

Combined Endoscopic Stricturectomy and Balloon Dilatation of Strictureplasty Site Stricture in Jejunal Crohn's Disease

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ABSTRACT

Patients who undergo surgical strictureplasty for jejunal Crohn's disease-associated strictures may develop severe stenosis at the inlet and outlet sites of the strictureplasty. There is currently no consensus on the optimal management of these strictureplasty-associated strictures because immunosuppressive medications will be ineffective and surgical reintervention, most commonly with bowel resection, is invasive and may introduce new complications. Endoscopic therapy may sometimes be the only valid option. We present a case of severe strictureplasty inlet and outlet strictures that were successfully treated with combined endoscopic stricturectomy and balloon dilatation.

INTRODUCTION

Intestinal strictures are a common complication of Crohn's disease (CD) and may result from the underlying disease or because of previous surgery.^{1,2} The bowel-sparing surgical strictureplasty is often performed in patients with small bowel strictures in CD.³ Site-specific recurrence of bowel stenosis after strictureplasty occurs in 28%–41% of patients.^{4,5} There is currently no consensus regarding the etiology and optimal management for strictureplasty site strictures. We present a case of successful endoscopic stricturectomy and endoscopic balloon dilatation (EBD) of severe strictureplasty site strictures.

CASE REPORT

A 57-year-old man with complex stricturing and fistulizing small and large bowel CD presented with near-complete small bowel obstruction. The patient was diagnosed with CD approximately 35 years ago. In the past 15 years, he required multiple surgeries for small bowel strictures and enteroenteric and enterocutaneous fistulae, including bowel resections and strictureplasties. His most recent surgery was 7 months earlier, when he had extensive small bowel inflammation complicated by ileal perforation and abdominal abscess, and he underwent abscess drainage, resection of previous ileocolic anastomosis, and creation of a new ileocolic anastomosis. Postoperatively, he was medically managed using ustekinumab, methotrexate, prednisone, and metronidazole. He became steroid-dependent because of recurrent bowel obstruction. Magnetic resonance enterography demonstrated persistent multifocal small bowel strictures in the duodenum and jejunum with “prestenotic luminal dilation” (Figure 1). An initial push enteroscopy demonstrated mild stenoses in the small bowel, including a nontraversable midjejunal stenosis. Intrinsic jejunal stricture was suspected.

At the time of presentation at our clinic, the patient reported worsening symptoms of bowel obstruction. He was able to tolerate only oral liquids, requiring partial enteral nutrition. Repeat push enteroscopy was performed using low-flow CO₂. The esophagus, stomach, duodenum, and proximal jejunum showed no active disease. There was a pinhole stenosis in the mid-jejunum with adjacent ulceration. This stenosis was identified as an inlet stricture of a previous Heineke-Mikulicz strictureplasty. Biopsies of this site demonstrated chronic enteritis with mild activity and no malignancy. The stricture was treated with

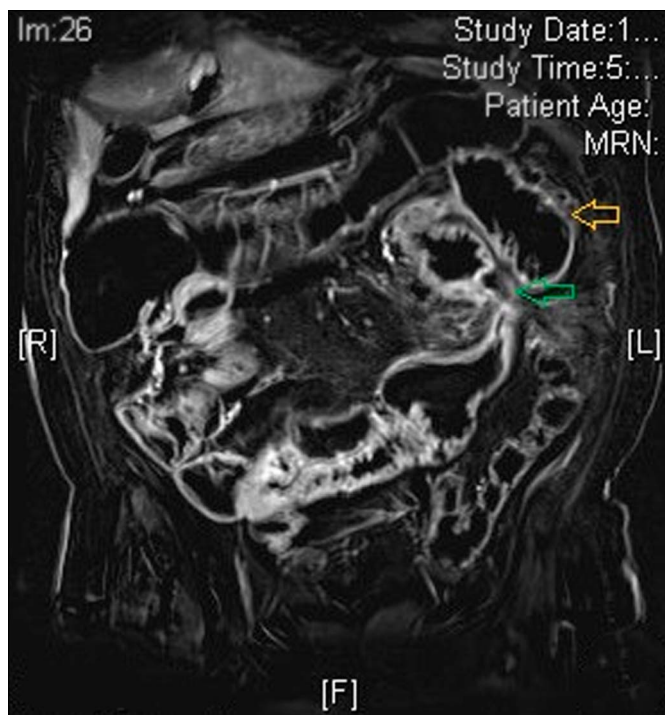


Figure 1. Magnetic resonance enterography image demonstrating the lumen of the strictureplasty (yellow arrow) and the strictureplasty outlet stricture (green arrow). This was initially interpreted as an intrinsic jejunal stricture with upstream bowel dilation.

both electroincision using a DualKnife (Olympus, Tokyo, Japan) and controlled radial expansion balloon dilation to 18 mm and was subsequently traversed with the pediatric colonoscope (Figure 2). The lumen of the strictureplasty appeared healthy. A second stenosis was identified at the strictureplasty outlet. The outlet stricture was long, ulcerated, and angulated. Balloon dilation was attempted, but the balloon could not be fully advanced past the angulated stricture. Endoscopic electroincision was successfully performed.

Within 24 hours after the procedure, the patient reported improved symptoms, including reduced abdominal distension and nausea. After 2 days, a second push enteroscopy was performed. The strictureplasty inlet stricture site was patent and easily traversed. The strictureplasty outlet stricture was found to be approximately 5 cm in length with sharp angulation. Furthermore, stricturectomy was achieved using IT knife (Olympus). At the end of the procedure, an increased flow of fluid through the stricture was observed. The stricture was intentionally not traversed for patient safety. The next day, the patient tolerated an oral diet and was discharged home with a plan for further outpatient treatment of the residual strictureplasty site outlet stricture. At the 1-month follow-up, the patient continued to tolerate an oral diet, with mild abdominal distention with eating meat. Repeat outpatient enteroscopy demonstrated patent strictureplasty inlet site and improved strictureplasty outlet stricture. Additional treatment with

balloon dilation and electroincision was successfully performed. The patient remains asymptomatic at the 2-month follow-up.

DISCUSSION

Intestinal strictures in CD may result from the underlying disease or previous surgery. Medical management of strictures—including early and prolonged immunosuppression, bowel rest, and parenteral nutrition—may delay or prevent the need for intervention, but many patients eventually require intervention.¹ Interventions may be surgical, with either bowel resection or strictureplasty, or endoscopic, most commonly with balloon dilation.^{2,6} Strictureplasty sites may be complicated by inlet and outlet strictures. In these cases, medical therapy may not be effective because in this patient's case in which medical treatment had been maximized with triple immunosuppressive medications. Further surgical options other than bowel resection are limited, especially in those at risk for short-gut syndrome, such as our patient. Endoscopic management of strictures at surgical strictureplasty sites, however, has been challenging. In fact, the recent consensus statement in the management of stricturing CD failed to provide guidance for endoscopic therapy for strictures at the strictureplasty site because of a lack of published data on this topic.⁷

In this patient's case, we demonstrate that endoscopic therapy using electroincision along with EBD is safe and effective therapy for strictureplasty site strictures. We also learned that strictures in this setting can easily be mistaken for intrinsic small intestinal strictures with prestenotic luminal dilation. The distinction between these 2 conditions is important because although there are multiple therapeutic options for intrinsic small intestinal strictures, the treatment approach for strictureplasty site strictures is more limited and should raise consideration of advanced endoscopic therapeutic techniques, as discussed in this report. The clinical implications of isolated ulceration at the site of strictureplasty inlet or outlet strictures, as in this patient, are not clear. Although these isolated ulcers may be interpreted as active CD, we believe that they more likely represent focal ischemia, analogous to anastomotic ulcers observed in other postsurgical contexts. Biopsy to exclude malignancy is imperative.¹

In conclusion, we present a case of safe and effective management of strictureplasty inlet and outlet strictures using endoscopic stricturectomy and EBD. Based on the complexity of individual strictureplasty site strictures, some strictures will require periodic endoscopic therapy, while some will be adequately treated after a single session. We believe that endoscopic electroincision should be considered as one of the first-line therapeutic options for strictureplasty site strictures. However, long-term follow-up and large case series are needed.

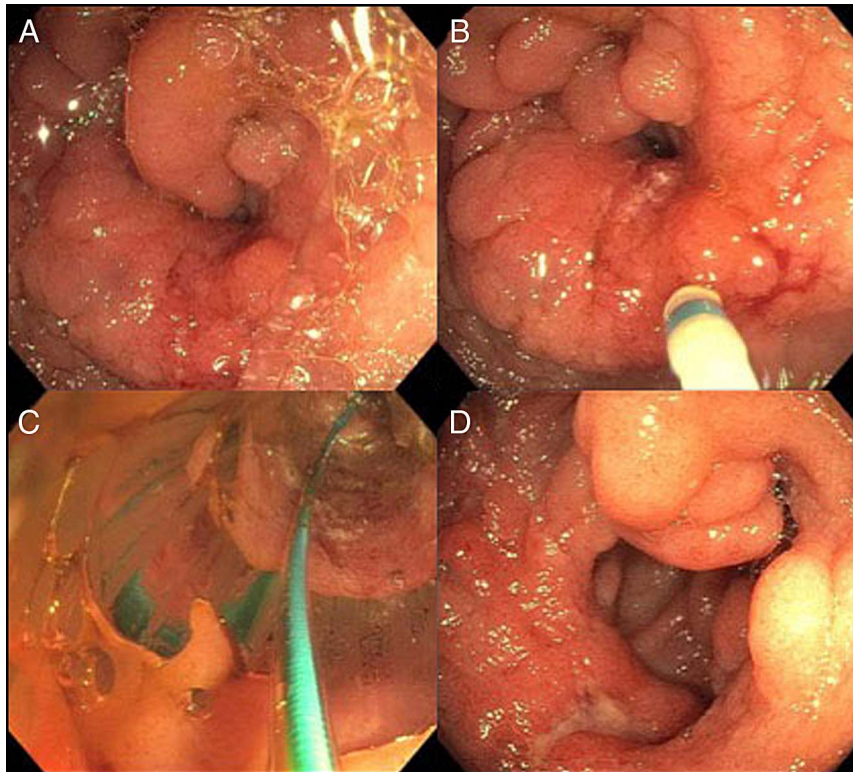


Figure 2. (A) Strictureplasty inlet stricture. (B) Stricturectomy using needle-knife electroincision. (C) Endoscopic balloon dilation. (D) Patent inlet stricture site post-treatment.

DISCLOSURES

Author contributions: YR Nobel wrote the manuscript and approved the final manuscript. B. Shen revised the manuscript for intellectual content, approved the final manuscript, and is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received February 6, 2020; Accepted April 2, 2020

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