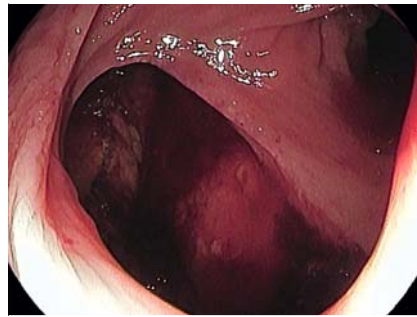


## Large iatrogenic sigmoid colon perforation treated with endoloop-assisted clip closure and over-the-scope clip: a case report

A 77-year-old woman was admitted to our Emergency Department for an iatrogenic sigmoid colon perforation that occurred during a diagnostic colonoscopy. The patient complained of moderate abdominal pain without signs of peritonitis. Considering the time since colonoscopy (<2 hours) and the excellent bowel preparation, an attempt was made to treat the perforation endoscopically. Therapeutic colonoscopy was performed under monitored anesthesia care using a single-channel therapeutic gastroscope (EG-3490K; Pentax Medical, Tokyo, Japan) and CO<sub>2</sub> insufflation. A 6-cm large full-thickness wall defect at 25 cm from the anal verge, with active oozing bleeding, was detected (► **Fig. 1**). Bleeding was controlled with 1:10000 adrenaline injection; thereafter an endoloop-assisted clip closure was performed.

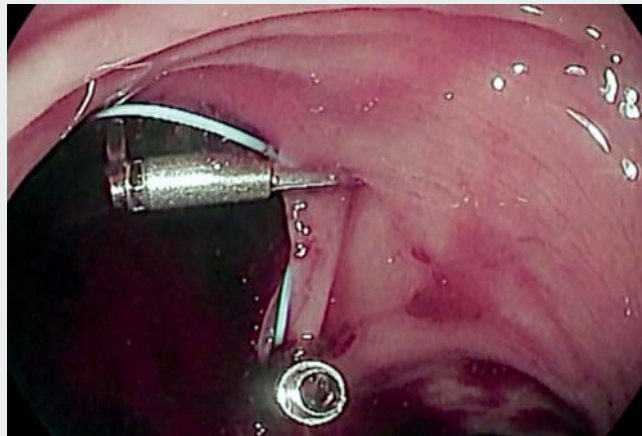
We opened a 30-mm endoloop (HX-400U-30; Olympus Medical Systems Corp., Tokyo, Japan) around the wall defect; the cable was anchored to the hole margins by launching, one by one, four 13-mm through-the-scope clips (MD-G-HR-230-13-135; Zhejiang Chuangxiang Medical Technology Co., Ltd., Hangzhou, China); then the endoloop was hooked, closed, and finally released (► **Fig. 2**). The contrastography showed a 6-mm residual wall defect that was treated deploying a 12-mm t-type over-the-scope clip (OTSC) (Ovesco, Tübingen, Germany), with no contrast agent extravasation at the end. A computed tomography (CT) scan after the procedure confirmed the absence of contrast extravasation on luminal contrastography. The patient was managed conservatively with bowel rest, intravenous fluids, and broad-spectrum antibiotic therapy. After 5 days, oral feeding was resumed and the patient was discharged. A CT scan with colonic contrast injection performed after 3 weeks showed a complete resolution (► **Video 1**).



► **Fig. 1** Full-thickness wall defect of the sigmoid colon.



► **Fig. 2** Wall defect after endoloop-assisted clip closure.



► **Video 1** Large iatrogenic sigmoid colon perforation treated with endoloop-assisted clip closure and over-the-scope clip.



The endoloop-assisted clip closure technique has been reported as a therapeutic solution for iatrogenic perforations. The timing since the perforation is crucial in order to effectively close the leak [1–5]. In conclusion, in selected cases, the combined endoscopic rescue therapy with endoloop-assisted clip closure and OTSC can be effective in conservative treatment of colonic perforations.

Endoscopy\_UCTN\_Code\_CPL\_1AJ\_2AH

### Competing interests

The authors declare that they have no conflict of interest.

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*Endoscopy* 2021; 53: E433–E434  
DOI 10.1055/a-1333-0620  
ISSN 0013-726X  
published online 27.1.2021  
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Georg Thieme Verlag KG, Rüdigerstraße 14,  
70469 Stuttgart, Germany

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