bowel strictures or adhesions are major problems in Crohn's disease. Mucosal healing will become more important for treatments of patients with Crohn's disease depending on developments of several biologic agents in the near future. We evaluated ''Mother-baby technique'' enteroscopy by using choledochoscope for patients with small

bowel strictures of Crohn's Disease as preliminary study. Methods: A conventional colonoscope (CF-Q240I; Olympus Optical Co., Tokyo, Japan, the diameter of instrumental channel is 3.7 mm) was used as mother-scope, and a peroral choledochoscope (CHF-BP260; Olympus Optical Co., Tokyo, Japan, the diameter of scope is 2.6 mm) was used as baby-scope. To get achieve deep insertion, we used guide wire as guide of baby-scope through instrumental channel of mother-scope. Seven patients with Crohn's disease underwent this technique for the small bowel enteroscopy. Six patients had strictures that could not be passed by conventional colonoscopy, and one patient had active lesion at the middle ileum. Result: In 5 of the 7 patients (71.4%), the baby-enteroscopy was enable to pass through the strictures and could observe the ileal mucosa activity beyond the strictures. In one of 5 patients, the mucosal inflammation with longitudinal ulcers beyond the stricture was detected. The baby-scope could detect the inactive ileal mucosa in 4 of 5 patients. In one of the four patients, the findings gave indication for endoscopic balloon dilatation therapy. However, because of the technical factor (e.g. difficulty in handling the angle control precisely, no air/water channel, no lens washing nozzle), it was difficult to keep suitable distance from baby-scope to ileal mucosa and to get clear view in all cases. Conclusions: Mother-baby enteroscopy is useful to evaluate small bowel lesions with severe strictures in patients with Crohn's disease, however, there are some technical problems that should be improved. Though CE and DBE had been developed, it's difficult to perform total enteroscopy for patients with Crohn's disease easily. We need more developments for CE, DBE, or new devices.

T1645

Diagnosis and Endoscopic Therapy of Small-Intestinal Tumors Using Double Balloon Enteroscopy (DBE) and Videocapsule Endoscopy (VCE)

Wataru Honda, Naoki Ohmiya, Masanao Nakamura, Osamu Shirai, Hiroyuki Takenaka, Akihiro Itoh, Yoshiki Hirooka, Yasumasa Niwa, Osamu Maeda, Takafumi Ando, Hidemi Goto

Background: Recently, VCE and DBE have allowed endoscopic observation throughout the small intestine. Furthermore, DBE has enabled endoscopic treatment of small-intestinal tumors. The aim of this study was to assess the utility of DBE and VCE for detection of small-intestinal tumors or polyps in comparison with computed tomography (CT) and fluoroscopic enteroclysis. The usefulness of enteroscopic treatment of small-intestinal benign tumors or polyps was also evaluated. Methods: Of 395 patients who underwent DBE between June 2003 and September 2007, 116 with small intestinal tumors or polyps were enrolled. Contrast-enhanced CT was performed with a multidetector CT scanner. All fluoroscopic enteroclysis was double-contrast roentgenogram. VCE was performed in 45 selected patients. Results: Detected small-intestinal tumors were as follows; lymphangiomas (n = 55), Peutz-Jeghers polyps (PJP) (n = 14), malignant lymphomas (n = 11), gastrointestinal stromal tumors (GIST) (n = 8), polyps associated with familial adenomatous polyposis (n = 7), metastatic small-intestinal tumors (n = 7), inflammatory polyps (n = 6), adenocarcinomas (n = 4), aberrant pancreas (n = 3), carcinoids (n = 2), lipoma (n = 2), ileal adenoma (n = 2), leiomyoma (n = 2), and adenomyoma (n = 1). DBE had the higher detection rate for small intestinal tumors compared with CT and with enteroclysis ($P < .001$ and .004, respectively, McNemar test). Twentyfour tumors or polyps (eleven PJP, three inflammatory polyps, two aberrant pancreas, two adenoma, two leiomyoma, one lymphangioma one lipoma with possible invagination, one adenomyoma, one malignant lymphoma) were successfully treated by EMR or polypectomy. Of 45 patients who underwent VCE, VCE was used for follow-up after enteroscopic treatment in two patients and for screening of obscure gastrointestinal bleeding, small bowel obstruction, etc in 43 patients. Of these 43 patients, tumors or polyps in 26 (61%) were detected by VCE, but eleven (39%; seven lymphangioma, four inflammatory polyps, two GIST, two hemangioma, one metastatic small-intestinal tumor, one aberrant pancreas) were overlooked. Conclusions: DBE was effective for diagnosis and treatment of small-intestinal tumors or polyps. VCE was effective for screening of these tumors.

T1646

Diagnostic Yield and Therapeutic Impact of Single Balloon Enteroscopy; A Series of 60 Patients with Suspected Small Bowel Disease

Mohan Ramchandani, D.N. Reddy, G.V. Rao, Santosh Darisetty

Introduction: Non surgical management of small intestinal diseases is difficult due to lack of proper instruments to access the long redundant bowel loops. Single balloon enteroscopy (SBE) is novel method of push and pull enteroscopy which allows deep intubation of intestine. Aim: Single-center prospective study conducted from February 2007 to October 2007, to evaluate the clinical utility of the prototype SBE system. Methods: Subjects with suspected small bowel disease who required deep enteroscopy were enrolled. The Olympus XSIF-Q260Y enteroscope [200 cm length,9.2 mm outer diameter (OD), and 2.8 mm working channel] was coupled with a 132 cm long,13.2 mm OD single use silicon overtube, which has a balloon at the distal end. Balloon is operated with Olympus balloon control unit (MAJ 1440). The tip of the enteroscope has a broad bending capability due to its extreme flexibility allowing anchorage to the small bowel thus facilitating deep intubation. Depth of insertion was determined by carefully recording length of the scope inserted during each pull and push maneuver. Fluoroscopy was utilized intermittently. Enteroscopy was done under monitored anesthesia care (Midazolam, Propofol). All patients underwent antegrade enteroscopic examination, 10 underwent both antegrade and retrograde procedures, with tattooing during the initial procedure to confirm a total small-bowel examination. Results: A total of 60 subjects (36M /24F, mean age 39.83 $\pm$ 14.66 Years) were studied. Indications for SBE included obscure GI bleeding(18),chronic abdominal pain with abnormal imaging studies like Barium series, CTscan etc (21), malabsorption Syndrome (11), Polyposis syndromes (9) and Foreign body (1). Mean procedure time was 63 $\pm$ 18 min. The mean depth of insertion was 260 $\pm$ 60 cms beyond ligament of Treitz. Pan-enteroscopy was possible in 5 out of 10 cases. Enteroscopic findings were arteriovenous malformations [AVMs] (7), ulcers (15), polyps (6), diffuse enteritis (2), mass lesion (3) and effacement of jejunal folds (3). Histological diagnosis included adenocarcinoma (3), Crohn's disease (4), Tuberculosis (2), Strongyloidosis (2), Giardiasis (1), Amyloidosis (1), Celiac Sprue (4), Tropical sprue(1), Hamartomatous polyps (4) and non specific ulcers(9). Diagnostic yield in cases of obscure G I bleed, chronic abdominal pain and malabsorption syndrome were 77%, 61% and 63% respectively. Therapeutic interventions included Argon plasma coagulation of bleeding ulcers and AVMs (12), Polypectomy (3) and foreign body removal (1). No complications were encountered. Conclusion-The Olympus single balloon enteroscope was well-tolerated and led to a high diagnostic and therapeutic yield in cases of small bowel disorders.

T1647

Negligible Effects of Erythromycin On Image Quality and Transit Time of Endoscopic Capsule: A Two-Center Study

Eva Niv, Ido Bogner, Olga Barkay, Zamir Halpern, Elisabeth Mahajna, Yael Kopelman, Zvi Fireman

Aim: To compare the effect of oral erythromycin vs. no preparation with prokinetics on the transit time and the image quality of capsular endoscopy (CE) in evaluating small bowel (SB) pathology. Methods: We conducted a retrospective blinded review of 100 CE studies, 50 with no preparation from one medical center (Group A) and 50 from another center which included the administration of a single dose of 200 mg oral erythromycin 1 h prior to CE (Group B). Gastric, SB and total transit times were calculated, the presence of bile in the duodenum was scored, as was cleanliness within the proximal, middle and distal intestine. Results: The erythromycin group had a slightly shorter gastric transit time (21 min versus 28 min for Group A, $P = 0.07$). SB transit time was similar for both groups ($P = 0.83$). Total transit time was almost identical in both groups ($P = 0.97$). The rate of incomplete examination was 16% for Group A and 10% for Group B ($P = 0.37$). Bile and cleanliness scores in different parts of the intestine were similar for the two groups ($P = NS$). The use of erythromycin had no effect on image quality ($P = 0.73$). Conclusions: Preparation for capsular endoscopy with erythromycin does not affect SB or total transit time. It tends to reduce gastric transit time, but it does not increase the cecum-reaching rate. Erythromycin does not adversely affect image quality. We consider the routine use of oral erythromycin preparation as being unfounded, although it might be considered in patients with known prolonged gastric emptying time.

T1648

Double-Balloon Enteroscopy Two-Year Experience At a Single Tertiary Centre

Marcela Kopacova, Ilja Tachecí, Stanislav Rejchrt, Jan Bures

Introduction: Double-balloon enteroscopy (DBE) is a new enteroscopy method that allows examination and treatment of the jejunum in almost all cases and of the ileum in most patients. Aims & Methods: We started to perform DBE by the end of February 2006 as the first endoscopy unit in the Czech Republic to do so. Methods: A total of 103 DBEs were performed in 68 patients (34 men, 34 women, mean age 51 years, median 56.5, range 18 - 86) using a Fujinon EN 450T5 enteroscope. Oral insertion was employed in all cases. The indications were: GI bleeding in 40 DBEs, Crohn's disease in 18, polyps (familiar adenomatous polyposis, Peutz-Jeghers syndrome) in 14, suspicion of small intestinal infiltration or subileous patient in 10, suspicion of small intestinal carcinoid tumour in 8, small intestinal lymphoma (after treatment) in 5, coeliac disease 4, foreign bodies in 3 and severe hypoproteinaemia in 1 DBE. Results: The mean time required to carry out the procedure was 121 min (range 20 - 270 min). Using the oral route we reached the caecum in 8 patients, the mean time of the procedure was 155 min. Lesions responsible for the small intestinal bleeding were found in 29 DBEs (AV malformations in 11 NSA ulcers or erosions in 9, varices in 3, bleeding polyp in 2, bleeding anastomosis in 2, lymphoma in 1 and Crohn's disease newly recognised in 1), AV malformations were treated by electro-coagulation. One patient with Crohn's disease was investigated four times: the first DBE was performed because of retained wireless capsule endoscope in the ileum (it showed severe inflammatory involvement of the small intestine including multiple ulcers and stenoses), the capsule was removed