Endoscopic incision of a postoperative colonic stricture

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Strictures at the anastomotic site after colonic resection are an uncommon occurrence but can cause considerable discomfort to the patient when they do occur. Endoscopic balloon dilation is currently the first line of therapy, and surgery is typically avoided because of the technical difficulty of a repeat operation. In general, repeated dilation sessions are frequently required due to lack of durability of endoscopic dilation. This is a report of a case wherein endoscopic incision with corticosteroid injection of an anastomotic stricture resulted in good relief of symptoms and documented endoscopic patency over a 14-month follow-up period.

CASE REPORT

A 75-year-old man presented with slowly worsening constipation and abdominal bloating over a 6-month period. Symptoms were initially managed by the primary physician with laxatives and stool softeners without improvement. Abdominal pain with progressive bloating and constipation developed 3 weeks before presentation and the patient was admitted for further evaluation. The history was significant for an uncomplicated sigmoidectomy with end-to-end anastomosis 12 years earlier for sigmoid volvulus. The patient had also sustained a stroke and a myocardial infarction in the intervening years but was asymptomatic with respect to these illnesses at presentation. He was not taking anticoagulants or nonsteroidal anti-inflammatory agents; he took 1 aspirin a day, which was withheld on admission.

Physical examination was significant for a distended abdomen with diminished bowel sounds but without signs of peritoneal inflammation. A rectal digital examination revealed an empty rectal vault. Plain x-ray films of the abdomen disclosed a massively dilated colon, and a diagnosis of pseudo-obstruction was entertained. Colonoscopy was requested for decompression of the dilated colon and to evaluate for a distal mechanical obstructive process. This revealed an extremely tight, fibrous-appearing stricture 20 cm from the anal verge at the site of the previous anastomosis (Fig. 1A). The stricture could not be traversed with any endoscope. Dilation was performed to 18 mm with “through the scope” balloon dilators (Microvasive Endoscopy, Boston Scientific Corp., Natick, Mass.) by using standard technique and an inflation pressure of 45 pounds per square inch. This allowed examination of the colon proximal to the stricture, which was normal, and decompression was successful.

The patient did well for 2 days, but then developed recurrent abdominal distension. Plain abdominal radiographs revealed recurrence of colonic dilation without evidence of free intraperitoneal air. The patient was considered a poor surgical candidate because of his history of atherosclerotic coronary and cerebral vascular disease. Colonoscopy demonstrated closure of the stricture which barely admitted an upper endoscope. A 5F needle knife (Wilson-Cook Medical, Inc., Winston-Salem, N.C.) was used to make incisions in 4 quadrants with 30 J of energy. Each of the cuts was 5 to 8 mm in depth. The endoscope then passed with ease; the estimated residual lumen diameter was 20 mm (Fig. 1B). Triamcinolone was injected into the base of each of the incisions with a sclerotherapy needle, 7 to 10 mg at each site, to a total of 35 mg. The patient tolerated the procedure well. A postprocedure x-ray study performed with water soluble contrast did not demonstrate any leak. The patient was observed for 3 days in the hospital, over which time his diet was gradually advanced. He was taking a regular diet and having normal bowel movements at discharge.

The patient remains asymptomatic 14 months after incision of the stricture, with regular bowel movements and no abdominal bloating. Sigmoidoscopy 5 months after the incision showed the anastomosis to be widely patent (Fig. 1C).

DISCUSSION

Postoperative colonic strictures have an estimated frequency of 2% to 7% after colonic anastomoses. Although the mean interval to stricture formation is 6 months to 1 year after surgery, stric-
tures can occur as early as 3 months or as late as a
decade or more after surgery. They are more com-
mon after anastomoses performed in the left colon. Postoperative colonic strictures are typically cicatri-
cial, but malignant strictures can result when resec-
tion has been performed for neoplastic disease.

Historically, surgical management had been the
standard of treatment, but management has now
shifted to endoscopic therapy, with surgery reserved
for patients in whom endoscopic therapy is unsuccess-
ful. “Through the scope” and achalasia balloon
dilators are typically used; they are made of an
inelastic polymer that can inflate to a designated
maximum diameter. They are used under direct
visualization and obviate the need for guidewires
and can also provide hemostatic tamponade if bleed-
ing occurs. Balloon dilation is safe and complica-
tions occur in less than 5% of cases, mostly bleeding
and perforation.

The major drawback of balloon dilation is the lack
of durability of the clinical response. Although
immediate success rates range from 60% to 100%,
symptomatic response rates drop to 75% to 86%
after 3 months and patients frequently require mul-
tiple treatment sessions to achieve a sustained
response. Based on a satisfactory outcome when
used to treat peptic esophageal strictures, incision
with a monopolar electrocautery snare or papilloto-
my knife, alone or in combination with dilation, has
been successfully performed in colonic anastomotic
strictures. In one series of 7 patients with anasto-
motic strictures undergoing endoscopic therapy, dil-
ation (1-5 sessions) resulted in resolution of symptoms
in 5 of 6 patients over 2 to 50 months of follow-up,
whereas 1 patient who underwent electrocautery incision of the stricture was symptom free at 120
months after a single session. In another series of 8
patients undergoing endoscopic incision of colonic
anastomotic strictures with a papillotomy knife, only
1 patient required a second treatment for restenosis
over 1-year follow-up. None of the patients sustained
a complication as a result of the procedure.

Proliferation of fibroblasts and insoluble cross-
linking of collagen fibers are thought to be responsi-
ble for fibrous stricture formation. Corticosteroids
interfere with collagen synthesis and fibrous tissue
formation and may therefore be beneficial in retard-
ing restenosis of cicatricial strictures. Intraves-
ical corticosteroid injections administered concur-
rently with dilation have been demonstrated to
augment the beneficial effects of endoscopic dilation
in corrosive as well as anastomotic esophageal stric-
tures. In addition to an increase in the residual
diameter, the number of dilations required for sus-
tained symptomatic benefit is reduced, suggesting
that the use of corticosteroids adds significantly to the durability of endoscopic dilation.\textsuperscript{12,13} Complications are uncommon; in one reported series there was a single case of \textit{Candida albicans} infection at an injection site.\textsuperscript{15}

Given the safety and efficacy of endoscopic incision in the treatment of colonic and esophageal strictures and the beneficial effect of adjunctive corticosteroid injection in esophageal strictures, a decision was made to combine incision and corticosteroid injection in the treatment of our patient with a refractory anastomotic stricture. Clinical improvement was immediate, and the patient has remained asymptomatic for 14 months to date with documented endoscopic patency of the stricture site. This is believed to be the first case report of the combined use of endoscopic incision with intralesional corticosteroid injection in the treatment of a colonic stricture. This method may be a viable option for the management of patients in whom conventional balloon dilation is unsuccessful and who are poor candidates for surgery. Although our patient did not experience any immediate or long-term complications, there is a real risk for perforation, and careful observation is recommended in the immediate postincision period including contrast enemas to evaluate for possible leaks at the incision site. Further evaluation of this technique is warranted to assess procedure-related complications and long-term durability.

REFERENCES