Management of an ileocolic anastomotic stricture using polyvinyl over-the-guidewire dilators in Crohn’s disease

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Recurrence in patients who have undergone surgery for Crohn’s disease is mainly limited to the ileocolic anastomosis and the neoterminal ileum and can lead, in some cases, to fibrotic strictures. Once they cause symptoms, these strictures are usually refractory to medical treatment and are managed either endoscopically or surgically. If the stricture is limited to the ileocolic anastomosis, endoscopic treatment is commonly performed by through-the-scope (TTS) balloon dilation. Nevertheless, in some cases (10%), balloon dilation is not technically feasible because of angulation or particular features of the stenosis, at which point surgical treatment may be needed. Dilation by bougienage has been performed in different segments of the GI tract but, to our knowledge, never for treatment of strictures of either an ileocolic anastomosis or neoterminal ileum in Crohn’s disease. This is a case of recurrent Crohn’s disease with a symptom producing stricture of the ileocolic anastomosis in which bougienage dilation was successfully used after unsuccessful TTS balloon dilation.

**CASE REPORT**

A 38-year-old woman with a 16-year history of Crohn’s disease was referred with subocclusive symptoms characterized by severe episodes of postprandial abdominal cramps, abdominal distension, and change of bowel habits of increasing frequency over the previous 3 months. There were no clinical or biochemical signs of active disease. Eight years earlier, the patient had undergone resection of 50 cm of ileum with a right hemicolectomy and side-to-side ileotransverse anastomosis. Due to symptoms caused by a recurrent stricture of the ileocolic anastomosis, 3 TTS balloon dilations were successfully performed at 5, 3, and 1 years before her latest admission. The patient had been taking azathioprine (100 mg/day) since the last dilation. At admission, a small-bowel enteroclysis revealed a narrow stricture at the anastomosis (7 mm in diameter), and poor distendability throughout the small bowel. The anastomosed ileum was strictured over a total length of 7 cm (3 cm proximal and 4 cm distal to the anastomosis) with mild prestenotic dilation (up to 3.5 cm) (Fig. 1). Previous colonoscopies had shown that the narrowing was due primarily to a fibrotic stricture of the ileocolic anastomosis, and further endoscopic treatment was attempted. Colonoscopy demonstrated a stenosis of approximately 5 mm in diameter at the anastomosis without any features of active inflammation. The colonoscope could not be passed through the anastomosis and its angulation did not allow full introduction of the TTS balloon into the narrowed tract. Thereafter, the TTS balloon was retrieved and via the colonoscope a biliary guidewire was inserted under

![Figure 1. Enteroclysis radiograph showing narrowing at the ileocolic anastomosis (arrows) with postresection recurrent stricture formation in the neoterminal ileum.](image-url)
direct vision into the stenosis and pushed beyond the stricture under fluoroscopic guidance. The colonoscope was then removed and a Savary-Gilliard dilator (100 cm in length, 12.8 mm in diameter; Wilson-Cook Medical Inc., Winston-Salem, N.C.) was introduced over its entire length into the colon. Thereafter, a second dilator (11 mm in diameter) was inserted backwards to push the first dilator further up into the intestine. Despite loop formation, the tip of the proximal dilator was pushed through the stenosis into the neoterminal ileum; hand compression of the abdominal wall was helpful. The dilator was maintained in position for 3 minutes with its maximum width at the site of the stricture (Fig. 2). Once the distal dilator and the guidewire were removed, the colonoscope was inserted into the sigmoid colon and the distal part of the proximal dilator was caught and retrieved by using a polypectomy snare. Endoscopic evaluation revealed mild bleeding and enlargement of the anastomosis (approximately 1 cm in diameter), although the instrument could not be passed through the anastomosis due to the persistent angulation. There was no postprocedure complication. Symptoms of partial bowel obstruction were completely relieved following the procedure and did not recur during the next 6 months of follow-up. During this period treatment with azathioprine was continued.

**DISCUSSION**

Fibrotic stricture of an ileocolic anastomosis is the most frequent indication for endoscopic dilation in patients with Crohn's disease. Previous studies have demonstrated the safety and long-term effectiveness of TTS balloon dilation to avoid or postpone surgery. Long-term relief of symptoms occurs in more than half of these patients but surgery is eventually needed in about 30%. Furthermore, in about 10% of cases balloon dilation is not technically feasible because of angulation or particular features of the stenosis. Local corticosteroid injection combined with balloon dilation and nonsurgical stricturoplasty by means of metallic stents are promising alternatives in these patients. Occasionally, persistence of symptoms after dilation can be due to large ileal inflammatory polyps that can be removed by polypectomy.

Bougienage is widely used to treat anal, recto-sigmoid and colonic strictures. To our knowledge, there is no reported case of its use for dilation of an ileocolic anastomosis after resection of the terminal ileum. Indeed, bougienage of proximal strictures has some technical problems primarily due to the distance between the anal verge and the anastomotic site (the dilator is 100 cm in length). Moreover bougienage is associated with a higher risk of perforation compared with TTS dilation, because of the longitudinal force exerted on the diseased segment, in contrast to the radial force applied with the TTS balloon. Conversely bougienage may be preferred in managing multiple, extended, and thick stenoses because of the length and stiffness of the dilators. In our case, after the failure of balloon dilation, 2 bougies were inserted back-to-back so as to reach the anastomotic site. The stenosis was reached, although looping of the proximal dilator did occur, due to folding of the guidewire during bougie insertion. Loop formation appears to be the main disadvantage of this technique. This increases the risk of perforation and prevents a direct control on the force produced by the dilator at the level of the stricture. Therefore endoscopic skill and caution as well as fluoroscopic guidance are necessary. To avoid loop formation, a stiffer wire could be used. Alternatively the development of variable stiffness dilators would be desirable. These adaptations would also be useful for controlling the force produced at the stricture. To retrieve the proximal dilator, a polypectomy snare was used. This maneuver is potentially dangerous in that it does not allow prompt retrieval of the dilator in the case of either a complication or distal stenosis. The retrieval maneuver could be simplified by using a spring-tipped guidewire (with a tip of larger diameter than the lumen of the dilator) so as to withdraw the proximal dilator with traction on the guidewire without having to re-insert the colonoscope. Alternatively, the dilators could be bound.

**Figure 2.** Abdominal plain radiograph showing 2 Savary dilators inserted back-to-back (arrow) in the colon.
together at their proximal ends by using a surgical thread passed through their sides to tie them together. To prevent trauma due to the knot or the edges of the bougies, the junction point of the 2 dilators can be covered with a rubber ring of approximately 3 cm in length. This would also make it easier to correctly position the dilator at the level of the stenosis, allowing prompt pushing and retrieval of the proximal dilator.

Our endoscopic approach can be regarded as successful because the patient enjoyed complete relief of subocclusive symptoms without the need of any further dilation nor surgery during the follow-up period, an outcome similar to that described after successful balloon dilations. Further investigation will be necessary to confirm this result.

REFERENCES