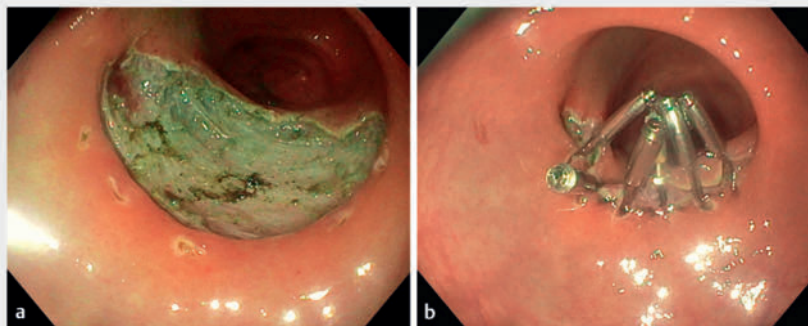


Endoscopic suturing system is the last chance for rectal bleeding after complicated endoscopic submucosal dissection

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► **Fig. 1** Endoscopic images showing a laterally spreading tumor in the mid-proximal rectum: **a** during computer-aided detection; **b** on narrow-band imaging.

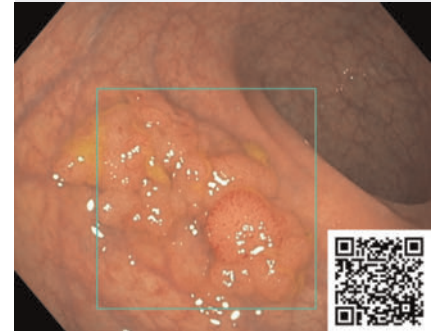


► **Fig. 2** Endoscopic images showing: **a** the post-endoscopic submucosal dissection defect after treatment with hemostatic forceps; **b** the closed defect after the placement of six endoclips.

We report the case of a 54-year-old woman who underwent endoscopic submucosal dissection (ESD) for a 3-cm laterally spreading tumor (LST) of the mid-proximal rectum (► **Fig. 1**). The ESD was complicated by intraoperative bleeding from visible vessels of the defect. Use of hemostatic forceps (Coagrasper) and endoclip placement led to resolution of the bleeding (► **Fig. 2**).

The patient was closely monitored and no further complications were observed until the second postoperative day when the patient resumed her warfarin therapy because of atrial fibrillation and a mechanical valve prosthesis. The need

to resume anticoagulant therapy in patients who have undergone invasive procedures has always been challenging in endoscopy as it can increase the risk of bleeding [1]. In this case, our patient, after a few days of therapy, again developed rectal bleeding. Endoscopic hemostasis was attempted with the injection of fibrin glue and the application of hemostatic powder spray (Hemospray); however, after a period of apparent clinical stability, another emergency endoscopy revealed copious bleeding from the ESD defect (► **Video 1**). This time, after cleansing the area, we removed the previously placed endoclips to better iden-



► **Video 1** Endoscopic hemostasis is achieved with the use of an endoscopic full-thickness suturing system for recurrent rectal bleeding after endoscopic submucosal dissection.



► **Fig. 3** Endoscopic image showing complete control of the bleeding after endoscopic suturing with the full-thickness endoscopic suture system.

tify the site of bleeding. We then performed endoscopic suturing with a full-thickness suturing device (Apollo Overstitch system), achieving satisfactory control of the bleeding after just one full-thickness bite. Defect closure was refined by the placement of further full-thickness sutures (► **Fig. 3**).

After adequate observation, the patient was discharged in good general condition from our hospital and no further bleeding was observed in the following days. Endoscopic follow-up after 3 months showed a

flat, regular scar in the mid-proximal rectum, with no signs of recurrence. No rectal stenosis or substenosis was identified after the full-thickness endoscopic suturing.

Several studies have investigated the effectiveness of endoscopic suturing to prevent adverse events after ESD [2,3]. We believe that use of the full-thickness endoscopic suturing device is safe and effective for control of bleeding when other hemostatic methods have failed.

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Conflict of Interest

F. Barbaro has received consultancy fees from Olympus. I. Boškoski has received consultancy and lecture fees from Apollo Endosurgery, Boston Scientific, Cook Medical, and Microtech; consultancy fees from Pentax Medical, EndoTools, and Erbe Elektromedizin; and lecture fees from Olympus; research grants from Apollo Endosurgery, Erbe Elektromedizin, and EndoTools, and is on the Scientific & Clinical Advisory Boards of Nitinotes Ltd. and Myka Labs Inc. C. Spada has received consultancy fees from Medtronic, Pentax, Olympus, Norgine, Alfaisigma, and Anx robotics. M. De Siena, V. Bove, M. Valeria Matteo, and V. Pontecorvi declare that they have no conflict of interest.

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