



Endoscopic submucosal dissection of a large cecal polyp using a scissor-type knife: implications for training in ESD

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Endoscopic submucosal dissection (ESD) allows for the en bloc resection of large superficial neoplasms of the GI tract. Here, we present a case of a large flat lesion in the cecum that was removed by ESD by use of a scissor-type ESD knife, and we discuss the various features and potential advantages of this knife.

A 60-year-old woman was referred for ESD after her first screening colonoscopy revealed a 7-cm mixed granular type laterally spreading tumor in the cecum opposite the ileocecal valve (Fig. 1). A scissor-type ESD knife (SB Knife Jr; Olympus America, Center Valley, Pa, USA) and a tapered-tip distal attachment cap (ST Hood; Fujifilm Medical Systems, Stamford, Conn, USA) (Fig. 2) were used to perform ESD (Fig. 3).

The scissor-type ESD knife is fully rotatable with an insulated outer surface such that only the surfaces between the jaws have cutting and coagulation effects. Submucosal lifting was performed with a 6% hydroxyethyl starch solution mixed with methylene blue and 1:100,000 epinephrine. The scissor-type ESD knife was then used to perform the mucosal incision. Electrosurgical generator settings (ERBE USA, Inc, Marietta, Ga, USA) for the initial mucosal incision included Endocut Q, effect 1, cut duration 3, cut

interval 1. During submucosal dissection, the direction of the knife was rotated and adjusted so that the submucosal tissue was dissected in a parallel fashion to the muscle layer (Fig. 4).



Figure 2. Use of a tapered-tip distal attachment cap to facilitate submucosal entry.

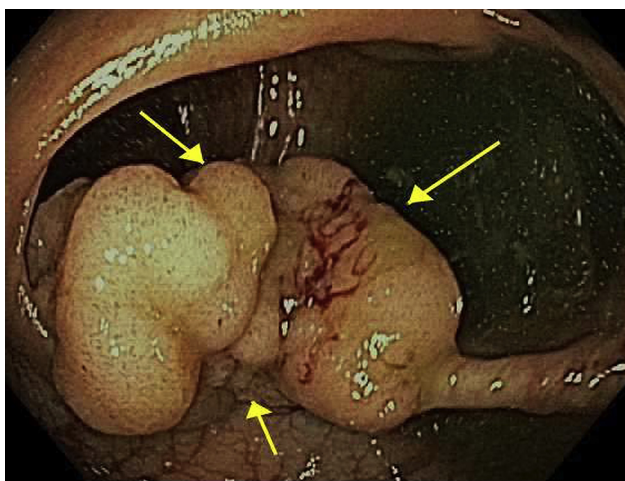


Figure 1. ESD using a scissor-type knife. A 7-cm mixed granular type laterally spreading tumor in the cecum.



Figure 3. Initial mucosal incision using the scissor-type knife.

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

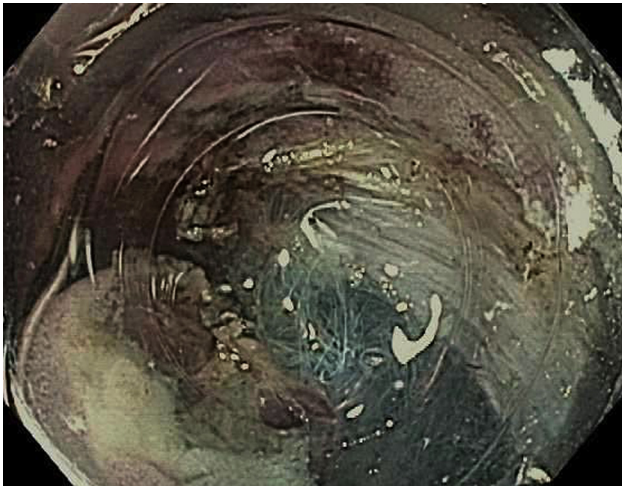


Figure 4. Submucosal dissection using the scissor-type knife.



Figure 6. Final en bloc resection specimen.

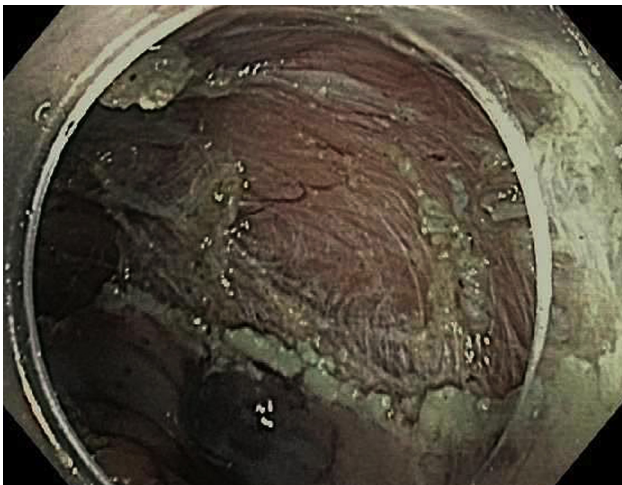


Figure 5. Completed resection bed.

The scissor-type ESD knife was also used for sealing and ligating visible vessels by using a soft coagulation current (40 watts, effect 5). Each cut during submucosal dissection involved a combination of soft coagulation for vessel sealing, followed by Endocut current to complete the dissection (Fig. 5). Small bleeding vessels were also successfully treated under a soft coagulation current. An en bloc resection was achieved, and the final pathologic diagnosis was tubulovillous adenoma with focal high-grade dysplasia (Fig. 6). The margins were negative, and thus complete and curative resection was obtained.

A novel scissor-type ESD knife was first developed in Japan in 2011 and is currently available throughout Eastern Asia and Europe. Recently, this knife became available in the United States. Multiple studies have demonstrated the safety and efficacy of this knife in colorectal ESD,^{1,2} its ability to overcome challenging situations,³ and its

potential benefits in ESD training.⁴ In this case, the stability and ease of use of this knife allowed most of the procedure to be successfully performed by an advanced endoscopy fellow under close supervision from a recognized ESD expert, with the expert performing the most challenging and critical aspects of submucosal dissection. The fellow was allowed to participate in this case only after having developed the prerequisite endoscopic skills and having observed and completed several other ESD cases.

In conclusion, successful ESD is reliant on a thorough understanding of the benefits and uses of different ESD knives. The scissor-type knife has several notable benefits in ESD. Because of its design and rotatability, it allows for increased stability and accurate control of the submucosal dissection process and of accurate vessel sealing and hemostasis. Furthermore, it may have potential benefits for beginners in ESD by allowing the trainee to learn the underlying principles and strategy of ESD and to begin recognizing submucosal dissection planes in a safe and effective manner.

This video (Video 1, available online at www.VideoGIE.org) demonstrates the benefits of the scissor-type knife in the performance of safe and effective cecal ESD. Further studies are needed to evaluate the effects of the scissor-type knife on the learning curve in ESD.

DISCLOSURE

Dr Thompson is a consultant for Boston Scientific and Olympus. Dr Aibara is a consultant to Boston Scientific, Olympus, and Fujifilm Medical Systems. The other author disclosed no financial relationships relevant to this publication.

Abbreviation: ESD, endoscopic submucosal dissection.

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