Counter-traction using clips and rubber banding for endoscopic submucosal dissection of a laterally spreading tumor involving a diverticulum in the colon

▶ Video 1 Counter-traction using clips and rubber banding for endoscopic submucosal dissection of a laterally spreading tumor involving a diverticulum in the colon.

▶ Fig. 1 A 40-mm laterally spreading tumor in the ascending colon with central diverticulum.

▶ Fig. 2 Setting up a counter-traction by clips and rubber band.

▶ Fig. 3 Diverticular area (arrows) after endoscopic submucosal dissection.

In addition to the possibility of en bloc resection without size limitations, endoscopic submucosal dissection (ESD) is also a novel option for endoscopic treatment of lesions involving a diverticulum in the colon [1] or appendix [2]. Generally, when employing endoscopic mucosal resection, these types of lesions have a high risk of perforation or incomplete resection.

Here, we report a case of a laterally spreading tumor (LST) involving a colonic diverticulum that underwent successful en bloc resection by ESD using counter-traction with clips and rubber banding (▶ **Video 1**).

A man in his 60s was referred to our hospital for resection of a 40-mm LST in the ascending colon (▶ **Fig. 1**). It was a granular LST with a regular vascular and pit pattern on blue-laser imaging but also involvement of a centrally located diverticulum, all of which were indications for ESD.

After the initial needle injection, ESD was initiated from the anal side using the DualKnife J (Olympus Medical, Tokyo, Japan) injecting glycerol mixture. We used

counter-traction with clips and rubber bands (▶ **Fig. 2**) to allow better exposure of the submucosal layer, as described previously [3]. Once the endoscope approached the diverticulum, a second traction using two clips and another rubber band was positioned to allow a maximal increase in the submucosal space. ESD was performed cautiously in the area of the diverticulum, and the location of the submucosal plane was determined by counter-traction. After dissection, we found an accumulation of “submucosal” fibers at the base of the diverticulum that were not perforated (▶ **Fig. 3**). Finally, en bloc resection was completed in 50 minutes, and the diverticulum was closed to prevent delayed perforation. The patient was discharged without complications 24 hours later.

Pathological analysis revealed a tubulovillous adenoma measuring 52×40 mm, with high grade dysplasia and free margins.

Our proposed counter-traction technique using clips and rubber banding allows en bloc resection of large colonic adenomas involving diverticula, which

would normally be treated by surgery or a full-thickness resection device.

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Competing interests

None

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