




BRIEF REPORT

Recurrent sigmoid volvulus relieved by transanal ileus tube implantation

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Introduction

Sigmoid volvulus (SV) is a main cause of colonic mechanical obstruction. The sigmoid colon has a long and narrow mesentery that is the anatomical basis for the volvulus. The anti-mesenteric border of the sigmoid colon elongates ~20% more than the mesenteric border when it is inflated and this provides the driving force that initiates and sustains the volvulus, often resulting in a counterclockwise rotation to form a closed-loop obstruction [1]. Colonoscopic decompression and detorsion is the first-line treatment for SV [2]. Although SV has a better chance of success in conservative treatment than mechanical bowel obstruction of other causes [3], recurrent episodes remain a frequent and thorny condition. Herein, we report a successful case of recurrent SV treated by colonoscopic decompression and placement of a transanal ileus tube (TaIT).

Patient and techniques

A 64-year-old male without past or family history of lower gastrointestinal (GI) diseases underwent a screening colonoscopy in January 2021. Although no lesion was found, he began to experience abdominal pain, distension, and decreasing flatus and hemochezia several days after that examination. His first visit to our hospital was on 27 January 2021 and we performed colonoscopy for him after conservative treatments including fasting, GI decompression, etc., noting that his lower colon was redundant, dilated,

and lacking peristalsis. The cecum was not reached during colonoscopy and a satisfactory decompression was not fulfilled. A subsequent computed tomography (CT) reconstruction for the colon showed a volvulus involving the sigmoid and descending colon with typical imaging signs like the bird's beak sign (Figure 1A) and whirl sign, and a severely dilated sigmoid bowel with a diameter of 12 cm (Figure 1B). Vascular reconstruction imaging showed that the sigmoid and left colonic arteries were dragged to the right, proving that the patient's descending colon was free and involved in the volvulus (Figure 1C). The patient's symptoms were not relieved until a second colonoscopic detorsion and decompression on 8 February and a subsequent abdominal plain film verified the shrinkage of the colon. However, the patient had to revisit our hospital due to the relapses of similar symptoms four times on 3 March, 16 July, 20 October 2021, and 26 February 2022, respectively. Abdominal CT showed the presence of colonic volvulus (Figure 1D) and the colonic diameter extended to >10 cm every time. He received a total of nine colonoscopic decompressions during the relapses.

Since the patient declined surgery and the effect of colonoscopic decompression was not satisfactory several times, we first implanted a TaIT to implement continuous decompression on 19 November 2021 during his fourth relapse. The TaIT used in our center was a 22 French silicone long tube (120 cm) and had an open tip with four side holes (Cliny Transanal Ileus Tube Set; Create Medic Co., Dalian, China) (Figure 1E). This kind of TaIT was first reported in China by Xu et al. [4] in 2009 and the

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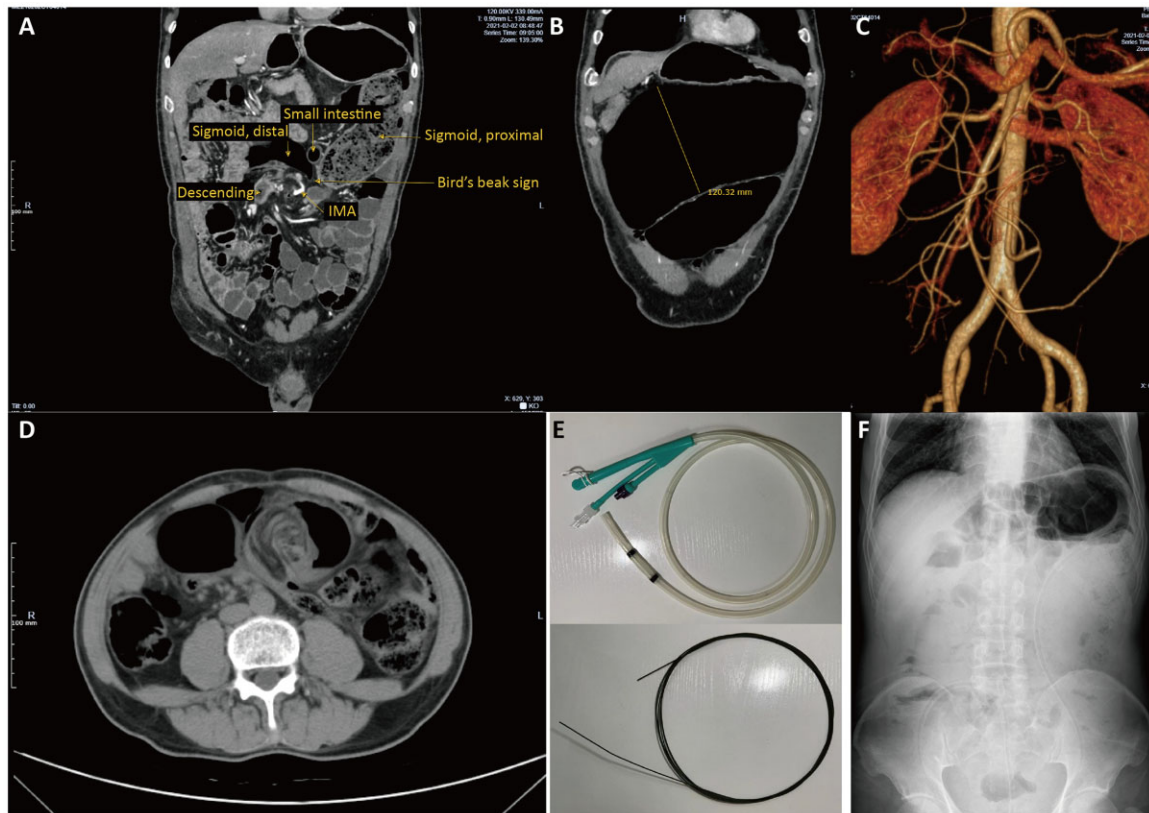


Figure 1. Images of the patients and the TaIT. (A) The coronary plane showing a bird's beak sign. (B) The coronary plane shows the sigmoid colon with maximal diameter. (C) The vascular reconstruction imaging showing the sigmoid and left colonic arteries dragged to the right. (D) The axial plane showing a whirl sign (taken on 15 November 2021). (E) The Cliny TaIT (up) and the matched guide wire (down). (F) The abdominal plain film taken just before the TaIT was withdrawn showing the tube in position and the shrunken colon. IMA, inferior mesenteric artery.

detailed methods of its placement have been previously described. A large amount of flatus and feces came through the tube and the urgent desire to defecate drove him to discharge the tube hours later. When he revisited us due to the latest relapse, we put back the same tube and fixed it to the perianal skin by suture; the symptomatic relief was achieved quickly and thoroughly this time. After verifying the complete recovery by X-ray, the tube was removed 7 days later (Figure 1F). The patient is now uneventful and we will continuously follow him up in case there is a future relapse.

Discussion and conclusion

Though the new guidelines for colonic volvulus emphasize the necessity for sigmoid colectomy to prevent recurrent volvulus [2], there is still an opportunity to find nonsurgical ways to prevent recurrence through further investigations of this disease. Based on the theory of over-inflation, if sigmoid colonic distension is avoided by continuous decompression, volvulus will be avoided hopefully. Compared with colonoscopic instantaneous decompression, TaIT can achieve continuous decompression and eliminate colonic flatulence completely. In addition, the tube within the colon provides mechanical support that may also resist torsion. Based on the above analysis, TaIT shows a promising value in volvulus relapse prevention.

In 1982, Bernton *et al.* [5] pulled a 16 French Baker jejunostomy tube into the cecum during colonoscopy with the help of biopsy forceps to treat pseudo-obstruction, which is the first report of a long tube implantation for transanal drainage. After

that, TaIT implantation has been used for the treatment of malignant [6] and benign [7] large bowel obstruction (M/BLBO) and the tube has been continuously improved, within which the most-reported TaIT is the Dennis Colorectal Tube [8]. Since the application of the self-expandable metallic colonic stent, it has shown a more excellent effect than TaIT as a bridge to surgery for MLBO [9]. At the same time, TaIT shows good performance in continuous colonic drainage and decompression, which makes it an effective method for pseudo-obstruction, and it is recommended to be implanted during colonoscopy [2]. For SV, although the guidelines recommend implanting a decompression tube for 1–3 days after colonoscopic decompression, it does not clarify the type of tube; all previous studies have used rectal tubes without exception [10]. It is obviously useless to leave a rectal tube in the rectum for SV because the narrowing part locates in the sigmoid colon where the rectal tube cannot reach. Interestingly, there have been reports of the use of TaIT in cecal volvulus [7], leaving the application of TaIT in SV unexplored.

In summary, this is the first report of TaIT used in SV. Given the potential value of this approach in continuous relief of colonic dilation and prevention of volvulus relapse, its effectiveness should be investigated in future studies.

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Conflict of Interest

None declared.

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