Pure NOTES Endoscopic Full-Thickness Resection of a Gastric Subepithelial Tumor with the Submucosal Tunnel Technique Under Conscious Sedation

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Background or Introduction: Recently, several investigators have reported the feasibility of endoscopic full-thickness resection (EFTR) of gastric lesions with hybrid natural orifice transluminal endoscopic surgery (NOTES) under laparoscopic assistance and general anesthesia in human patients. Moreover, our previous human pilot study demonstrated that pure NOTES using submucosal tunnel technique under conscious sedation was safe and feasible (Gastrointest Endosc 2010;79:889-91). Herein, we report first clinical experience with NOTES EFTR using the submucosal tunnel technique under conscious sedation in a patient with gastric subepithelial tumor (SET).

Materials and Methods: A 47-year old woman was referred to our hospital for the evaluation of a gastric SET found incidentally. EUS revealed a 16.0 x 11.2 mm, intraluminal growing heterogeneous hypoechoic mass originating from the muscularis propria at the anterior wall of the low body. On the basis of the endoscopic findings, we planned an EFTR for the dual purpose of a histopathological diagnosis and definite treatment. The institutional review board and ethics committee of our hospital approved the human trial.

Results: All procedures were performed with a standard gastroscope under conscious sedation with midazolam in the endoscopic unit. Broad spectrum antibiotics were given for prophylaxis. (1) After submucosal injection of hyaluronic acid mixture, a 20-mm transverse incision of the overlying mucosa was made using a flex knife. (2) A 40-mm submucosal tunnel was created using the endoscopic submucosal dissection technique with the same device. (3) After an endoscope reached the tumor, a small puncture of the proximal seromuscular layer of the tumor was made with a flex knife. (4) Endoscopic full-thickness incision around the three-fourths circumference of the tumor was performed by using an IT-2 knife. (5) Then, the tumor was resected with a snare while it was suctioned into the cap. (6) The mucosal defect of the tunnel was successfully closed by the endoloop-clips technique using a two-channel gastroscope. The resected specimen confirmed schwannoma.

Conclusions: In conclusion, pure NOTES EFTR using the submucosal tunnel technique under conscious sedation is a safe and feasible method for the treatment of small intraluminal growing SET originating from the muscularis propria on EUS. It can be a minimally invasive therapeutic alternative to laparoscopic resection in selected patients with gastric subepithelial tumor.