



Traction wire endoscopic submucosal dissection: tips and techniques from 4 institutions

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Traction can make endoscopic submucosal dissection (ESD) easier to perform. The traction wire is a new technology that is easy to use and delivers continuous traction throughout the ESD procedure. It is a curved wire system that, when attached to a lesion, returns to its precurved shape, lifting the mucosa and exposing the submucosa for easier dissection. Here, we present tips and techniques for using the device from 4 institutions.

DESCRIPTION OF TECHNOLOGY

The ProdiGI Traction Wire (ERD-TW20, ERD-TW35; Medtronic, Minneapolis, Minn, USA), is a curved wire system consisting of a curved wire loop attached to a grasping device that can be passed through the accessory channel of a standard upper endoscope (Fig. 1). The device is available in 2 sizes, 20 mm (ERD-TW20) and 35 mm (ERD-TW35). A thin plastic tube is used to help introduce the retraction device–grasper complex into the accessory channel of the endoscope. The grasping device is used to attach 1 end of the traction wire to a mucosal edge of the lesion. A second grasping device, the anchoring clip, is used to attach the other end of

the traction wire to normal mucosa on the other side of the lesion. Once attached, the traction wire returns to its curved state, both retracting and lifting the mucosa to expose the submucosa for easier dissection. The device is packaged with the retraction device–grasper complex and a second grasper to attach the other end of the traction wire. The second grasping device is designed to be less traumatic than normal clips on removal because it has no teeth. For more information about the device and its development, please refer to our article previously published in *VideoGIE*.¹

From our premarket experience, here are a few points that will help you get the most from the device:

Point 1: We have found completing a full circumferential incision before placement of the device works best. Once the traction wire is placed, accessing the mucosal side of the lesion adjacent to the anchoring clip (mostly the distal aspect of the lesion, but in the colon, this would be the proximal aspect of the lesion) is difficult, so it is important that the mucosal incision at this border is made before placement of the device.

Point 2: During mucosal incision, make sure the muscularis mucosa is completely dissected by exposing the submucosal layer and allowing the lesion to separate from the rest of the mucosa. This will allow for the best retraction. For any traction method to work well, the target lesion must be separated from the rest of the mucosa and not have any residual muscularis mucosa (Fig. 2). Residual muscularis mucosa can hold the lesion down and prevent retraction from occurring. This complete separation can simply be achieved by performing submucosal trimming after mucosal incision, especially along the border to which the traction wire is attached.

Point 3: The anchoring clip only needs to be placed a few centimeters beyond the lesion; there is no need to overstretch the wire. The self-curling properties of the wire will retract and lift the mucosa. Overstretching the wire can risk inadvertently pulling the device off the lesion and can actually hinder the self-curling properties of the wire.

Point 4: During dissection, the angle of retraction can be changed by placing a second anchoring clip on the wire frame and attaching it to a different area of mucosa at the angle desired.



Figure 1. The traction wire device.

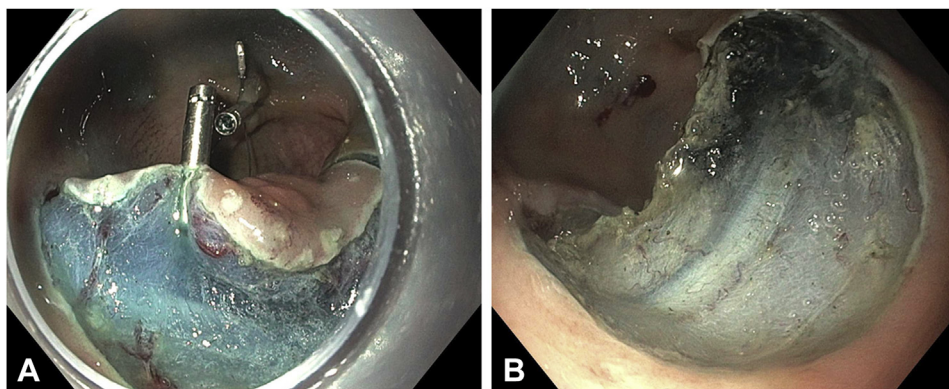


Figure 2. **A**, A rectal polyp after circumferential mucosa incision that is clearly through the muscularis mucosa, exposing the translucent submucosa below. The traction wire is attached, lifting the mucosa and exposing the submucosa for easier submucosal dissection. **B**, The same polyp after ESD resection. Previous tattoo causing severe fibrosis can be seen in the ESD resection base, but with the traction, complete en bloc ESD resection is achieved.

VIDEO DESCRIPTION

The video ([Video 1](#), available online at www.giejournal.org) shows 4 ESD procedures using the traction wire. The first is a 4-cm lateral spreading tumor granular type with a dominant nodule in the proximal rectum. The lesion was removed en bloc with negative margins, and final histology results showed tubulovillous adenoma. The second is a large lateral spreading tumor granular type with dominant nodule with severe fibrosis in the rectum. The lesion was removed en bloc with negative margins, and final histology results showed tubular adenoma with high-grade dysplasia. The third is a mid-esophageal squamous cell tumor with high-grade dysplasia. Post-ESD resection pathology revealed en bloc, margin-negative resection of a squamous cell tumor with high-grade dysplasia. The fourth is a gastric polypoid lesion with adenocarcinoma.

Post-ESD pathology showed en bloc, margin-negative resection of moderately differentiated adenocarcinoma with lymphovascular involvement. Although the pathology is outside curative resection criteria, given the patient's age of 84 years, the patient was triaged to close endoscopic surveillance.² All procedures were well tolerated and without adverse events. On first follow-up endoscopy, in all cases, no residual or recurrent tissue was seen.

CONCLUSIONS

The traction wire is a simple device to add retraction to ESD procedures. Simple strategies such as completing a full circumferential incision before placement of the device can optimize its performance.

DISCLOSURE

Dr Bhatt has received royalties from and is a consultant for Medtronic and is a consultant for Boston Scientific, Steris, and Lumendi. Dr Hwang is a consultant for Medtronic, Olympus, Boston Scientific, Lumendi, Steris, and Micro-Tech. Dr Sharma is a consultant for Medtronic, Boston Scientific, Steris, and Mauna Kea and is on the advisory board for Medtronic and Steris. Dr Waxman is a consultant for Medtronic, Boston Scientific, Cook Medical, and Auris Health.

Abbreviation: ESD, endoscopic submucosal dissection.

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