ORIGINAL ARTICLE

Novel application of lumen-apposing metal stent for management of malignant recto-sigmoid stricture with fistula

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Lumen-apposing metal stents (LAMSs) have traditionally been used in interventional EUS procedures.[1] Here we describe a novel application of LAMSs.

A 62-year-old man with a history of metastatic carcinoma of recto-sigmoid junction was treated with chemotherapy alone for 4 months. He developed sigmoid perforation during a reassessment colonoscopy, for which he underwent laparoscopic repair and diversion ileostomy. Two weeks later he presented with a persistent fever and abdomen pain. Contrast-enhanced CT (CECT) of the abdomen and pelvis showed a short-segment stricture approximately 1 cm long at the recto-sigmoid junction with a 10- × 4-cm paracolic collection with air foci adjacent to the sigmoid (Fig. 1A and B). Rectal contrast showed a fistulous communication in the sigmoid colon just proximal to the stricture and the collection (Fig. 1C). Percutaneous drainage of the collection was done (Fig. 1D). After 5 days of conservative treatment, despite optimum antibiotics and percutaneous drainage, his fever, leukocytosis, and drain output persisted. Various treatment options including surgical management, placing a long tubular stent, use of an over-the-scope clip, and use of a septal occluder were discussed in a multidisciplinary team meeting. However, because it was a short stricture with fistula, we decided to place a short, covered metal stent with a lumen-apposing feature. We then performed sigmoidoscopy using a therapeutic gastroscope, which showed a tight short-segment stricture at 15 cm from the anal verge (Fig. 2; Video 1, available online at www.videogie.org). The guidewire was passed over a cannula, and stricture was delineated. Then a 15- × 10-mm LAMS catheter (Hot Axios stent and delivery system; Boston Scientific Corp, Marlborough, Mass, USA) was introduced over the wire across the stricture. Subsequently, the distal flange (oral side) was deployed under fluoroscopy guidance, and the catheter hub was pulled so that the distal flange was approximated with the stricture wall. Then intrachannel deployment of proximal flange (anal side) was done, and it was then released (Fig. 3A). The position was confirmed on fluoroscopy (Fig. 3B). Antibiotics were continued. Gradually the patient became afebrile, and after 5 days the pelvic drain could be removed, as drain output decreased significantly. He was discharged after 1 week of LAMS placement. Then after 6 weeks, CECT of the whole abdomen with rectal contrast was done, which showed the patent stent bridging the stricture with no paracolic collection or fistulous communication (Fig. 4). Repeat sigmoidoscopy was done to go across the LAMS and assess the proximal colon (Fig. 5A and B). It showed healthy mucosa until 50 cm except a diminutive polyp and an area of scarring seen just proximal to the stent (Fig. 5C). A real-time contrast study under fluoroscopy was done by injecting contrast proximal to the stent, which showed no leak (Fig. 6). Subsequently, chemotherapy was resumed. On follow-up the patient was planned to undergo reversal of stoma, as he was not willing to undergo permanent colostomy. We plan to assess for stent function by doing sigmoidoscopy and CECT with rectal contrast every 6 to 9 months. If stent dysfunction occurs on follow-up, we will either (1) exchange the LAMS with another LAMS if the stent migrates or (2) place stent in stent, if the existing stent cannot be removed.

Although off-label use of LAMSs for benign GI strictures has been reported in the literature, its successful application for managing malignant strictures is rarely reported.[2,3] Long-term follow-up is required to assess the stent patency in this clinical scenario. Moreover, deployment of LAMSs using a therapeutic gastroscope is challenging, as the dimensions of the LAMS catheter were originally designed for use with a linear echoendoscope.

DISCLOSURE

The authors disclosed no financial relationships relevant to this publication.

Abbreviations: CECT, contrast-enhanced CT; LAMS, lumen-apposing metal stent.

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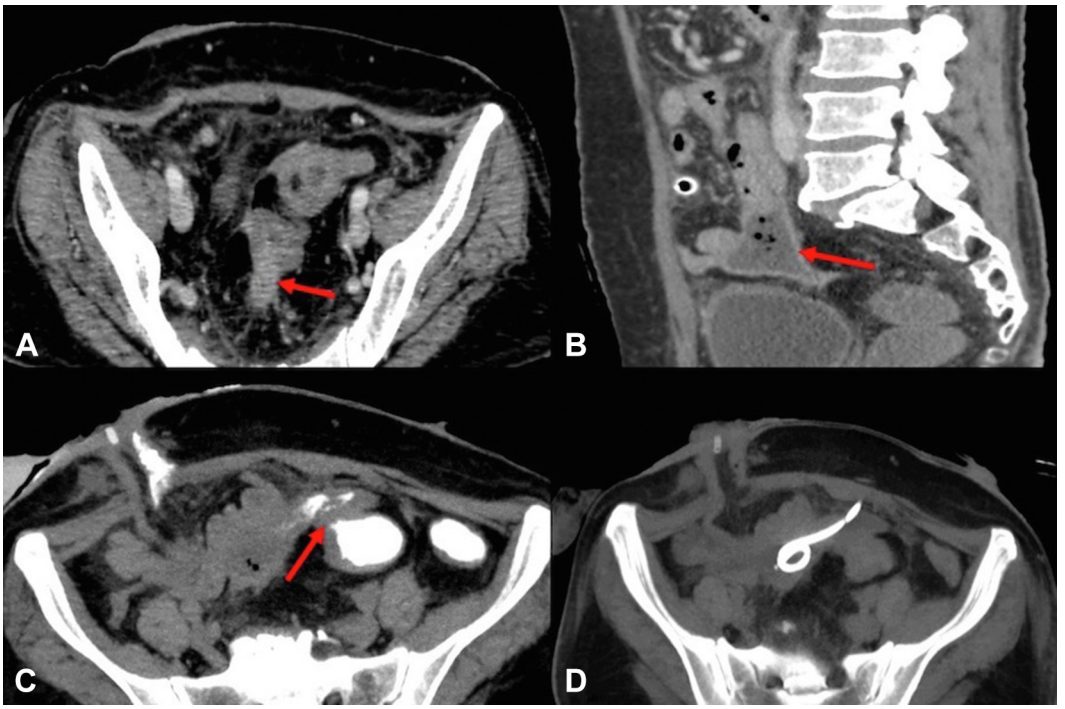

Figure 1. A, Images of contrast-enhanced CT of the abdomen demonstrating a short stricture approximately 1 cm long at the recto-sigmoid junction (*red arrow*). **B,** Paracolic/pelvic collection with air foci adjacent to the sigmoid colon (*red arrow*). **C,** Fistulous communication between the area just proximal to the stricture and the adjacent collection (*red arrow*). **D,** Percutaneous pigtail drainage catheter placed in the collection.

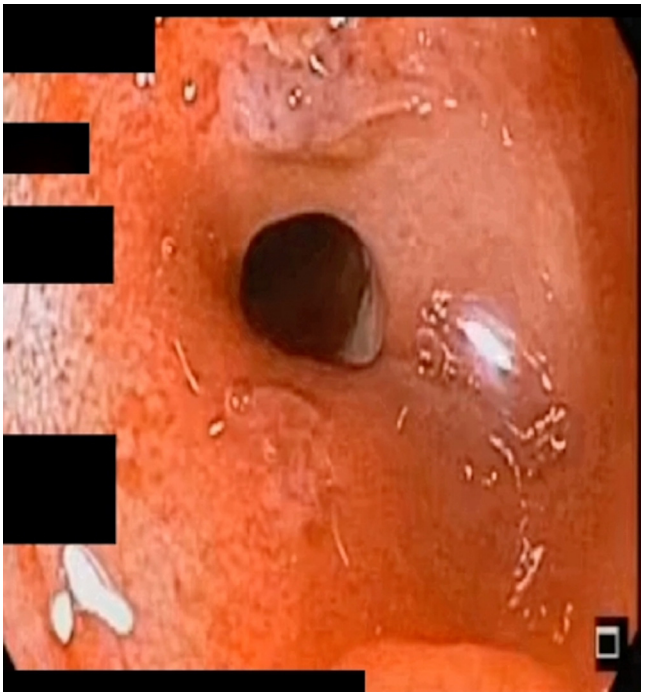

Figure 2. A tight short-segment stricture at the recto-sigmoid junction about 15 cm from the anal verge.

Figure 3. A, Sigmoidoscopic view. **B,** Fluoroscopic view after successful deployment of lumen-apposing metal stent bridging the stricture.

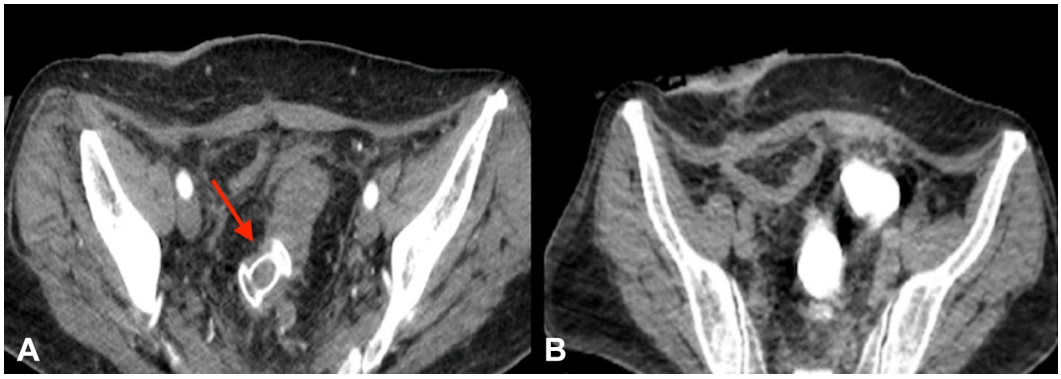

Figure 4. A, Contrast-enhanced CT abdomen images demonstrating patent lumen-apposing metal stent with no pelvic/paracolic collection. **B,** Contrast-enhanced CT abdomen images taken after administration of rectal contrast demonstrating no leak.

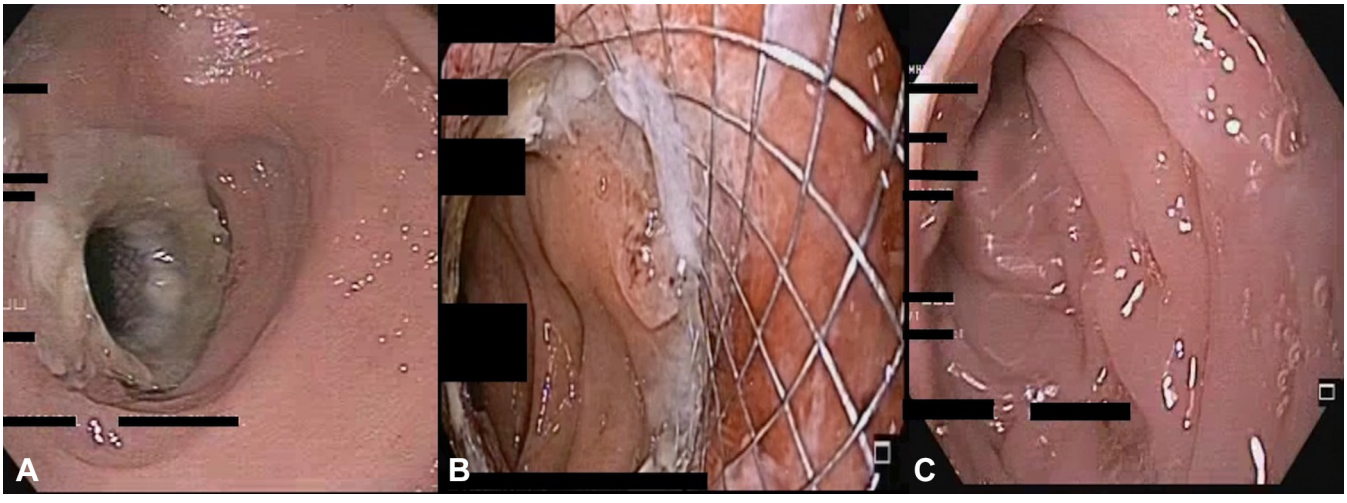

Figure 5. A and B, Repeat sigmoidoscopy image done 6 weeks after lumen-apposing metal stent placement showing the patent stent with resolution of stricture. **C,** Healthy proximal colonic mucosa.

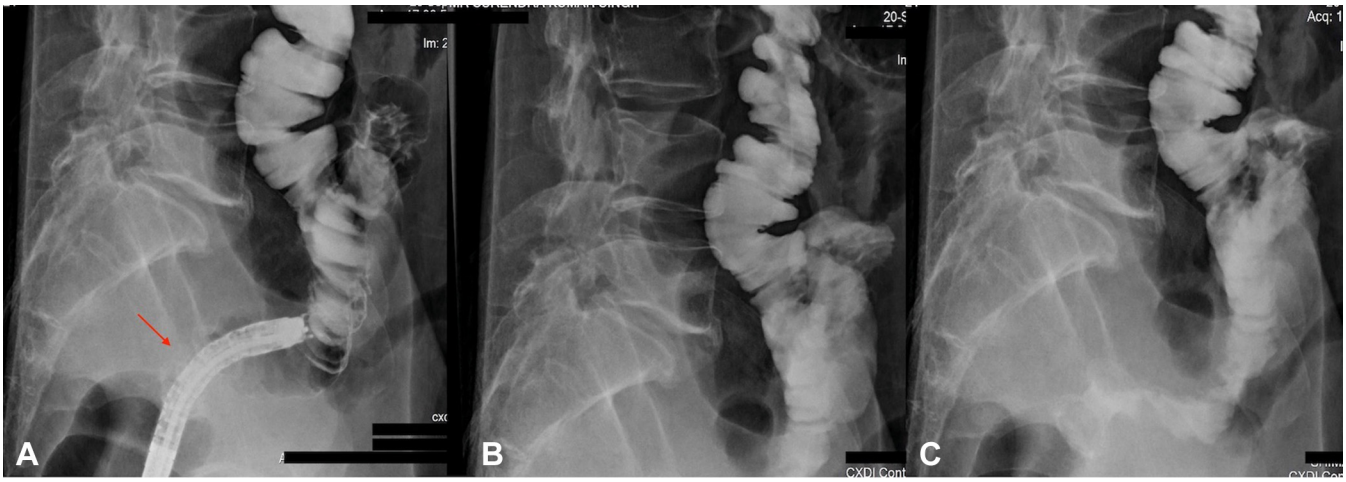

Figure 6. Fluoroscopy images taken during a real-time dynamic contrast study, which was done during sigmoidoscopy and showed no leak with filling of contrast throughout, suggesting resolution of fistula. **A,** Endoscope across the stent (*red arrow*) in the proximal colon. **B,** Contrast filling throughout without leak. **C,** Delayed images showing contrast-filled colon without leak.

REFERENCES

1. Bang JY, Varadarajulu S. Lumen-apposing metal stents for endoscopic ultrasonography-guided interventions. Dig Endosc 2019;31:619-26.
2. Santos-Fernandez J, Paiji C, Shakhatreh M, et al. Lumen-apposing metal stents for benign gastrointestinal tract strictures: an international multicenter experience. World J Gastrointest Endosc 2017;9:571-8.
3. Mirchin RB, Mahmood SK. Lumen-apposing metal stent used to treat malignant esophageal stricture. ACG Case Rep J 2020;7:e00362.