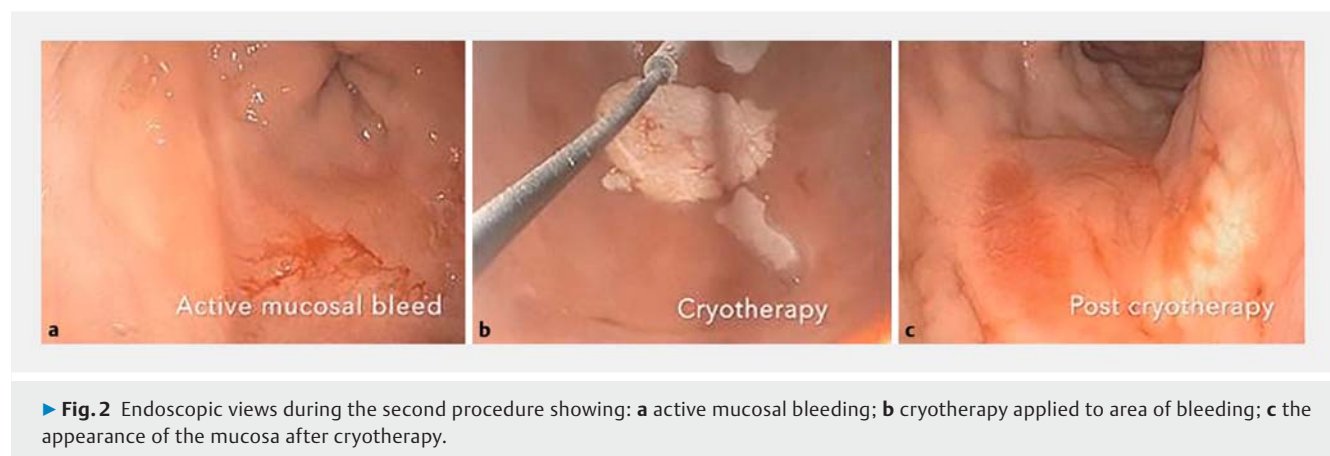
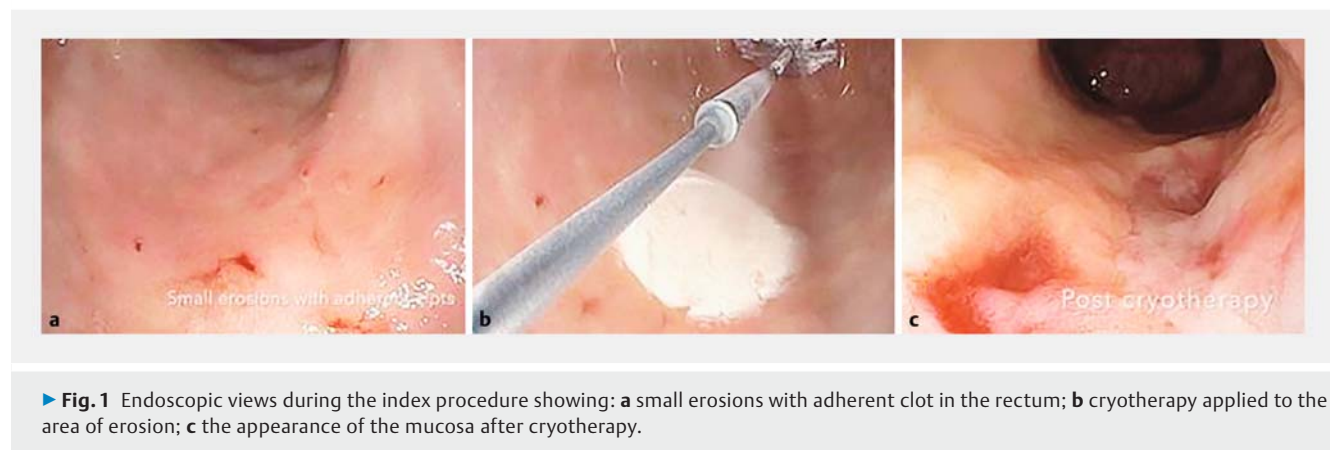
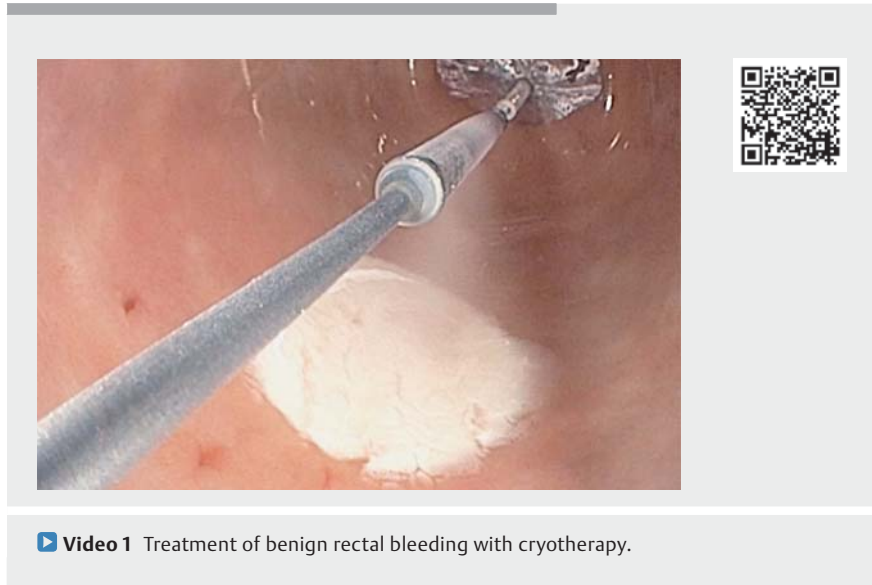


Cryotherapy for the treatment of benign refractory rectal bleeding

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Endoscopic cryotherapy has been applied in the treatment of various gastrointestinal disorders [1–3]. Specifically, it has been demonstrated to be successful in the treatment of mucosal bleeding [3]. It achieves hemostasis by delivering a cryogen (liquid nitrogen, nitrous oxide, or carbon dioxide) that results in superficial mucosal freezing and thawing [2]. We describe the case of a woman with recurrent rectal bleeding in whom surgical management had failed who was treated with endoscopic cryotherapy.

The patient, a 72-year-old woman with a history of sick sinus syndrome, stroke, and renal disease, presented with recurrent rectal bleeding over the preceding 4 years. She had no history of pelvic radiation or rectal trauma. Rectal bleeding





► **Fig. 3** Endoscopic views during the third procedure showing: **a** a small area of oozing; **b** cryotherapy applied to the area of oozing, with cessation of the bleeding; **c** the appearance of the tissue following cryotherapy.

was occurring two to three times a week. She underwent a sigmoidectomy for recurrent bleeding, without improvement in her symptoms and continued to require biweekly blood transfusions and weekly iron infusions. Given the refractory nature of her rectal bleeding and with no cause identifiable, treatment with endoscopic cryotherapy was pursued to minimize the bleeding.

A diagnostic colonoscopy showed areas of mucosal erosion with oozing in the rectum (► **Fig. 1**; ► **Video 1**). A pear-shaped cryoballoon with nitrogen gas was applied to the area for 5–7 seconds. The treated area turned white and then purple after thawing, with no evidence of bleeding. After 3 months, she returned for a second cryotherapy treatment (► **Fig. 2**). On flexible sigmoidoscopy, a small area of mucosal bleeding was identified in the rectum. The bleeding area was treated using cryotherapy for 12 seconds, resulting in complete cessation of the bleeding. Another repeat flexible sigmoidoscopy at 3 months showed a small area of oozing in the rectum (► **Fig. 3**). The area was treated using cryotherapy, with complete cessation of bleeding. Following these three sessions of cryotherapy, the patient's transfusion needs decreased overall.

This case highlights the use of endoscopic cryotherapy as a viable method to achieve hemostasis in patients with benign refractory mucosal bleeding.

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Competing interests

The authors declare that they have no conflict of interest.

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