VIDEO CASE REPORT

Insulated tip knife tunneling technique with clip line traction for safe endoscopic submucosal dissection of large circumferential esophageal cancer

Seiichiro Abe, MD, Ichiro Oda, MD, Haruhisa Suzuki, MD, Shigetaka Yoshinaga, MD, Yutaka Saito, MD

Esophageal endoscopic submucosal dissection (ESD) is technically challenging for the following reasons: (1) the narrow lumen of the esophagus makes gravity countertraction less effective; (2) the resected specimen retracts distally, making it difficult to maintain good traction and orientation; and (3) the thin wall of the esophagus increases the risk of perforation.[1] We describe a case of successful ESD of a large circumferential squamous cell cancer (SCC) by the use of an insulated tip (IT) knife tunneling technique with clip line traction.

An 80-year-old man underwent an EGD for evaluation of dyspepsia. A suspicious 70-mm circumferential flat lesion involving the middle and lower esophagus was seen. This lesion was evaluated with iodine chromoendoscopy and did not show iodine uptake, suggesting SCC (Figs. 1 and 2). Biopsy specimens from the lesion showed SCC, and a CT scan was negative for nodal and distal metastasis. After discussion of the different treatment options, the patient opted for ESD (Video 1, available online at www.VideoGIE.org).

The ESD was performed with the patient in the left lateral position with deep sedation. Using a dual knife (Olympus KD-650U, Tokyo, Japan) and an IT knife nano (Olympus KD-612U) we made a semicircumferential mucosal incision on the proximal side and a circumferential mucosal incision at the distal side of the lesion (Figs. 3 and 4). Next, a submucosal tunnel was created from the proximal side. The endoscope entered the submucosal layer by use of the tip of the endocap, and the submucosal tunnel was extended by dissecting the submucosa with an IT knife nano. The loose submucosa of the esophagus allowed the insulated tip of the knife to be inserted into the submucosa, allowing the small disk-shaped electrode of the backside of the insulated tip to safely and efficiently dissect the submucosa (Fig. 5). We made a communication between the proximal and distal sides against the force of gravity to get the lesion away

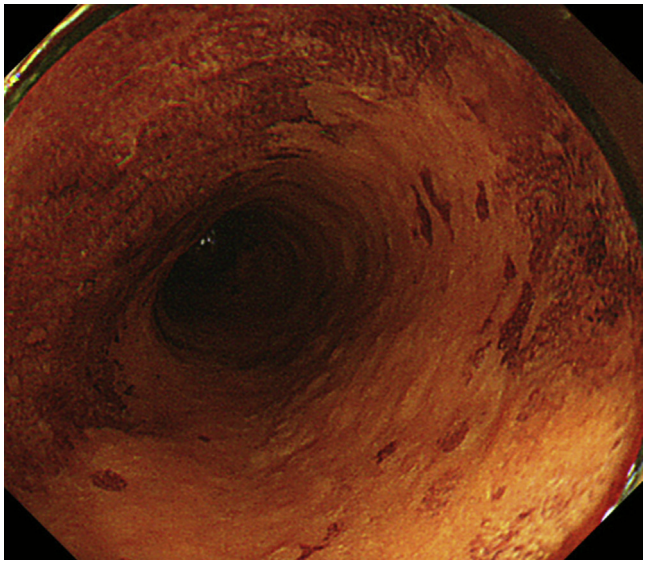

Figure 1. Proximal side of the lesion; iodine staining revealed that this lesion involved the complete luminal circumference.

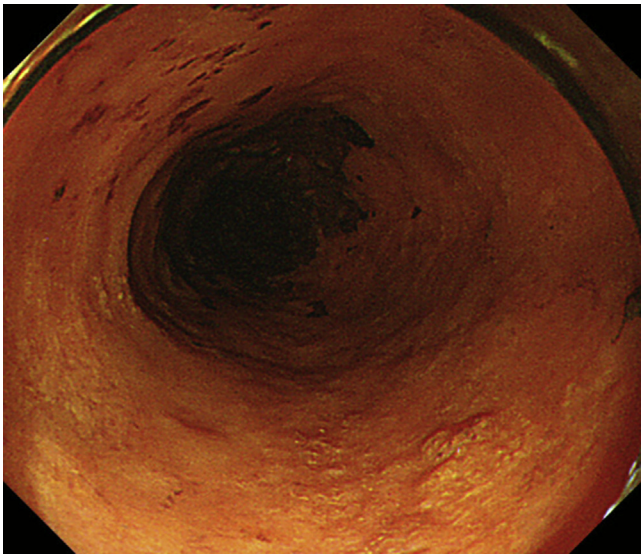

Figure 2. Distal side of the lesion; endoscopic submucosal dissection was performed in left lateral position while anesthesia was monitored.

Written transcript of the video audio is available online at www.VideoGIE.org.

from the area water pool. An endoclip (Olympus HX-610-090) with attached dental floss was attached to the back side of the specimen. The line was pulled through the mouth to give traction (Fig. 6). Dissection of the submucosa lateral to the submucosal tunnel was completed with the IT knife nano (Fig. 7). Injection of 100 mg triamcinolone acetonide (10 mg/mL) was performed in aliquots of 0.2 mL (2 mg) into the ESD ulcer base in a circumferential fashion after the completion of submucosal dissection.[2] En bloc resection was achieved in 150 minutes, including triamcinolone injection, and the syringe-shaped specimen was removed (Figs. 8 and 9). Histologically, the resected specimen showed squamous cell carcinoma, with the deepest invasion to the lamina propria, negative margins, and measurement of 66 mm by 55 mm. As expected, the patient experienced dysphagia (dysphagia score 2), and a post-ESD stricture 2 cm long and 5 mm in diameter developed

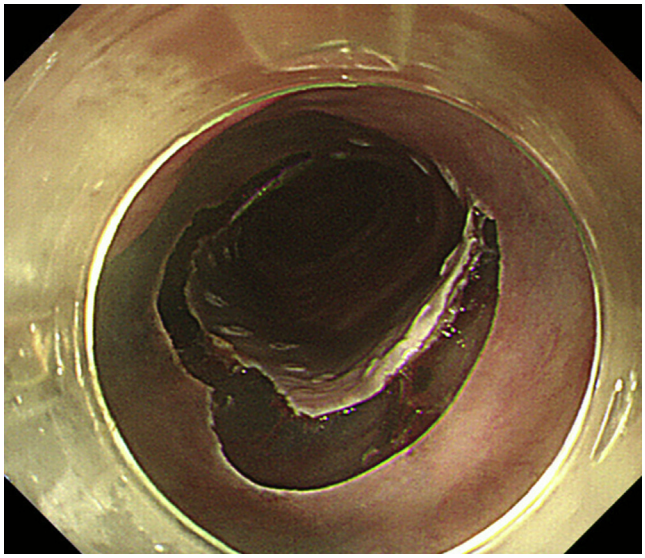

Figure 3. Endoscopic submucosal dissection started with semicircumferential mucosal incision on the proximal side with use of both dual knife and insulated tip knife nano device.

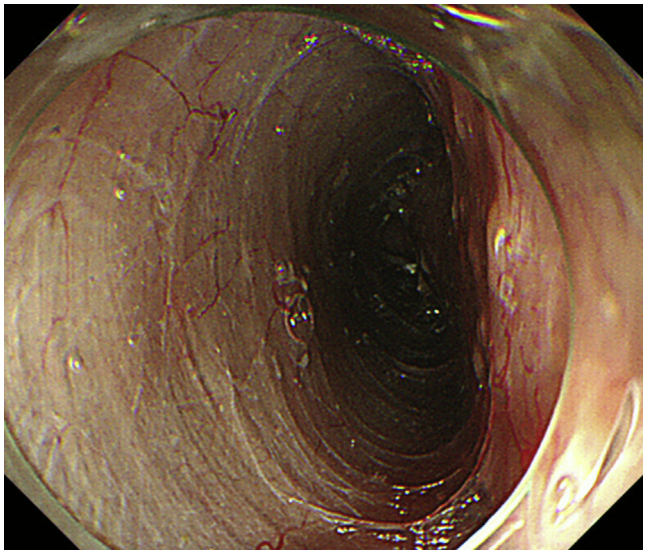

Figure 5. Insulated tip knife tunneling technique allowing communication between proximal and distal sides, with good traction against gravity to retract away from the area water pools.

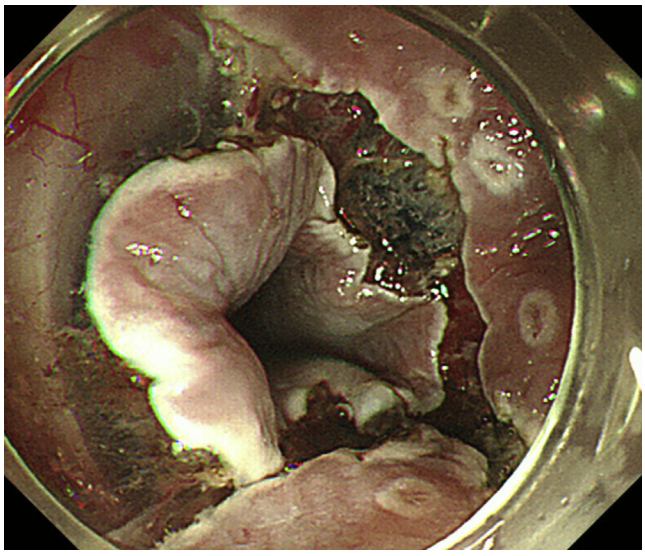

Figure 4. A circumferential mucosal incision on the distal side to make an endpoint for submucosal dissection.

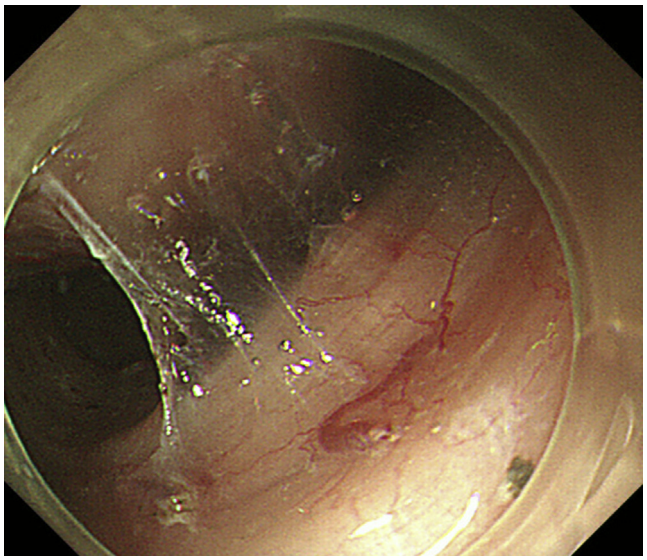

Figure 6. Submucosal layer of the distal side was well visualized and lifted up with good traction by clip line traction technique.