


DEN Video Article

Trans-anal Foley catheter facilitates endoscopic submucosal dissection of a distal rectal tumor

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BRIEF EXPLANATION

WHEN PERFORMING RECTAL endoscopic submucosal dissection (ESD), collapsing of the lumen with frequent aspiration of gas can provide a thick submucosal

tissue and provide stable endoscope maneuverability.^{1–3} Recently, we introduced the placement of a trans-anal nasogastric tube to allow gas and fluid to drain.⁴ However, maintenance of a stable position for the tube proved challenging. We hypothesized that using a Foley catheter

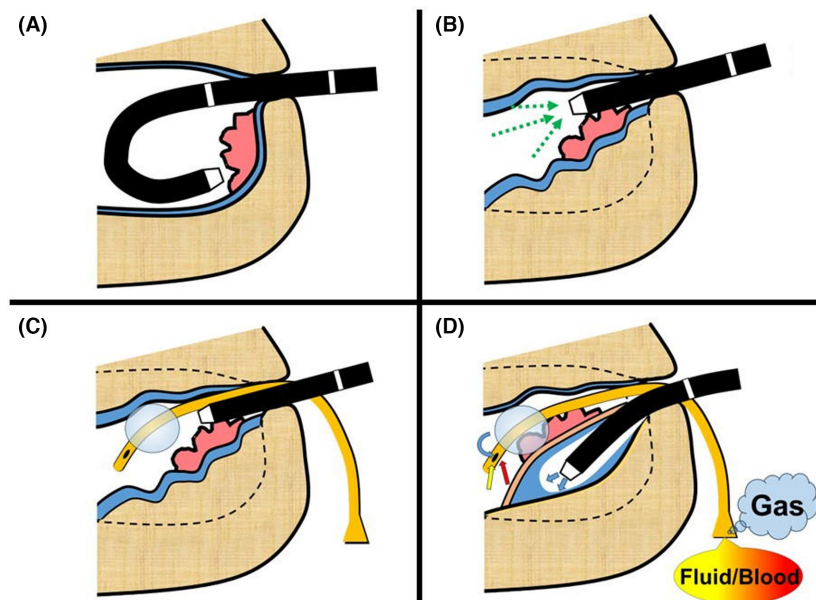


Figure 1 Collapsing the rectum by continuously draining gas and fluid through the trans-anal Foley catheter during endoscopic submucosal dissection (ESD). (A) Insufflation enlarges the rectal lumen, a lesion close to the anal canal tends to be behind the rectal valve, the submucosa is thinned, and endoscopic maneuvering is unstable. (B) Aspiration makes the rectal wall tangential to the endoscope, the submucosa is thicker, and endoscopic maneuvering is stable in the narrow space. (C,D) The Foley catheter simply introduced in the rectum drains gas and fluid, including blood, spontaneously without intervention, which results in collapsing of the rectal lumen, stabilizing endoscopic maneuvering, thickening the submucosa, and avoiding clot accumulation in the rectum. The insufflated gas stretches the submucosa only in front of the cap opening, pushes away fluid including blood, and drains through the catheter, which facilitates ESD. The catheter is not conductive and thus cannot interfere with the diathermy. Biosafety of the catheter has been proven as a urinary catheter. In case of balloon rupture, the distilled water will just leak in the rectum.

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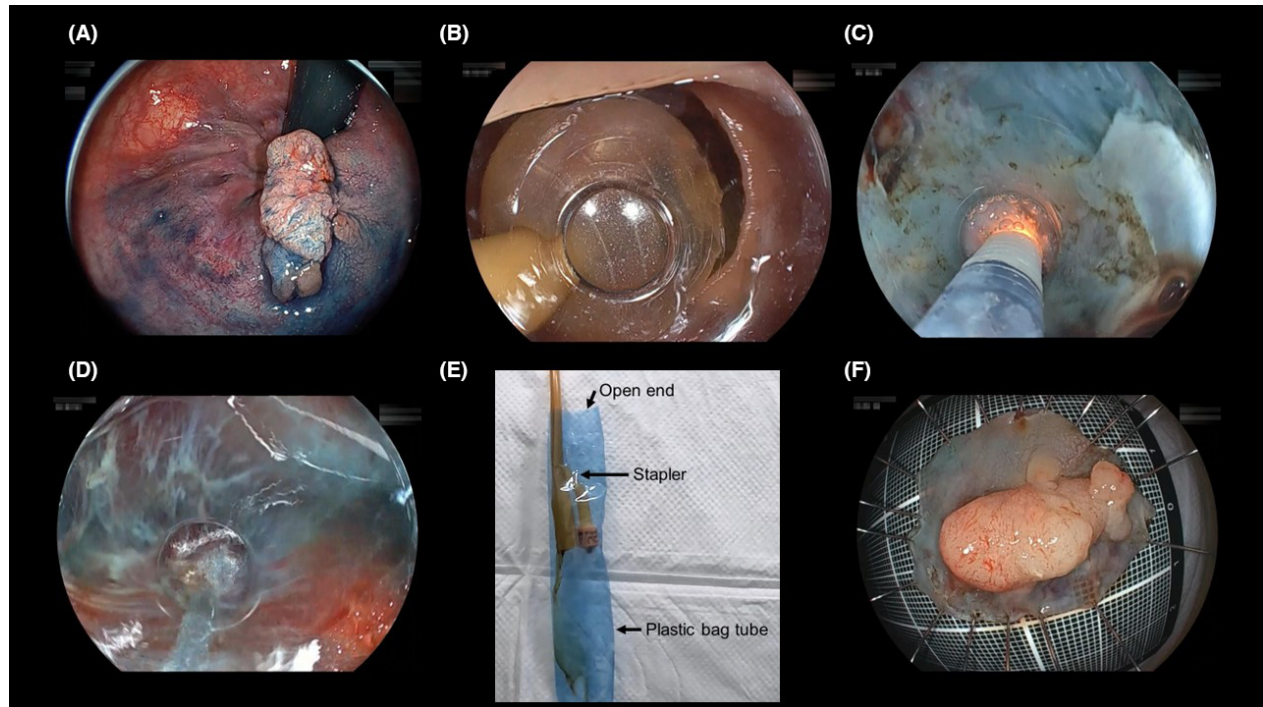


Figure 2 (A) A 20 mm sessile tumor in the distal rectum dyed with indigo carmine. (B) A 16F Foley catheter is trans-anally placed in the rectum and the balloon is inflated using 10 mL distilled water. The balloon prevents the catheter from withdrawing. (C) The small tip of the conical cap can enter the submucosal space just after mucosal incision. (D) Bleeding is washed away without worrying about bloody fluid or clot accumulation. (E) Fluid or gas drains through the catheter quickly. An open plastic bag tube receiving the drainage has little flow channel resistance. (F) The sessile tumor was completely removed without adverse events. Pathology was poorly differentiated adenocarcinoma with 6 mm submucosal invasion, positive vascular invasion, and negative margin. Eventually, the patient needed additional surgery.

instead would be an improvement; the balloon of the catheter could increase stability and ensure a fixed drainage route (Fig. 1, Video S1).

A 65-year-old woman was referred for endoscopic resection of a sessile carcinoma in the distal rectum to assist proper staging and guide further treatment (Fig. 2, Video S2). The pocket-creation method facilitating ESD was performed to histopathologically review the lesion en bloc. A gastroscope (EG-840T; Fujifilm, Tokyo, Japan) was used with a conical cap (CAST hood; TOP Corporation, Tokyo, Japan),⁵ CO₂ regulator (CW-200; Fujifilm), and Flushknife BT-S (DK2620J-B15S-; Fujifilm). A 16F Foley catheter was introduced trans-anally and the balloon was inflated. Submucosal dissection started on the distal side. Gas and fluid, including blood, was drained through the catheter without the need for endoscopic aspiration or any other maneuver. An open plastic bag tube was used to receive drainage from the catheter. The catheter did not interfere with endoscopic maneuverability and did not require

adjustment of re-placement. The submucosa was easily stretched with gas insufflated through only a small tip orifice of the cap. Intestinal fluid and blood were easily washed or blown away from the operating field and drained through the catheter. No clots accumulated in the rectum. Finally, the tumor was completely removed. Total amount of the drained fluid was 34 mL.

Placement of a Foley catheter for drainage and gas pressure using the conical cap facilitated forward-view ESD of distal rectal cancer.

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CONFLICT OF INTEREST

AUTHOR Y.H. RECEIVES patent royalties of CAST hood from TOP Corporation. The other authors declare no conflict of interest for this article.

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SUPPORTING INFORMATION

ADDITIONAL SUPPORTING INFORMATION may be found in the online version of this article at the publisher’s web site.

Video S1 Background and schemas of endoscopic submucosal dissection with a trans-anal Foley catheter drain.

Video S2 A distal rectal tumor was dissected using endoscopic submucosal dissection with a trans-anal Foley catheter drain.