Colonic Strictures
Dilation and Stents

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KEYWORDS

• Colonic stricture • Inflammatory bowel disease • Colonic stent
• Anastomotic stricture • Colon cancer • Colonic obstruction
• Large bowel obstruction

KEY POINTS

- Colonic strictures, both benign and malignant, are common.
- Dilation of benign colonic strictures, most notably caused by inflammatory bowel disease, is safe and effective, and can obviate surgery in some patients.
- Malignant colonic strictures rarely respond to dilation.
- Malignant colonic strictures are typically treated by stents and/or surgery.
- Colonic stents are safe and effective for malignant large bowel obstruction and can play a role in certain benign colonic strictures, notably anastomotic strictures.

INTRODUCTION

Colonic strictures, both benign and malignant, are commonly encountered in clinical practice by both gastroenterologists and surgeons. Benign strictures are most commonly treated by balloon dilation and less frequently with stents. The opposite is true for malignant strictures, whether they are intrinsic or extrinsic to the colon. This article reviews the endoscopic management of colonic strictures.

ENDOSCOPIC BALLOON DILATION OF BENIGN COLONIC STRICTURES

Endoscopic dilation of colonic strictures is primarily used for benign indications: anastomotic strictures, strictures from inflammatory bowel disease (IBD) (usually Crohn's disease), colopathy induced by nonsteroidal anti-inflammatory drugs, and, rarely, diverticular strictures that develop following acute diverticulitis. There is only a limited role for dilation of malignant strictures, as the duration of effect is typically short lived.

Dilation of strictures is typically performed by using through-the-scope (TTS) balloons. Passage dilators are largely reserved for very distal strictures and are uncommonly used in current practice. The technique for balloon dilation is relatively simple. The endoscope (usually a colonoscope) is advanced to the level of the colonic

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stricture. It is not mandatory to traverse the stricture with the endoscope. TTS balloons are available in over-the-wire and non–guide wire based formats, and both are equally effective. TTS balloons used in this context are typically esophageal, pyloric, or colonic balloons; there are no data to support the superiority of one type over another. If the stricture is tortuous, it is recommended that a guide wire be advanced across the stricture under fluoroscopic and endoscopic guidance. Fluoroscopy can confirm the presence of the wire in the proximal large bowel. An estimate of the required balloon size can be made and a balloon selected. Most TTS balloons are available in multiple size formats (ie, 12-, 13.5-, and 15-mm diameters when inflated with varying amounts of fluid). The TTS balloon can be advanced over the wire (if a wire was used) and across the stricture. The balloon can then be inflated with saline, contrast, or a mixture thereof. Contrast is only required if fluoroscopy is to be used.

The time required to keep the balloon inflated is not standardized. Individual preferences vary, and inflation times of 30, 60, and 120 seconds are all commonly used, with no data to suggest the superiority of one specific duration. Once the balloon is deflated the stricture can be evaluated for improvement in luminal diameter, the need for further dilation, and for any complications (most notably bleeding and/or perforation).

Almost all of the currently available data on balloon dilation of benign colonic strictures come from the IBD literature, wherein the procedure has been reported for several years. The technique is recognized as being relatively safe and an alternative to surgery (or at least a temporizing measure in patients who are not surgical candidates at the time of endoscopy). Most studies have reported on patients with small and large bowel strictures, and mix pure intestinal strictures with anastomotic strictures.

A representative study was published by Foster and colleagues[1] in 2008. A variety of strictures were identified in the small and large bowel of 24 patients, most of whom had Crohn's disease (22 of 24). Overall, 71 dilations were performed in 29 strictures. Of note, 46 dilations for 17 strictures were performed with a simultaneous injection of triamcinolone to increase the duration of effect. Mean follow-up was 32 months. The investigators reported results in 1 stomal, 12 anastomotic, and 16 de novo strictures. There were no complications in 22 of 24 patients; bleeding and perforation occurred in 1 patient and rupture of a paracolonic abscess developed in another with a sigmoid stricture. Two patients failed endoscopic therapy and ultimately required surgery.

Hoffman and colleagues[2] reported their results in 25 patients with Crohn's disease who underwent TTS dilations. Thirty-nine colonoscopies with 51 dilations were performed, and 52% became asymptomatic after a single dilation while 48% needed further dilations or surgery. Mild bleeding (that did not require transfusion) occurred in 3 out of 39 colonoscopies, and there was 1 perforation. The investigators found that significant negative prognostic factors were active smoking and ulcerated strictures ($P<.05$ each).

One of the largest studies regarding endoscopic dilation for strictures in Crohn's disease comes from Gustavsson and colleagues,[3] who reported on a 22-year institutional history. Between 1987 and 2009, this group performed 776 endoscopic dilations for benign strictures (80% were for anastomotic strictures) in 178 patients (94 of whom were women) with Crohn's disease. The median age of the patients was 45 years, with median disease duration of 16 years. Technical success was achieved in 689 of 776 patients (89%), and rates of patients undergoing surgery at 1, 3, and 5 years were 13%, 28%, and 36%, respectively. Complications occurred in 41 of 776 dilations (5.3%) and included bowel perforation (n = 11, 1.4%), bleeding requiring blood