

Strictureplasty for Crohn's Disease with Multiple Long Strictures

Victor W. Fazio, M.B.B.S., F.R.A.C.S.,

Joe J. Tjandra, M.D., F.R.A.C.S., F.R.C.S., F.R.C.P.S.

From the Department of Colorectal Surgery, Cleveland Clinic, Cleveland, Ohio

Strictureplasty of both the Heineke-Mikulicz and Finney varieties has safely corrected certain small bowel strictures associated with Crohn's disease. A new technique incorporating both these varieties in a single strictureplasty has further expanded the technical repertoire of strictureplasty and is hereby described. [Key words: Crohn's disease; Strictureplasty; Surgical technique]

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Strictureplasty was first described for the treatment of enteric strictures associated with tuberculosis.¹ The procedure was then popularized by Lee and Papaioannou² of Oxford for small bowel strictures from Crohn's disease. The obstruction is corrected without sacrificing any small bowel. In subsequent studies,^{3, 4} strictureplasty has been found to be safe and effective in selected strictures. Absolute and relative contraindications to strictureplasty have been previously described,^{5, 6} and it particularly is to be avoided in the presence of overt sepsis in a sick patient.

So far, the principles and nomenclature of the operation used in most centers²⁻⁵ are analogous to those of pyloroplasty. For short strictures, a Heineke-Mikulicz strictureplasty is performed. For strictures longer than 8 to 10 cm, a Finney strictureplasty is used instead. One of the criticisms leveled at Finney strictureplasty for long strictures is that it may produce a blind loop of sorts and that bacterial overgrowth can occur in this segment. While we have reported a favorable outcome with 47 Finney strictureplasties,³ this criticism could have a theoretic validity. To overcome this concern, an incontinuity strictureplasty that is effectively end-to-end (as in the Heineke-Mikulicz variety) may be preferable. However, strictures longer than 10 cm are difficult to treat by a Heineke-Mikulicz technique because of the tension on the transverse closure. Additionally, long (>8-10 cm) strictures separated by short "skip" segments of 5 to 6 cm are

often present, especially in the ileum. Construction of two separate Finney strictureplasties results in such an angulated configuration that excessive stasis often results.^{5, 6} We have used a technique that combines features of both the Heineke-Mikulicz and Finney strictureplasties in 12 patients with such long strictures separated by short "normal" bowel segments. This modified technique may avoid the concerns of blind loop and stasis associated with a Finney strictureplasty. The greatest combined length of strictures treated by this technique was 21 cm. There was no complication, and, with a median follow-up of two years, all patients remained asymptomatic.

TECHNIQUE

A longitudinal incision is made with cautery along the antimesenteric aspect of both strictures, along the "normal" intervening segment, and onto 3 cm of soft and normal-looking bowel on either side of the strictures (Fig. 1). The operative field is quarantined with packs, and encircling tapes are used to isolate the strictured segments. The bowel edges are usually hyperemic, and meticulous hemostasis is important. The lumen of the opened bowel is carefully inspected, and any suspicious lesion is biopsied to rule out occult cancer.

The midpoint of the enterotomy is held with sutures (Fig. 2). Separate sutures are placed through the midpoint of the strictures to provide countertraction. An intraluminal mattress suture using 3/0 Vicryl® (Ethicon, Inc., Somerville, NJ) is initiated at either end of the defect posteriorly in the midpoint (Fig. 2). These mattress sutures are applied in an interrupted fashion at either end to reconstruct the posterior layer (Fig. 3). This will reduce the size of the anterior defect to enable a Heineke-Mikulicz transverse closure. Trial approximation of the apex of normal bowel proximally to the apex of normal bowel distally by sutures or with Babcock tissue forceps will indicate the degree of tension on the anterior transverse anastomosis. When the anterior defect is sufficiently re-

Address reprint requests to Dr. Fazio: Department of Colorectal Surgery, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44195.

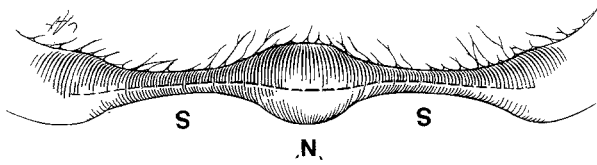


Figure 1. Schematic diagram of enterotomy line through two long strictures (S) separated by a short segment of "normal" (N) small bowel.

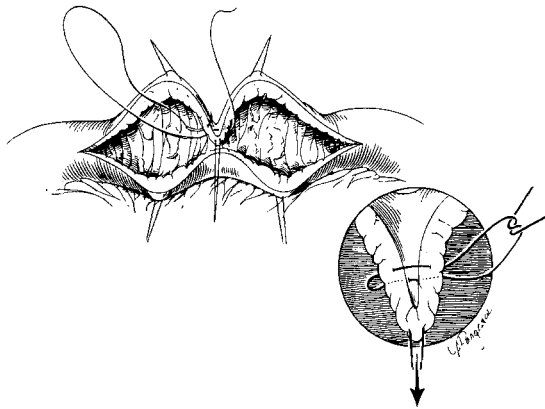


Figure 2. Traction and countertraction sutures are applied at the midpoint of the enterotomy and that of the strictures, respectively. Interrupted intraluminal mattress sutures are applied starting at the midpoint of the enterotomy posterolaterally, *i.e.*, starting through the "normal" bowel between the strictures.

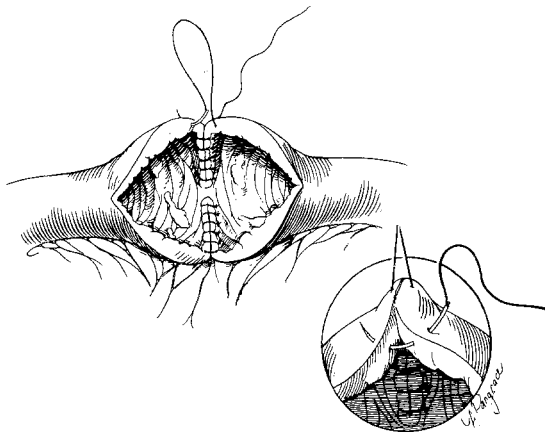


Figure 3. A new posterior layer is thus constructed to reduce the size of the anterior defect. The anterior defect is then closed transversely by interrupted seromuscular sutures.

duced in size to ensure a tension-free anastomosis, it is closed transversely with one layer of 3/0 Vicryl® sutures taking only seromuscular bites to ensure an inverting anastomosis (Figs. 3 and 4). These anterior sutures are started at each end of the anterior defect and progress toward the center. This will avoid excessive tension on a particular

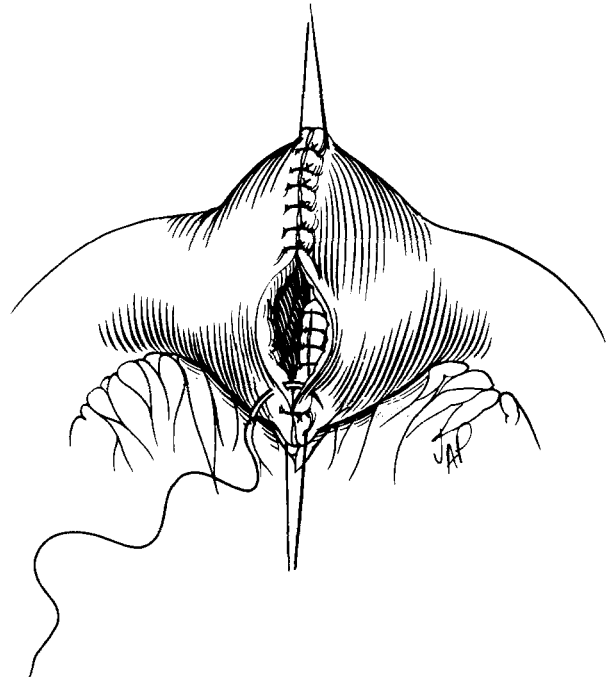


Figure 4. Anterior transverse closure proceeds from each end toward the middle, as in a Heineke-Mikulicz stricture-plasty.

stitch. A one-layer technique is favored over a two-layer technique because it does not turn in as much tissue and thus avoids narrowing to the lumen.

At the completion of the procedure, titanium clips are placed in the mesentery adjacent to the strictureplasty site to aid in subsequent identification at future surgery or by radiograph.

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