



# Hot snare polypectomy using bipolar snare: an easy and feasible approach for intermediate-sized colorectal lesions

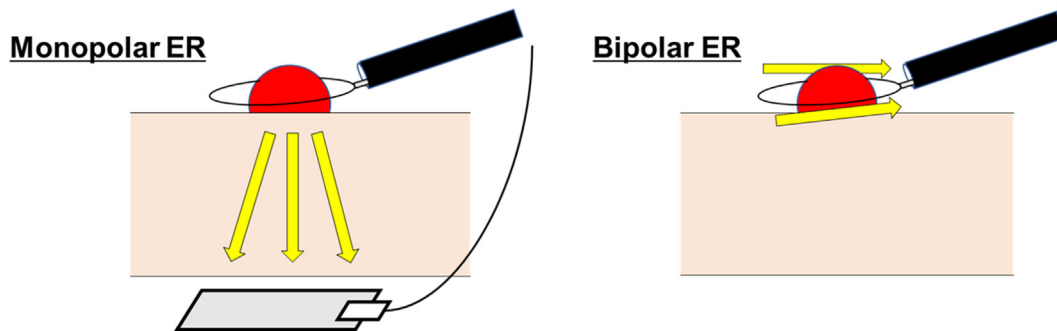
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Developing safe and efficient endoscopic resection (ER) methods for colorectal lesions is crucial. Cold snare polypectomy is used widely for resection of lesions <10 mm with few adverse events; however, its application to lesions >10 mm is limited owing to the high recurrence rate.<sup>1</sup> For these lesions, using a monopolar snare, EMR with submucosal injection or underwater EMR without submucosal injection but with flooding is used to prevent perforations caused by the thermal damage to the muscularis propria.<sup>2</sup> However, submucosal injection requires skill, and flooding is time consuming.

We investigated the utility of ER using a bipolar snare (bipolar ER).<sup>3-5</sup> In an ex vivo porcine model, bipolar ER did not cause the thermal damage to the muscularis propria, whereas perforation was seen in ER using a monopolar snare.<sup>4</sup> Furthermore, we found that the thermal damage was not seen in bipolar ER regardless of submucosal injection. In a clinical

setting, when using a bipolar snare, hot snare polypectomy (HSP) without submucosal injection had comparable treatment outcomes to EMR for nonpedunculated colorectal lesions measuring 10 to 15 mm.<sup>5</sup> Namely, HSP using a bipolar snare (bipolar HSP) had the following potential advantages: less time consuming (no submucosal injection and flooding), less costly (no needle and return electrode), feasible in patients even with implantable cardioverter defibrillators or pacemakers based on the manufacturer's labeling (while for monopolar snares, precautions in use), and easier ER of intermediate-sized colorectal lesions (Fig. 1, Table 1).

We present a case demonstrating the feasibility of bipolar HSP for an intermediate-sized colorectal lesion. A 75-year-old man underwent colonoscopy for surveillance, which showed a laterally spreading tumor nongranular flat elevated type (Paris classification type 0-IIa polyp) measuring 17 mm in diameter in the sigmoid colon. We used magnified narrow-band



**Figure 1.** Monopolar and bipolar endoscopic resection (ER) images showing that, with monopolar ER, the current passes from the active electrode to the target lesions through the patient's body and finally exits the patient via a return electrode. With bipolar ER, the current only passes through the tissue between the 2 electrodes of the instrument.

Abbreviations: ER, endoscopic resection; HSP, hot snare polypectomy.

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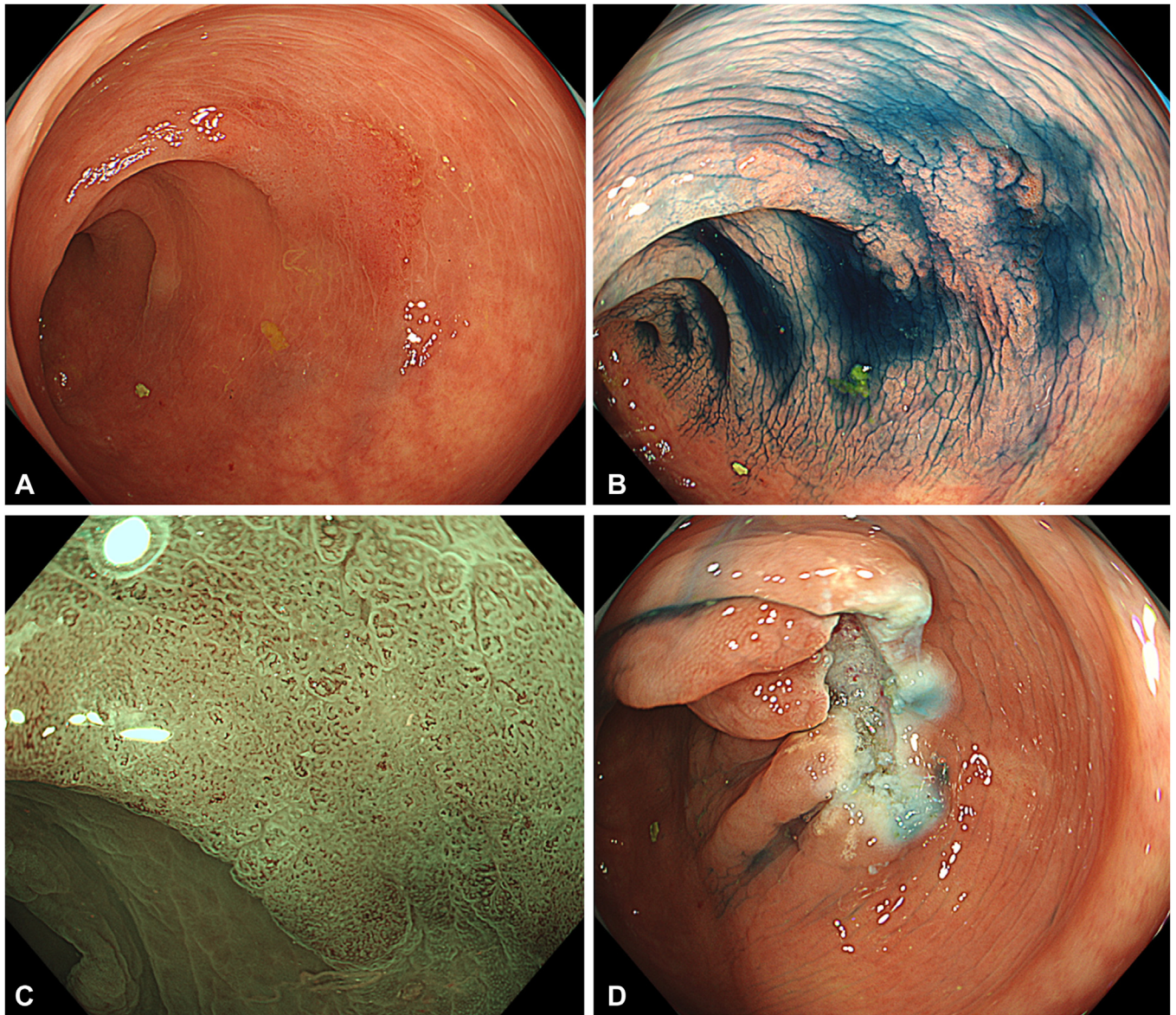
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**TABLE 1. Comparison of monopolar and bipolar ER**

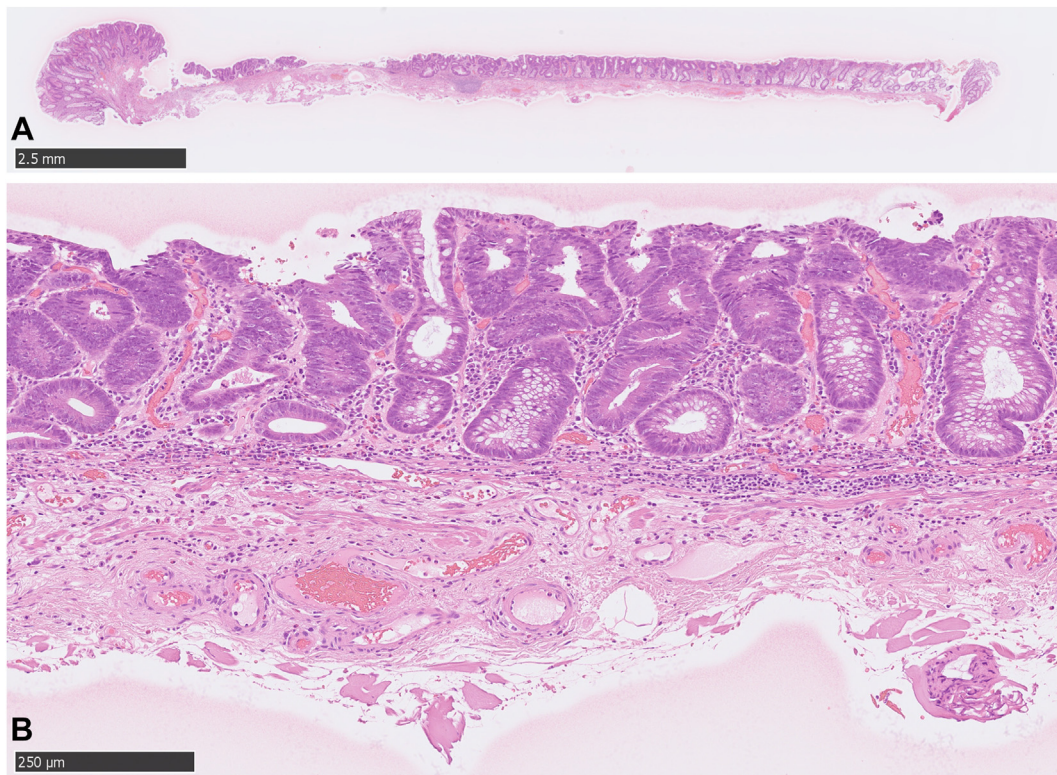
	Monopolar ER	Bipolar ER
Energy	High	Low
Thermal damage	High	Low
Submucosal injection or flooding	Recommended	Not required
Return electrode	Required	Not required
Implantable cardioverter defibrillators or pacemakers	Precautions in use	No precautions in use
ER difficulty	Skill required	Easy

ER, Endoscopic resection.



**Figure 2.** Endoscopic images. **A**, A 17-mm-diameter laterally spreading tumor of nongranular flat elevated type (Paris classification type 0-IIa polyp) in the sigmoid colon. **B**, The lesion was delineated during chromoendoscopy using a 0.2% indigo carmine solution. **C**, Magnifying narrow-band imaging revealed regular vessels and surface patterns corresponding to Japan Narrowband Imaging Expert Team type 2A. **D**, The absence of remnants in the resection margins was confirmed endoscopically.





**Figure 3.** Pathologic findings. **A**, Tubular adenoma with high-grade dysplasia and a negative vertical margin and unclear horizontal margin due to the burn effect (H&E, orig. mag.  $\times 1$ ). **B**, The resected specimen pathologically contained the complete muscularis mucosae and resected the sufficiently deep submucosal layer (H&E, orig. mag.  $\times 10$ ).

imaging to diagnose the lesion as an adenoma (Fig. 2). It was determined that complete resection by electric current was necessary for an intermediate-sized colorectal lesion to prevent recurrence. HSP was performed using a 20-mm bipolar snare (Dragonare Xemex Co Ltd, Tokyo, Japan) and an electrosurgery generator unit (VIO300D; ERBE Elektromedizin GmbH Co Ltd, Tübingen, Germany) in forced coagulation mode (25 W, effect 3), resulting in successful en bloc resection of the lesion within approximately 30 seconds (Video 1, available online at [www.videogie.org](http://www.videogie.org)). Resection margins were endoscopically assessed, and the absence of remnants was confirmed. No intraoperative or delayed perforation or bleeding was observed. The resected specimen was pathologically assessed as having tubular adenoma with high-grade dysplasia and a negative vertical margin and unclear horizontal margin. It contained the complete muscularis mucosae and resected the sufficiently deep submucosal layer (Fig. 3).

Bipolar HSP is an easy and feasible procedure, even for intermediate-sized colorectal lesions. However, bipolar HSP needs to be compared with cold EMR and underwater EMR for en bloc and R0 rates, and further studies are needed.

## DISCLOSURE

The authors disclosed no financial relationships relevant to this publication.

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