

Su1169**Novel EMR Technique for Preoperative Diagnosis and Treatment of Submucosal Tumor in the Small Bowel at Double-Balloon Endoscopy**

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Backgrounds: Small bowel submucosal tumors (SMTs), such as gastrointestinal (GI) stromal tumors and ectopic pancreas, are difficult to diagnose before surgical treatment. However, the SMT should be resected during double-balloon endoscopy (DBE) if it is the responsible lesion for GI bleeding or has a malignant potential. Such SMT may be resectable if it is contained within the submucosal layer and is smaller than 1 cm. We attempted endoscopic resection of SMTs at DBE to obtain a definitive diagnosis and, if possible, perform curative resection. The aim of this study was to retrospectively evaluate the SMT in the patients who underwent SMT-EMR in the small bowel using by DBE. **Patients and Methods:** Of 69 patients with SMTs diagnosed by DBE in our hospital, this study included 12 patients with SMTs that were resected during DBE. There were 8 male and 4 female patients. Mean age of the patients was 59 ± 8 years old. The objects of EMR were treatment of bleeding SMT and the histopathological differentiation of undiagnosed SMT, especially GI stromal tumor versus ectopic pancreas. The indications for DBE were obscure GI bleeding in 7 patients, anemia in 2 patients, unknown abdominal pain in 2 patients, and suspected small bowel tumor in 1 patient. We considered the SMTs to have the potential to present with clinical symptoms. The following were indications of SMT-EMR: 1) suspicion of benign tumor that could not be confirmed by macroscopy or endoscopic ultrasonography, 2) tumor not directly exposed at the mucosal surface, 3) applicable view at the lesion site available for endoscopic resection, and 4) clinical advantage of performing SMT-EMR. When a SMT was found during DBE, endoscopic ultrasonography (SP-702, manufactured by Fujifilm corp.) was performed to confirm what tissue layer the SMT had originated from. We reviewed the details of EMR procedures. **Results:** Careful EMR was performed using the endocut mode of the electrosurgical generator. We used a loop of 15 mm in size for EMR and resected a 10-mm portion of the tumor in cases for which the tumor was larger than 10 mm. Resected specimens were retrieved from all 12 patients. Histopathological results demonstrated 3 lipomas, 3 ectopic pancreas, 2 leiomyomas, 2 pyogenic granuloma, 1 lymphangioma, and 1 unknown tumor. The diagnostic rate was 11/12 (91.6%). Curative resection was achieved for 10 SMTs using this technique. For the other 2 patients, clinical symptoms had not presented during the follow-up period. No adverse events related to SMT-EMR occurred. **Conclusions:** The EMR technique is useful for the management of patients with a suspected but undiagnosed SMT in the small bowel, although it carries the risks of bleeding and gastrointestinal perforation. If the SMT is histopathologically diagnosed as a benign tumor before treatment, it can be followed without performing surgery.

Su1170**Role of Mucosal Protrusion Angle in Discriminating Between True and False Masses of the Small Bowel on Video Capsule Endoscopy**

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Introduction: Video capsule endoscopy (VCE) has significantly improved our ability to detect small bowel tumors. However, diagnosing small bowel tumors has remained a challenge due to their low incidence, nonspecific presentations, and the inability to use VCE to biopsy lesions identified during passage through the small bowel. To address this challenge, Girelli et al. developed a novel scoring system called the "smooth, protruding lesions index at capsule endoscopy" (SPICE) to distinguish true submucosal masses from innocent bulges. In our study, we compared the utility of an additional morphologic criterion, the mucosal protrusion angle, with SPICE scores in detecting true submucosal masses of the small-bowel. **Methods:** We retrospectively reviewed the charts of 290 patients over the age of 18 who had undergone VCE for suspected small bowel lesions between the years of 2002 and 2016. In total, we analyzed the VCEs of 35 patients. SPICE scores were calculated for each patient as outlined in Girelli et al. and mucosal protrusion angles were measured using a protractor placed on the computer screen. We calculated the sensitivity, specificity, positive predictive value (PPV), and negative predictive value

(NPV) of both SPICE and protrusion angle. The protrusion angle was defined as the angle between the polyp and surrounding mucosa, and we hypothesized that an angle > 90° suggested an external protrusion while an angle < 90° suggested a submucosal mass or true polyp. **Results:** 25 patients had true submucosal masses (2 GIST, 6 carcinoid, 5 Peutz-Jeghers, 3 inflammatory polyps, 2 hamartomatous polyps, 1 lymphoma, 1 lipomatous polyp, 1 tubular adenoma, 1 leiomyoma, 1 cavernous hemangioma, 1 hyperplastic polyp, 1 lymphatic nodule) and 9 patients had innocent bulges due to extrinsic compression. True submucosal masses when compared to innocent bulges had an average measured angle of protrusion of 48.3° ± 21.0° vs. 108.1° ± 19.3° ($P < 0.0001$; unpaired t -test). When compared with SPICE scores, a mucosal protrusion angle < 90° had a higher sensitivity (95.7% vs. 32.0%), specificity (90.0% vs. 80.0%), PPV (95.7% vs. 80.0%) and NPV (90.0% vs. 32.0%). Acute angle of protrusion accurately discriminated between true submucosal masses and extrinsic compression bulges on Fisher's exact test ($p = 0.0001$). **Conclusion:** Protrusion angle is a simple and useful tool for differentiating between true submucosal masses and innocent bulges of the small-bowel. Further prospective studies are needed to validate its utility in minimizing invasive interventions.

Su1171**Establishment of a New Scoring System for Predicting the Necessity of Double-Balloon Endoscopy in Obscure Gastrointestinal Bleeding**

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Background and Aims: Capsule endoscopy (CE) is recommended as the first-line procedure in several guidelines of obscure gastrointestinal bleeding (OGIB) because it is less-invasive and its diagnostic yield is similar with double-balloon endoscopy (DBE). However, a method for predicting the necessity of subsequent DBE has not been established. The purpose of this study was to build a new scoring system that predicts the necessity of DBE in patients with OGIB using clinical profiles, laboratory findings, and CE results. **Methods:** A retrospective study was performed on 386 patients who underwent CE with OGIB at Nagoya University Hospital between June 2004 and December 2015. Of these patients, 330 patients who had lesions in the small bowel were enrolled for the analyses. The enrolled patients were randomly divided into either a development dataset or a validation dataset. In the development dataset, a prediction score was constructed to assess the necessity of DBE using independent predictors selected via logistic regression. Patients who necessitated DBE were defined as follows: (1) patients whose diagnosis made by CE was changed or confirmed by DBE, (2) patients whose CE diagnosis could be confirmed only by CE but who needed DBE procedures such as hemostasis which included prophylactic therapy or tattooing, or (3) patients who had experienced rebleeding within 6 months when DBE was not undergone. Patients who did not necessitate DBE were defined as follows: (1) patients whose diagnosis could be confirmed only by CE and who did not need hemostasis or tattooing by DBE, (2) patients who had not experienced rebleeding more than 6 months after CE when DBE was not undergone, or (3) patients with no lesion detected by DBE. The diagnostic yield of the prediction model was assessed using the validation dataset. **Results:** In the development dataset, multivariate logistic regression identified type of OGIB, blood transfusion, and CE findings as independent predictors of necessity of DBE. The Hosmer-Lemeshow statistic was not significant ($P = 0.89$). The 3 variables were used to generate a simple scoring model by approximating the information from the logistic coefficients. The scoring model gave an area under the receiver-operating-characteristics curve of 0.77. For a cutoff of 2.5 score points or more, sensitivity, specificity, positive predictive value, and negative predictive value were 72.5%, 74.6%, 72.6%, and 74.5%, respectively. **Conclusions:** Our new score to predict the necessity of DBE in OGIB could be valuable for making decisions whether clinicians should propose DBE for patients with OGIB.

Su1172**Evaluation of Small Bowel Patency in Crohn's Disease and Prospective Study With Patency Capsule and Computed Tomography**

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