Grasp-to-retract modification of the tulip-bundle technique in forward and retroflexed position for difficult hemostatic therapy in the sigmoid colon

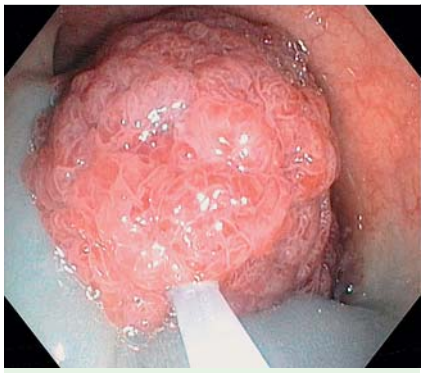


Fig. 1 Endoscopic mucosal resection of a 7-cm, type 0-Is lesion in the distal sigmoid colon.

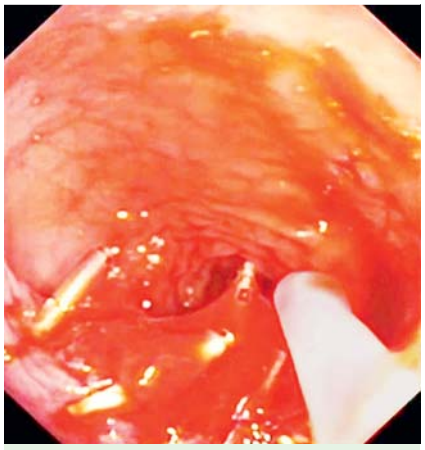


Fig. 2 After complete resection, a 4×4 cm mucosal defect over a colonic fold was apparent, with diffuse oozing but no visible vessels. The defect was closed using hemostatic clips, but diffuse oozing persisted between the clips.

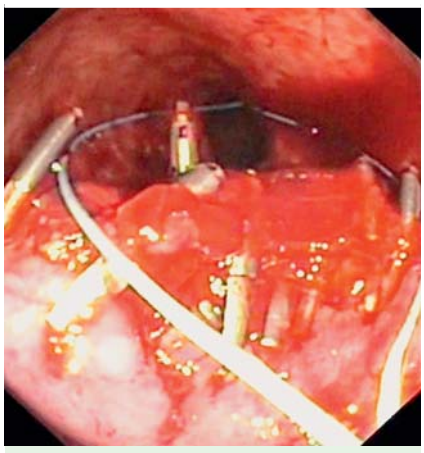


Fig. 3 Attempts to place a detachable snare underneath the clips, in order to perform the tulip-bundle technique, were unsuccessful because of the large diameter of the defect with clips and its position over the colonic fold.

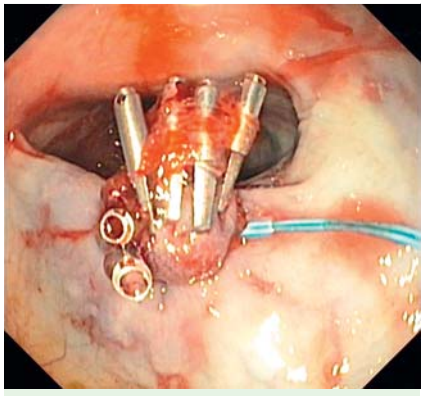


Fig. 4 Using a double-channel colonoscope, a grasping forceps was used to retract the defect while a detachable snare was positioned underneath the clips and closed, resulting in immediate hemostasis.

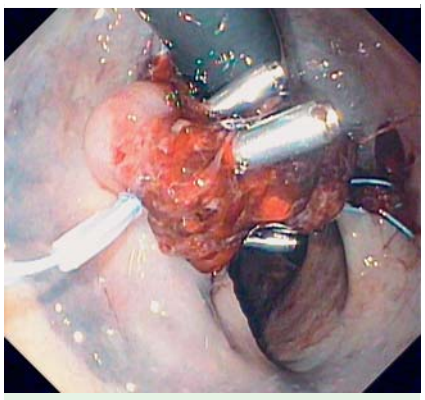


Fig. 5 In a second colonoscopy for hematochezia 4 hours later, oozing was observed from the proximal border of the defect. The same grasp-to-retract and tulip-bundle technique previously described was performed in retroflexed position in the sigmoid colon, resulting in prompt hemostasis.

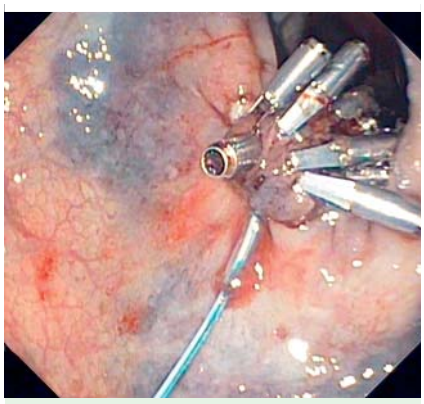


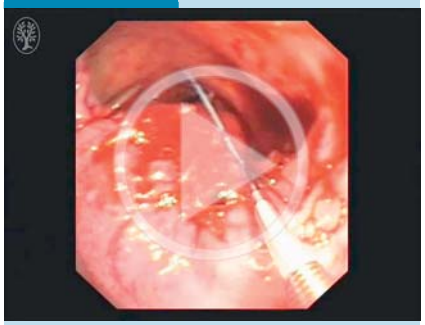
Fig. 6 Final defect, in forward-viewing position, after the two tulip-bundle procedures, showing definitive hemostasis.

A 60-year-old woman with no relevant medical history underwent endoscopic mucosal resection (EMR) of a 7-cm 0-Is lesion in the distal sigmoid colon. A solution of saline, indigo carmine, and 1/100 000 adrenaline was injected into the submucosa, and piecemeal snare resection was performed (▶ **Fig. 1**). Persistent oozing occurred during EMR and was partially controlled by subsequent submucosal injections and resections. After complete resection, a 4×4 cm mucosal defect over a colonic fold could be seen, with diffuse oozing but no visible vessels.

The defect was closed using hemostatic clips, but diffuse oozing persisted between the clips (▶ **Fig. 2**). Attempts to place a detachable snare (MAJ-254; Olympus, Tokyo, Japan) underneath the clips, in order to perform the tulip-bundle technique, were unsuccessful because of the large diameter of the defect with clips and its position over the fold (▶ **Fig. 3**, ▶ **Video 1**). Therefore, a double-channel colonoscope (GIF 2T160I; Olympus) was used, and a grasping forceps was used to retract the defect while the detachable snare was positioned underneath the clips, resulting in immediate hemostasis (▶ **Fig. 4**, ▶ **Video 2**).

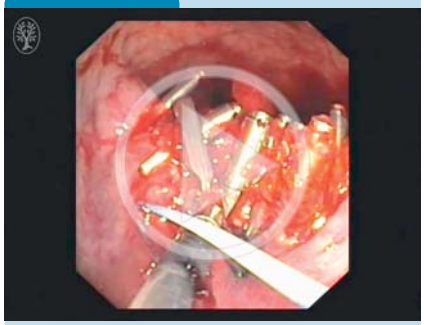
Despite initial hemostasis, the patient presented with hematochezia 4 hours later. Recurrent oozing from the proximal border of the mucosal defect, which had not been entrapped by the detachable snare, was observed and could not be

Video 1



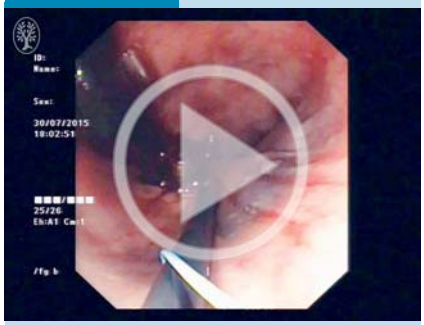
Attempts to perform the tulip-bundle technique to treat diffuse oozing from a large endoscopic mucosal resection defect closed with clips were unsuccessful because of the large diameter of the defect with clips and its position over a colonic fold.

Video 2



A double-channel colonoscope was used to retract the defect with a grasping forceps while a detachable snare was positioned underneath the clips and closed, resulting in instant hemostasis.

Video 3



The same grasp-to-retract and tulip-bundle technique was performed in the retroflexed position in the sigmoid colon to treat bleeding that occurred from the proximal border of the defect 4 hours later.

treated with further clipping. With the endoscope in the retroflexed position, the tulip-bundle technique was attempted but was, again, unsuccessful. Using the double-channel colonoscope in the retroflexed position, and the same grasp-to-retract and tulip-bundle technique, definitive hemostasis was achieved (**Fig. 5**, **Fig. 6**, **Video 3**).

Histology revealed a tubulovillous adenoma with high grade dysplasia.

Detachable snares have various indications that include assisting polypectomy, resecting submucosal tumors [1], and performing full-thickness resections [2]. The tulip-bundle technique involves the snare entrapping the clips to achieve hemostasis [3] or to close perforations [4]. This grasp-to-retract modification, which has been described previously for other techniques [5], can assist the tulip-bundle technique in difficult procedures.

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Competing interests: None

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Bibliography

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