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

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 colonic fold (Fig. 3). Therefore, a double-channel colonoscope (GIF 2T160I; Olympus) was used, and a grasping forceps was used to retract the defect while a detachable snare was positioned underneath the clips, in order to perform the tulip-bundle technique in retroflexed position in the sigmoid colon, resulting in prompt hemostasis (Fig. 4). 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

![Fig. 1](https://example.com/fig1.png) Endoscopic mucosal resection of a 7-cm, type 0-Is lesion in the distal sigmoid colon.

![Fig. 2](https://example.com/fig2.png) 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](https://example.com/fig3.png) 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](https://example.com/fig4.png) 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](https://example.com/fig5.png) 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](https://example.com/fig6.png) Final defect, in forward-viewing position, after the two tulip-bundle procedures, showing definitive hemostasis.
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 (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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