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Self-Expanding Metal Stenting in the Management of a Benign Colonic Stricture

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Self-expanding metal stent · Benign colonic stricture · Bowel obstruction

Abstract
Colonic postanastomotic strictures occur in 1.5–8% of patients following colorectal surgery. Traditionally, colonic strictures were treated by multiple modalities including endoscopic dilatation. Self-expanding metal stents (SEMS) have been indicated in the management of benign colonic strictures; however, there are limited available data with regard to their efficacy. We present the case of a 68-year-old male who had perforated sigmoid diverticulitis followed by Hartmann's procedure with eventual reanastomosis 6 months later. He subsequently developed benign colonic stricture, which was treated with a metal stent. SEMS are associated with a low mortality rate and are appropriate in treating acute colonic obstruction as a result of benign stricture in the setting of postanastomosis.

Introduction

Colonic postanastomotic strictures occur in 1.5–8% of patients following colorectal surgery [1]. Anastomotic strictures may result from a poor blood supply, technical errors in

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suture execution, and inflammation due to anastomotic leaks or radiotherapy [2]. Traditionally, colonic strictures were treated by tissue ablation with laser or argon plasma coagulation, extensive surgical resection, stricturoplasty, or endoscopic dilatation [3, 4]. Refractoriness to endoscopic dilation has been reported in over 20% of cases [4]. Self-expanding metal stents (SEMS) have been indicated in the management of benign colonic strictures related to anastomotic stenoses, inflammatory bowel disease, diverticulitis, and radiation [5]. There are limited and conflicting available data with regard to the efficacy and safety of SEMS in anastomotic strictures [4, 6, 7]. Overall, SEMS may be an appropriate treatment option for benign colorectal obstruction, allowing effective decompression and medium-term symptom relief until elective surgery can be performed [5, 8]. We present the case of a 68-year-old male who was treated with an SEMS after he had presented with colonic obstruction following sigmoid colon anastomotic site stricture following ileostomy reversal.

Case Presentation

A 68-year-old male had perforated sigmoid diverticulitis with subsequent Hartmann's procedure performed in April 2014. This was followed by the creation of a diverting ileostomy in May 2014. The patient had no complaints, and then had ileostomy reversal with end-to-end anastomosis in October 2014. A barium enema study done prior to the ileostomy reversal had revealed persistent narrowing at the rectosigmoid junction with irregularities of the mucosa. Multiple surgical clips were also noted in the rectosigmoid junction, without any evidence of contrast extravasation. The patient was discharged on the second postoperative day. After the end-to-end anastomosis, he complained of constipation, eventually requiring hospital admission 7 days after the ileostomy reversal due to constipation and abdominal distension. He was treated conservatively with nasogastric aspiration and rectal enemas and again discharged after he was tolerating a soft diet.

He presented to our institution in December 2014 after complaining of abdominal distention and feculent emesis for 1 day. CT scanning of the abdomen and pelvis revealed gaseous distention of the large bowel with mild fat stranding noted adjacent to the anastomotic site and surgical clip (fig. 1).

The patient was admitted to the surgical inpatient service and the gastroenterology team was consulted. Flexible sigmoidoscopy revealed a benign-appearing, intrinsic, severe stenosis measuring 4 mm (in diameter) which could not be traversed. A 0.035-inch guide wire was inserted through the stricture under fluoroscopy guidance. Subsequently, over the guide wire balloon, a catheter was inserted, and contrast injection revealed a tight stricture in the anastomosis area. This was stented with a 25 × 90 mm, uncovered Wallflex Colonic TTS® stent (Boston Scientific) under fluoroscopic guidance (fig. 2, fig. 3). There was constant stool/gas flow after stent deployment.

After the procedure, the patient returned to the medical floor, where he began to have return of flatus. His diet was slowly advanced as tolerated. Initially, he had a small amount of diarrhea, which improved by the time of discharge. The rest of his postoperative hospital stay was unremarkable and he was subsequently discharged. He was seen in the outpatient clinic in January 2015 and decided to defer resection of the colonic stricture with primary anastomosis and diverting loop ileostomy until April 2015 after the risk of complications were explained to him. Following resection of the colonic stricture with primary anastomosis and diverting loop ileostomy, his postoperative course was complicated by an anterior

abdominal wall abscess, which was drained under ultrasound guidance in May 2015. In July 2015 he had closure of his diverting loop ileostomy with an uneventful postoperative course.

Discussion

Since 1991, colorectal stents have been used in the treatment of malignant stenosis. At that time, plastic stents, which were indicated for esophageal strictures, were utilized [5]. Currently, endoscopic balloon dilation is a simple therapeutic approach. Endoscopic dilation requires multiple treatments and is associated with high rates of recurrence (with refractoriness in up to over 20% of the cases) and perforation risk [4].

Colonic stent placement can be performed under fluoroscopic guidance, endoscopic guidance, or both. Fluoroscopic guidance utilizes a water-soluble contrast medium. A guide wire is then passed through the stenosis, over which the stent is placed and eventually deployed. Sole endoscopic management can be achieved in cases where the endoscope can pass through the stricture. Deployment of colonic stents utilizes either the TTS ('through-the-scope') system via the working channel or a non-TTS system where the endoscope is withdrawn after wire passage prior to advancement of the stent delivery system. The stent can then be passed over the wire, reinserting the scope to visualize deployment [5].

SEMS offer preoperative decompression for acute benign colonic obstruction. This minimally invasive technique may permit bowel preparation through elective decompression, avoiding the need for a stoma. Colonic stents may provide medium- to long-term management of benign colorectal strictures when patients are not fit for surgical intervention [5, 8].

Colonic stenting is associated with a mortality rate of approximately 1% [9]. Complications are classified as early or late. Early complications include perforation (5%) [9], bleeding (0–5%) [10], and misplacement. Late complications are stent migration (11%) [10], reobstruction, and erosion or fistulation of the intestinal wall [10]. Use of noncovered or longer/larger-diameter stents seems to reduce the risk of migration [10].

In conclusion, SEMS are an appropriate form of treatment in patients who have acute colonic obstruction as a result of benign stricture in the setting of postanastomosis. This minimally invasive procedure provides a suitable option for bridging to elective surgical intervention with low rates of complication in the short term [8].

Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

The authors have no conflicts of interest to declare.

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Fig. 1. CT scan of the abdomen and pelvis with an arrow pointing to surgical clips related to a previous sigmoid colectomy with adjacent mild fat stranding.

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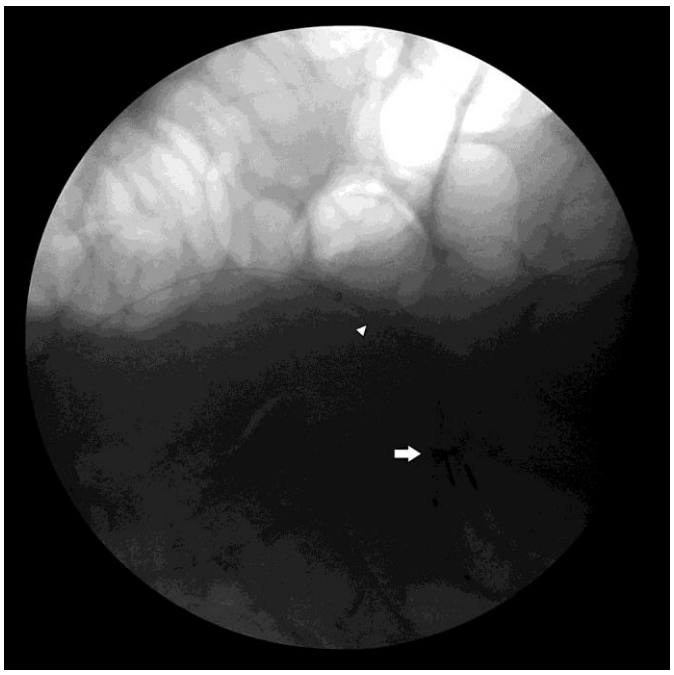

Fig. 2. Fluoroscopy of the stent placed over the guide wire in the colon. Arrowhead: stent. Arrow: surgical clips.

Fig. 3. Endoscopic image of an SEMS being deployed within the colon stricture.