Colorectal endoscopic submucosal dissection using the “dental floss with rubber band method”

Colorectal endoscopic submucosal dissection (ESD) is considered one of the most challenging procedures owing to the difficulty in maintaining good visualization of the submucosal layer. To improve the visibility of the submucosal layer, various traction methods have been invented [1–4]. We have developed a new and efficient traction method called the “dental-floss with rubber-band method” (DRM).

First, we connect rubber bands to the dental floss at intervals of about 3 cm (Fig. 1a). The dental floss with the rubber bands attached is then fixed in position with tape so that the rubber

![Fig. 1](attachment:image1.png)

Photographs showing: a the rubber bands fixed at intervals of about 3 cm along the dental floss; b the dental floss with rubber bands attached fixed with tape in a position where the rubber bands are visible from the transparent hood.

![Fig. 2](attachment:image2.png)

Schematic showing: a the dental floss with attached rubber bands affixed to the endoscope and transparent hood with tape; b a rubber band being applied to the edge of the dissected mucosa after the mucosa around the lesion has been circumferentially dissected; c the rubber band being affixed with a clip to the contralateral colonic mucosa; d the good view of the submucosa that can be obtained by gently pulling the dental floss.
bands are visible from the transparent hood when the endoscope is pulled out (▶ Fig. 1b and ▶ Fig. 2a). The endoscope is inserted as usual, and circumferential dissection of the mucosa around the lesion is performed. The endoscope is pulled out a little or retroflexion is performed to bring a rubber band into the view of the endoscope. The rubber band is applied to the edge of the dissected mucosa and affixed with a clip to the contralateral colonic mucosa (▶ Fig. 2b, c). Traction is added through the dental floss and the rubber band, so improving visibility of the submucosa. The direction of traction may be changed by gently pulling the dental floss, and sustained and efficient traction can be obtained (▶ Fig. 2d).

▶ Video 1 The procedure for attaching the rubber bands to the dental floss and fixing the dental floss with the rubber bands attached to the colonoscope. Colonic endoscopic submucosal dissection is then performed using the “dental-floss with rubber-band method.”

Effective traction in colorectal ESD requires the following:
- It should be inexpensive
- It should not require reinsertion
- The direction of traction should be changeable, and
- It should afford continuous traction.

The DRM is a new and efficient method that satisfies all of the above.

Endoscopy_UCTN_Code_TTT_1AQ_2AD

Competing interests

None

The authors

Tatsuma Nomura1, 2, Akira Kamei2, Shinya Sugimoto2, Jun Oyamada2
1 Department of Gastroenterology, Kinan Hospital, Minamimuro, Japan
2 Department of Gastroenterology, Ise Red Cross Hospital, Ise, Japan

Corresponding author

Tatsuma Nomura, MD
Department of Gastroenterology, Kinan Hospital, 4750 Mihama-cho, Atawa, Minamimuro-gun, Mie 519-5293, Japan
Fax: +81-5-97923357
m06076tn@icloud.com

Fig. 3 Colonoscopic views showing: a a large elevated lesion (65 mm) in the cecum; b the lesion after circumferential incision; c the improved visibility of the submucosa when traction is applied by the dental floss and rubber bands.
References


Bibliography
DOI https://doi.org/10.1055/s-0043-124866
Published online: 12.1.2018
Endoscopy 2018; 50: E78–E80
© Georg Thieme Verlag KG
Stuttgart - New York
ISSN 0013-726X

ENDOSCOPY E-VIDEOS
https://eref.thieme.de/e-videos

Endoscopy E-Videos is a free access online section, reporting on interesting cases and new techniques in gastroenterological endoscopy. All papers include a high quality video and all contributions are freely accessible online.

This section has its own submission website at https://mc.manuscriptcentral.com/e-videos

E80

Nomura Tatsuma et al. Dental floss and rubber band method for colorectal ESD... Endoscopy 2018; 50: E78–E80