



## Combination of rubber band traction and partial injection for effective under-gel endoscopic mucosal resection of an ileocecal valve lesion

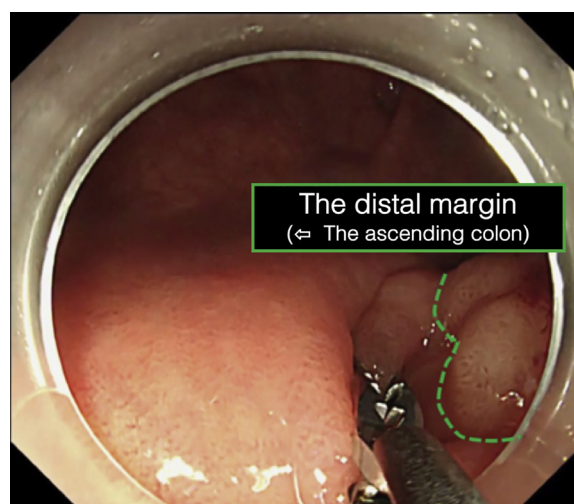
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Neoplasms on the ileocecal valve (ICV) extending into the terminal ileum complicate EMR and endoscopic submucosal dissection (ESD), resulting in lower complete-resection rates; this leads to tumor recurrence.<sup>1,2</sup> ESD for ICV neoplasms, although feasible and effective, is time-consuming and not yet established as a standard procedure.<sup>2</sup>

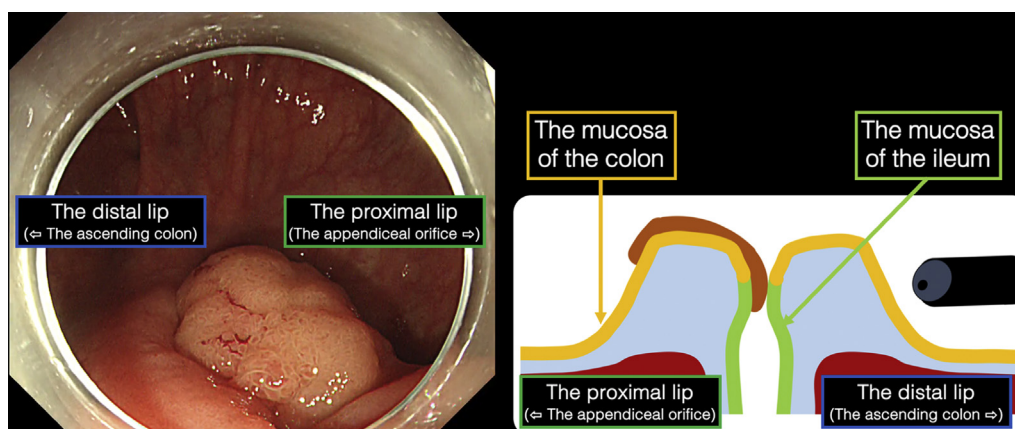
Underwater EMR is considered an effective alternative to ESD for colorectal tumors.<sup>3</sup> However, when the lesion is on the proximal lip of the ICV (toward the appendiceal orifice), EMR becomes more difficult to accomplish because of poor visualization of the proximal and distal (toward the ascending colon) margins. Our hospital reported that under-gel EMR with partial injection is effective for lesions where the proximal margin is difficult to visualize.<sup>4</sup> However, visualization of the distal margin extending into the terminal ileum remains difficult. The double-clip and rubber band traction method, which uses a rubber band and 2 clips, has been reported to be effective during ESD for colorectal lesions, including ICV lesions.<sup>5,6</sup> Herein, we present a case in which a combination of the rubber band traction method and partial injection was useful for visualizing the proximal and distal margins of a lesion on the proximal lip of the ICV (Video 1, available online at [www.VideoGIE.org](http://www.VideoGIE.org)).

A 42-year-old woman underwent an initial colonoscopy examination. A 25-mm protruding polyp was detected on the proximal lip of the ICV, extending into the terminal

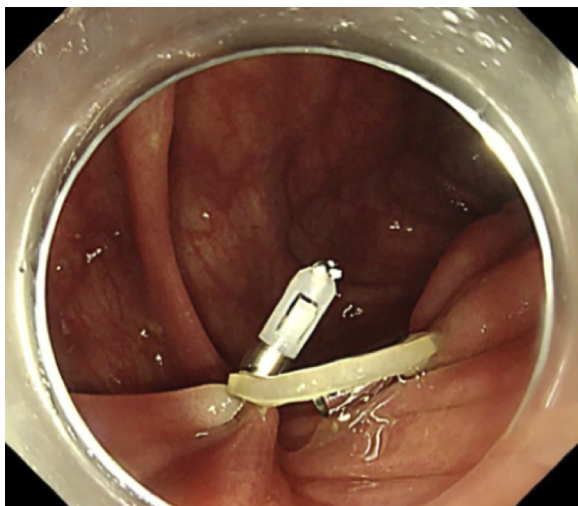
ileum (Fig. 1). On colonoscopy with narrow-band imaging, the polyp was suspected to be an adenoma. Using grasping forceps, we tested the traction to determine the direction in which the distal side of the tumor could be visualized easily. Traction on the distal lip toward the distal side facilitated visualization of the distal margin of the tumor (Fig. 2). A repositionable clip (Sure Clip; Micro-Tech Co,



**Figure 2.** Testing traction with the grasping forceps: Traction on the distal lip toward the distal side makes visualizing the distal margin of the tumor easier.



**Figure 1.** Colonoscopy reveals a 25-mm protruding polyp on the proximal lip of the ileocecal valve, which extends into the terminal ileum. In these types of lesions, it is difficult to visualize the proximal and distal margins.



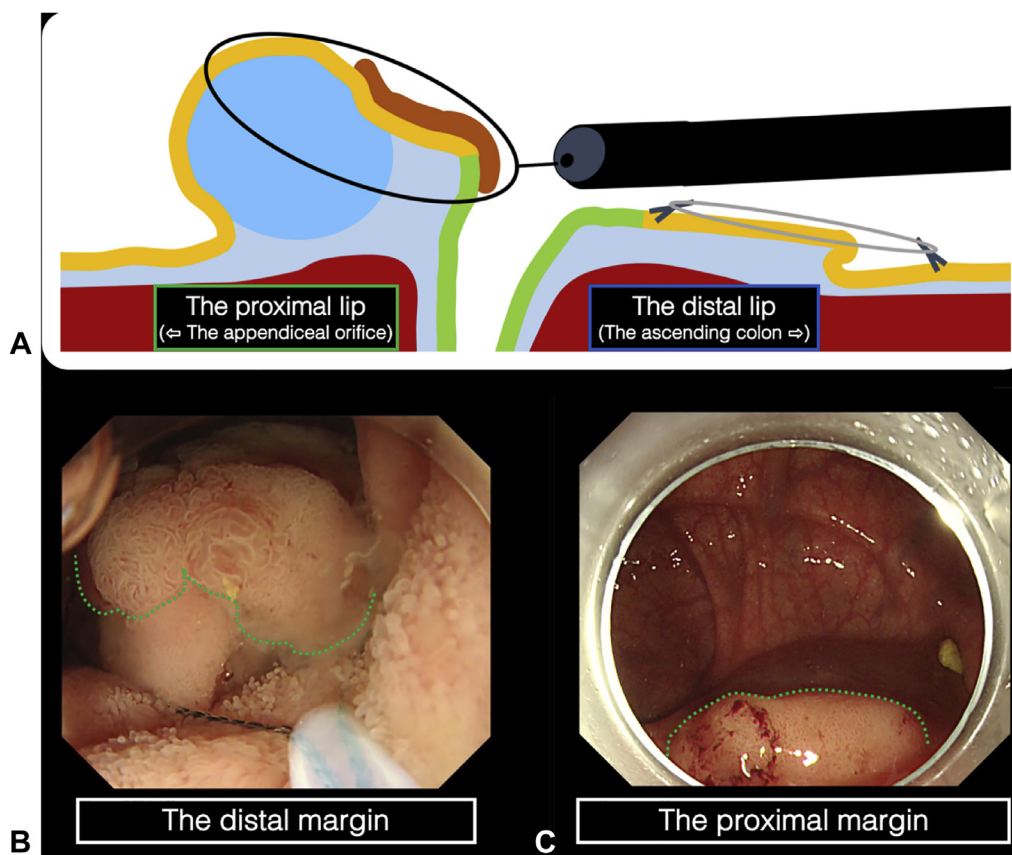
**Figure 3.** Double-clip and rubber band traction.

Ltd, Nanjing, China) was used to attach the mucosa of the distal lip to a Fox rubber band (3D [0.25 inch]; 3.5 oz; ORMCO, Calif). An endoclip (EZ-clip; Olympus, Tokyo, Japan) was used to hook the rubber band and was clipped

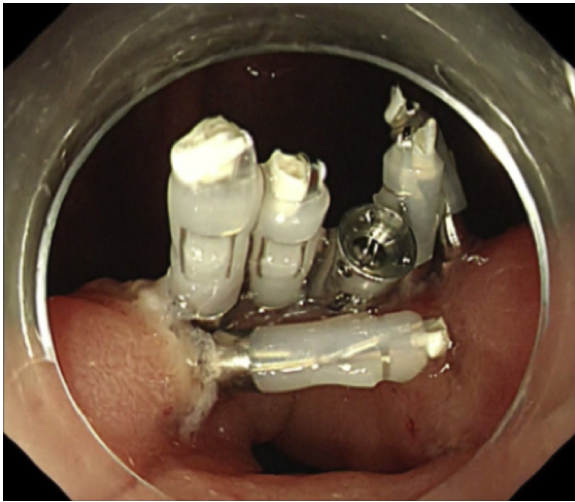
to the ascending colon with traction to the distal side (Fig. 3). Consequently, the distal margin of the tumor remained visible throughout the procedure (Fig. 4).

Partial submucosal saline solution injection was performed along the proximal side of the tumor to allow visibility of the proximal tumor margin (Fig. 4). The lumen was filled with a gel (VISCOCLEAR; Otsuka Pharmaceuticals Factory, Inc, Tokushima, Japan), and an under-gel EMR was performed with a hexagonal snare (13-mm Captivator, small hex-type; Boston Scientific, Natick, Mass, USA) (Fig. 4). The EMR site could be closed completely (Fig. 5). En bloc resection was achieved without residual resection (Fig. 6). The total procedure time was 12 minutes, and there were no adverse events. The histopathological diagnosis was of an adenoma with negative margins. No recurrence was observed at the 3-month follow-up colonoscopy examination.

The advantages of this method are as follows: (1) The direction of traction can be checked several times with grasping forceps before application of traction; (2) because the traction is applied on the ICV side opposite to the lesion, it does not interfere with the EMR; and (3) this traction can be applied through the device's channel, and thus the endoscope need not be removed.



**Figure 4.** **A**, Illustration depicting the effect of the double-clip and rubber band traction and partial submucosal injection. **B**, After double-clip and rubber band traction, the distal margin of the tumor is visible during under-gel EMR. **C**, After partial submucosal injection of saline solution along the proximal side of the tumor, the proximal margin of the tumor is visible.



**Figure 5.** The EMR site has been completely closed with clips.

In this case, the tumor on the proximal lip of the ICV was treated effectively with under-gel EMR and a combination of the double-clip and rubber band traction method and partial submucosal injection.

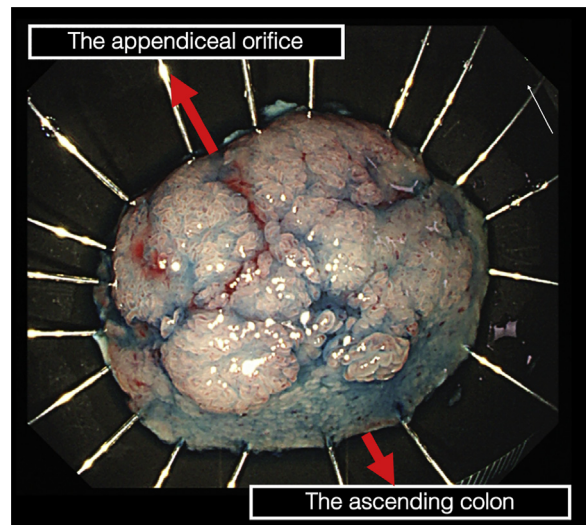
## DISCLOSURE

*All authors disclosed no financial relationships.*

*Abbreviations: ICV, ileocecal valve; ESD, endoscopic submucosal dissection.*

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**Figure 6.** The resected specimen.

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