

## Magnetic anchor-guided endoscopic submucosal dissection using a stainless steel anchor

Colorectal endoscopic submucosal dissection (ESD) is technically difficult and involves long procedure times with the risk of perforation because of the thinness of the muscularis propria and the poor maneuverability of the endoscope [1,2]. Magnetic anchor-guided (MAG) systems using neodymium magnets have been reported to be useful in resolving the difficulties of ESD [3,4]. However, a remaining problem with this procedure has been the inability to deliver the magnetic anchor through the scope [5]. A 69-year-old woman was referred to our hospital for a laterally spreading tumor in the ascending colon (►Fig. 1). As the first step, after injection of saline into

the submucosa, a circumferential mucosal incision was made using the Endosaber (Sumitomo Bakelite, Tokyo, Japan) (►Fig. 2). Next, a stainless steel anchor connected to an endoclip (Zeoclip; Zeon Medical Inc., Tokyo, Japan) (►Fig. 3a) was attached to the proximal mucosal edge of the lesion without retrieving and reinserting the endoscope as would be required in conventional MAG-ESD. The external neodymium magnet was locked on to a flexible arm (FA-M-VC2; SFC Co. Ltd., Kanagawa, Japan) that allowed it to be held in position during ESD, supported by an assistant (►Fig. 3b). The desired countertraction with good visualization was obtained using this external magnet,

and the submucosal dissection was performed (►Fig. 4). Thus, performance of MAG-ESD using a neodymium magnet and a stainless steel anchor was successful in this colonic case (►Video 1). The patient was discharged without adverse events. The procedure time was less than 30 minutes. The histopathological diagnosis was adenoma.

The feasibility of this technique should be assessed in a variety of anatomic locations.

Clinical trial registration number: UMIN000036360.

Endoscopy\_UCTN\_Code\_TTT\_1AQ\_2AD

### Competing interests

None

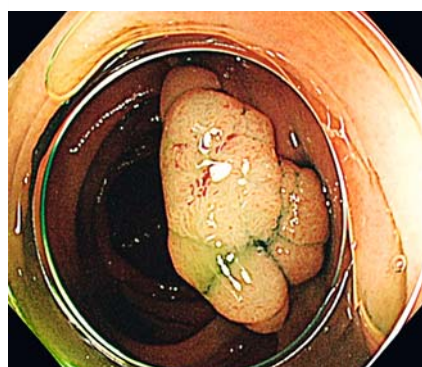
### The authors

Ippei Matsuzaki<sup>1</sup>, Hiroki Yamauchi<sup>1</sup>, Naoya Goto<sup>1</sup>, Yuji Iwata<sup>1</sup>, Mafu Tsunemi<sup>2</sup>, Makoto Kobayashi<sup>3</sup>, Masashi Hattori<sup>1</sup>

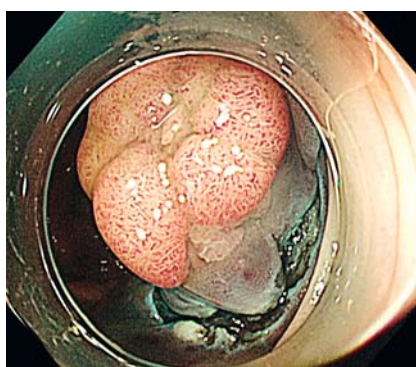
1 Department of Gastroenterology, Yamashita Hospital, Ichinomiya, Japan

2 Department of Nursing, Yamashita Hospital, Ichinomiya, Japan

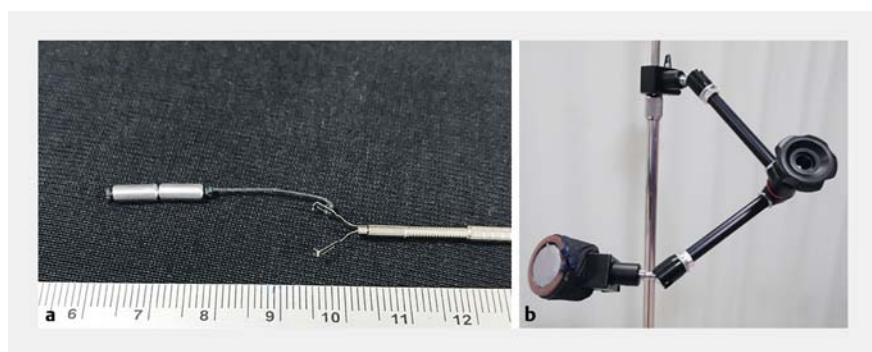
3 Department of Gastroenterology, Yokkaichi Municipal Hospital, Mie, Japan



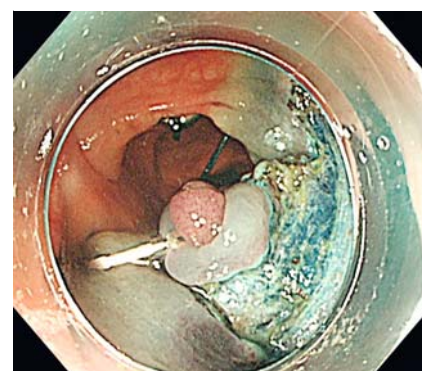
►Fig. 1 Endoscopic image of the lesion in the ascending colon.



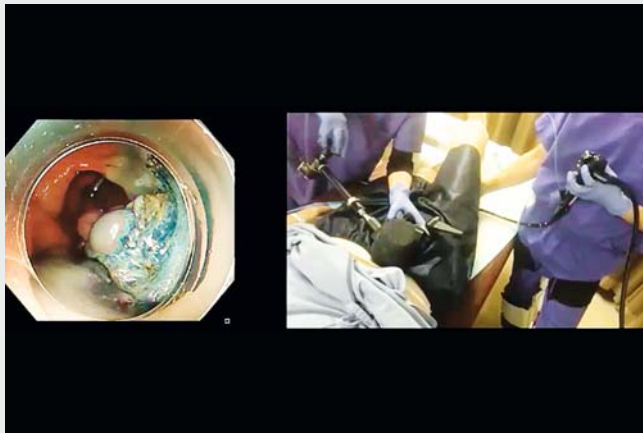
►Fig. 2 After partial dissection: mucosal edge of the lesion before attachment of the stainless steel anchor.



►Fig. 3 a, b Magnetic anchor-guided endoscopic submucosal dissection using a stainless steel anchor. a The stainless steel anchor attached with thread to an endoclip. b The external magnet attached to a flexible arm.



►Fig. 4 Direct visualization of the submucosal layer enabled by traction using the stainless steel anchor.



**Video 1** Magnetic anchor-guided endoscopic submucosal dissection in a colonic case using a stainless steel anchor.

## Corresponding author

### Masashi Hattori, MD, PhD

Department of Gastroenterology, Yamashita Hospital, 1-3-5 Nakamachi, Ichinomiya, Aichi, 491-8531 Japan  
Fax: +81-586-46-3118  
m.hattori@yamashita.or.jp

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## Bibliography

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