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Strictureplasty and intestinal resection: different options in complicated pediatric-onset Crohn disease ☆

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Abstract

Background/Purpose: Surgical resection or strictureplasty (SP) are different options for intestinal Crohn disease (CD) strictures. The aim of this article is evaluation of long-term outcome of SP and resection.

Methods: From 1996 to 2011, 39 patients (23 male, 16 female) with symptomatic ileal and ileocolonic CD strictures resistant to medical/nutritional therapy and treated with surgery in 2 different surgical units were reviewed. The mean age at diagnosis was 11.82 years (range, 4-17 years). Mean age at surgery was 15.94 years (range, 4-24 years). Mean follow-up was 6.88 years (range, 0.5-15 years). Patients underwent resection (group A) or different SP techniques (group B).

Results: Twenty patients underwent intestinal resection (ileal or ileocolonic resection), and 19 patients underwent SP (jejunal, ileal, or ileocolic). Early postsurgical complications were observed in 2 patients of group A. Follow-up of group A patients revealed that 1 patient needed emergency treatment after 8 months surgery because of adhesions and 1 patient developed recurrence treated with medical therapy. In the follow-up group B, 3 patients experienced disease recurrence, 2 of them at the site of previous surgery.

Conclusions: At long-term follow-up, no significant difference in relapsing rate was observed between the 2 groups. Strictureplasty and resection represent an effective treatment of pediatric CD strictures. Strictureplasty could represent the first option for intestinal preservation.

The nonsurgical therapy of Crohn disease (CD) has advanced dramatically over the past decade. However, it has been estimated that the total life time risk of surgery is between 50% and 70% for patients with CD [1]. Failure of medical management remains the most common indication for surgery in most series of patients with small bowel CD [2-4].

The reoperation rates for recurrence are approximately 10% to 30% at 5 years, 30% to 40% at 10 years, and 40% to 50% at 20 years [5,6]. One of the risks of repeated or

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extensive resections for small bowel CD is the development of short bowel syndrome [3]. The principle of strictureplasty (SP) is avoidance of bowel resection, with stricture lysis and widening [7,8]. In 1982, Lee and Papaioannou [9] published the results of SP to relieve obstructive symptoms in patients with CD. Recurrence of CD after bowel resection is independent of microscopic disease involvement at the resection margins [10,11]. Thus, there has been an increasing tendency toward minimal resection lengths and conservative surgery.

Resection is the most commonly performed surgical procedure for small bowel CD. Recurrence rates tend to increase with the passage of time [12] and CD patients may eventually require multiple resections, each increasing the risk of short bowel syndrome. In pediatric patients, preservation of intestinal length should be the goal of surgical therapy, and SP represents an alternative to resection, thereby reducing their risk of developing short bowel syndrome. Fazio and Michelassi [13-15] described different techniques for these difficult situations. For long strictures with an intestinal wall thinner than 1 cm, Tonelli et al, Poggioli et al, and Di Abriola et al [16-18] described a successful side-to-side SP. However, perforation, fistula, and phlegmon at the site of stricture are contraindications to SP [19].

In children with CD, surgical intervention may provide a disease-free interval with decreased corticosteroid requirements, during which normal growth and development can occur. The aim of the study was to compare postoperative complications and recurrences after SP or bowel resection for pediatric patients undergoing surgery for complicated CD.

1. Patients and methods

From January 1996 to January 2011, a total of 39 patients (23 male, 16 female) aged 4 to 24 years (mean, 15.94 years) with symptomatic ileal and ileocolonic Crohn strictures underwent surgery in 2 different hospitals. We reviewed their outcome. Information on sex, age at onset of CD, age at surgery, characteristics of CD (location, type of CD), and medical and surgical history (indication, procedure, early postoperative complications, recurrence) were obtained and recorded (Table 1). Intraoperative details were gathered from operative notes: site of strictures, number and types of SPs performed, and the need for concomitant bowel resection. Bowel preparation and prophylaxis are not performed for some patients with CD because of the presence of an intestinal obstruction.

We divided patients into 2 different groups: "A" for exclusive resection (20 patients) and "B" for exclusive SP (19 patients), independent of the center of origin. In one center, all patients underwent only resection as the strategy of choice, whereas in the other center, resection was reserved for strictures complicated by abscesses and/or fistulas; SP in the second center was considered the strategy of choice not only for a short segment but also for long strictures. This was determined intraoperatively based on the degree of stricture, which was ascertained by means of a Foley catheter and/or manual inspection. The SP was carried out even in the presence of active disease with deep ulcerations and serosal thickening. Patients and their parents were informed before the operation of the possibility of this surgical choice and expressed their clear consent.

The type of SP performed was dependent on the length of the intestinal stricture. The Heineke-Mikulicz technique was used for strictures measuring 5 cm or less in length, whereas a modified Michelassi technique was used for longer strictures. All patients were naive to surgical treatment. Postoperative follow-up status was obtained from records kept at the outpatient clinic. Surgical recurrence was selected as the definitive endpoint, and details of the reoperation were recorded if possible.

To compare the 2 operative techniques, we evaluated adverse outcomes (early and late complications) and disease

Table 1 Characteristics of patients

Characteristics	Group A	Group B
Sex	9 males; 11 females	14 males; 5 females
Age at diagnosis (y)	11.56 (range, 4-17)	12.06 (range, 4-17)
Age at surgery (y)	16.73 (range, 4-24)	15.28 (range, 4-24)
Disease localization	20 patients ileocolonic	3 patients jejunoileal; 16 patients ileocolonic
Crohn type	7 patients stenosing CD; 13 patients inflammatory CD	10 patients stenosing CD; 9 patients inflammatory CD
Symptoms before surgery	4 obstructive symptoms; 16 recurrent abdominal pain	3 obstructive symptoms; 16 recurrent abdominal pain
Medical therapy before surgery	39 patients 5-ASA	
Other medical therapy	1 patient IFX; 1 patient enteral nutrition; 3 patients steroids;	1 patient IFX; 2 patients enteral nutrition; 2 patients steroids; 1 patients thaldomide

IFX means Infliximab.