



Circumferential endoscopic submucosal dissection for the treatment of ultra-short-segment Barrett's adenocarcinoma with multifocal dysplasia

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Ultra-short-segment Barrett's esophagus is defined as intestinal metaplasia at the esophagogastric (EG) junction measuring less than 1 cm in length.¹ Endoscopic resection of Barrett's adenocarcinoma (BA) should be generally followed by ablation therapy to achieve complete eradication of all intestinal metaplasia (IM), thereby decreasing the likelihood of recurrent dysplasia.² Although

circumferential endoscopic submucosal dissection (ESD) for BA can provide both tumor resection and complete removal of IM, avoiding subsequent ablation procedures, the number of cases reported is scarce.³ We report a case of an ultra-short-segment BA with multifocal low and high-grade dysplasia (HGD) successfully treated by circumferential ESD.

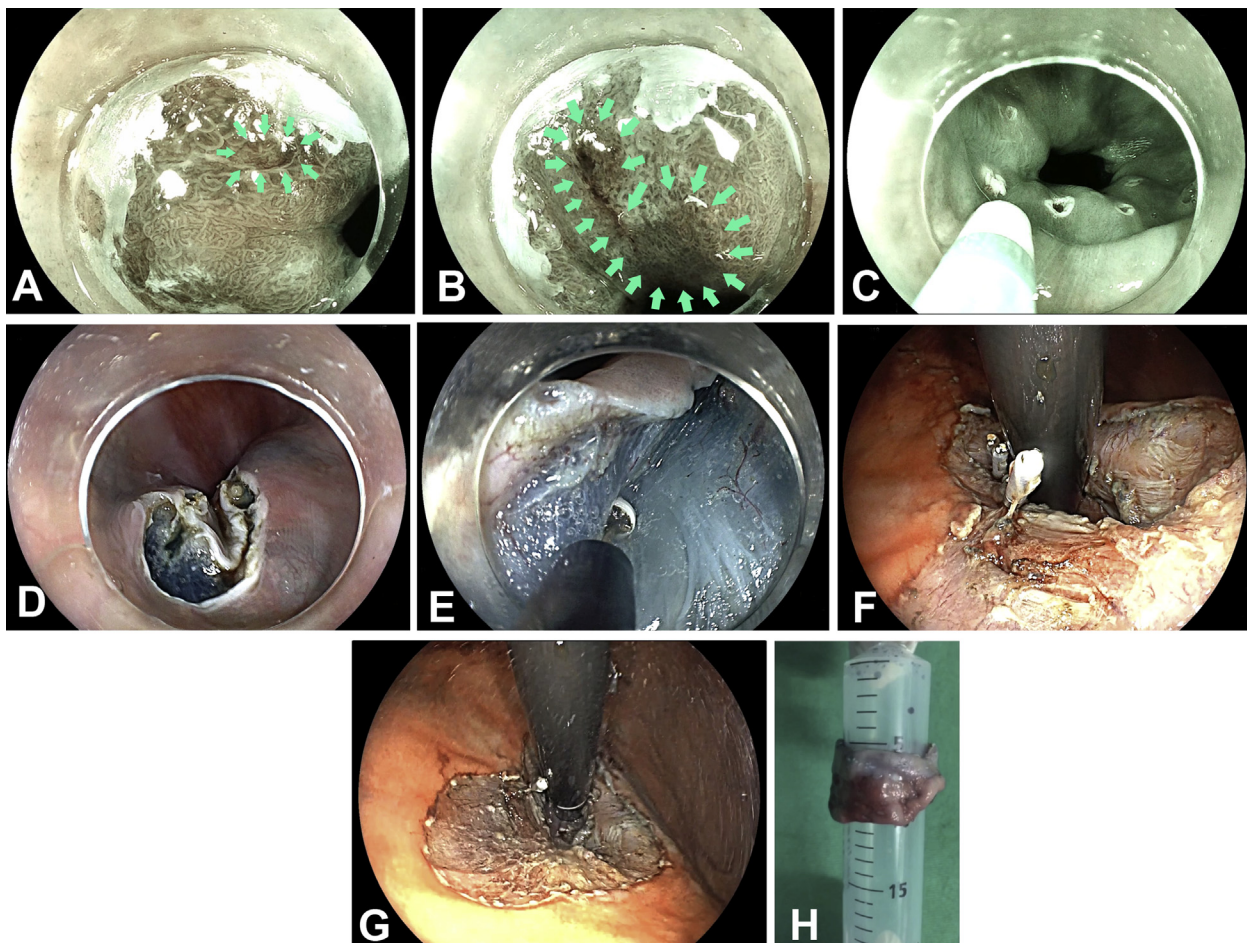


Figure 1. Diagnosis of suspicious lesions and circumferential endoscopic submucosal dissection. **A**, Magnifying blue-light imaging identified a 4-mm 0-IIb lesion with irregular microvasculature located 39 cm from the incisors, in the left quadrant of the esophagogastric junction at 8 o'clock. **B**, A second lesion, 10-mm 0-IIb with microstructure and microvasculature irregularity, is identified at the same distance from the incisors, in the right quadrant at 2 o'clock. **C**, Proximal marking is performed using a ball-tip Flush Knife. **D**, Circumferential incision in the oral side. **E**, Submucosal dissection in direct and retroflex views is carried out using an IT-Knife2. **F**, A small perforation is successfully closed by endoscopic clips. **G**, Ulcer postresection seen in the retroflex view. **H**, The specimen is placed over a plastic syringe.

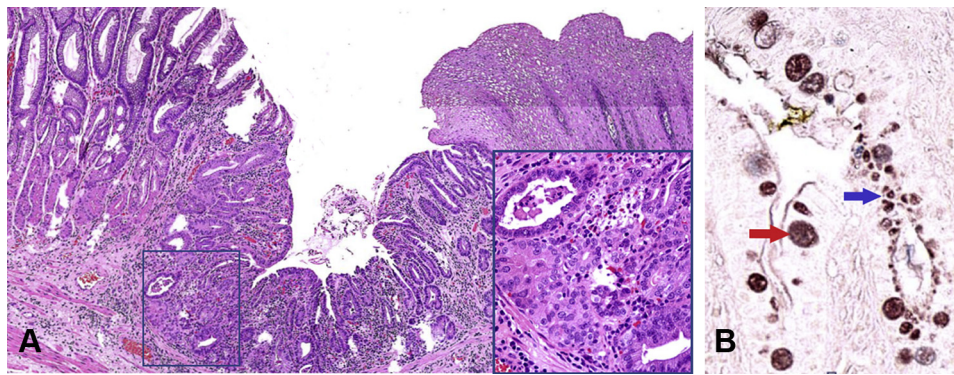


Figure 2. Histopathologic analysis. **A**, Panoramic hematoxylin and eosin staining revealed an intestinal-type, well-differentiated intramucosal adenocarcinoma 1.5 mm in size (*blue square*), surrounded by multifocal high-grade dysplasia. *Right larger blue square* at original magnification $\times 20$ shows nuclear atypia with muscular mucosae preserved. No lymphovascular invasion, and horizontal margin negative for intestinal metaplasia and dysplasia. **B**, High-iron diamine alcian blue immunohistochemistry staining at pH 2.5 revealed specialized columnar epithelium with predominant expression of sulphomucins (type III intestinal metaplasia) in both goblet (*red arrow*) and columnar epithelial cells (*blue arrow*).

CASE

A 56-year-old man with chronic GERD, type B esophagitis, and nonatrophic gastritis was referred for a nodule 8 mm in diameter at the EG junction; targeted biopsy specimens revealed well-differentiated adenocarcinoma. No other biopsy specimens were obtained.

In our institution, white-light examination revealed an irregular Z line without any macroscopic lesions. Magnifying blue-light imaging (Fujifilm, Tokyo, Japan) using a distal transparent cap (Olympus, Tokyo, Japan) identified a 4-mm, 0-IIb lesion with microvascular irregularity located in the left quadrant at the 8 o'clock position (*Fig. 1A*) and a 10-mm 0-IIb lesion with microstructure and microvascular irregularity located in the right quadrant at the 2 o'clock position (*Fig. 1B*).⁴ Based on the contralateral location of these lesions and the likelihood of multifocal dysplasia, circumferential ESD aiming for en bloc R0 resection was scheduled.

PROCEDURE

The procedure was performed using an EG 760Z gastroscop (Fujifilm), a VIO 300D electrosurgical generator (ERBE Elektromedizin, Tübingen, Germany), and CO₂ insufflation. Marking above (*Fig. 1C*) and below the Z line (FORCED COAG, 20W, effect 1) and the circumferential incision (*Fig. 1D*) were performed using a ball-tip Flush knife (DK2618J; Fujifilm). A mixture of normal saline solution, 0.25% indigo carmine dye, epinephrine, and hyaluronic acid solution (MucoUp, Tokyo, Japan) was used for submucosal injection. Using an IT-Knife 2 (KD-611L, Olympus), we initiated the submucosal dissection (ENDO CUT, effect 2) from the esophagus in direct view and continued from the stomach in the retroflex view (*Fig. 1E*). Although a 3-mm perforation was observed when the procedure was halfway completed, the dissection was completed, and the perforation was successfully closed by using endoscopic clips (EZ

Clip HX-610-135L; Olympus) (*Fig. 1F*). The total procedure time was 82 minutes, and the size of the resected specimen was 3.5 \times 2.8 cm (*Fig. 1H*).

OUTCOME

The patient was maintained with intravenous isotonic solution during the first 12 hours and was discharged the next day with esomeprazole 80 mg per day. For stricture prevention and according to Yamaguchi et al,⁵ prednisone 60 mg/d, tapering 5 mg/wk for 12 weeks, was initiated on the fifth postoperative day. Histopathology results revealed a 1.5-mm intestinal-type, well-differentiated intramucosal adenocarcinoma with multiple foci of low-grade dysplasia and HGD. High-iron diamine immunohistochemistry results revealed incomplete IM with predominant sulfomucins expression (*Fig. 2*). No lymphovascular invasion was observed, and the horizontal margin was negative for IM and dysplasia. The patient had no dysphagia and showed no stenosis on EGD at 2 months post-ESD. Neither IM nor dysplasia were seen on scar biopsy specimens.

When facing a difficult diagnosis as in the present case, blue-light imaging with magnification enabled us to identify suspicious cancerous lesions. This case is the first Western report of a successful circumferential ESD at the EG junction. Tumor histopathology, history of chronic GERD, and nonatrophic gastritis strongly indicate this Sievert type 2 adenocarcinoma originated from Barrett's metaplasia.⁶ Although it is a challenging procedure requiring direct and retroflex view maneuvers in all steps, circumferential ESD can provide curative tumor resection and complete eradication of the remaining IM harboring multiple foci of low-grade dysplasia and HGD, thereby avoiding subsequent ablative therapies (*Video 1*, available online at www.VideoGIE.org). Stenosis after circumferential ESD can be prevented successfully with use of oral steroids.

DISCLOSURE

Dr Emura received research grant support from Fuji-Film. All other authors disclosed no financial relationships. This work was supported in part by a grant in-aid from the Emura Foundation for the Promotion of Cancer Research, ID No. 02062.

Abbreviations: BA, Barrett's adenocarcinoma; EG, esophagogastric; ESD, endoscopic submucosal dissection; HGD, high-grade dysplasia; IM, intestinal metaplasia.

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<https://doi.org/10.1016/j.vgje.2020.07.018>

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