

## STRICTUREPLASTY IN CROHN DISEASE:

### SHORT- AND LONG-TERM FOLLOW-UP

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## **Abstract**

Strictureplasty for obstructive Crohn's disease is still controversial because lesions are left in place and the suture is performed on a diseased bowel. Many surgeons prefer to perform bowel resection, hoping less complication and a lower recurrence rate. In this paper, the authors report their strictureplasty experience. They performed a systematic retrospective review of the patients suffering from Crohn's disease who underwent strictureplasties in a 10-year period in the abdominal surgery department of the University Hospital of Liège Sart Tilman, and studied the short- and long-term clinical results of 68 strictureplasties performed in 18 patients. Median follow-up was 63 months (range 12 to 144). Mortality was 0% and septic morbidity was 11% (one wound abscess and one leakage). Among the 16 patients available for the latest follow-up, symptomatic stenotic recurrence had to be medically treated in hospital for 4 patients (25%) with a recurrence delay range 19 to 49 months. Stenosis recurrence needed re-intervention in one patient 48 months after surgery: stenosis occurred at distance of the corrected site. These results confirmed that strictureplasty is a safe and efficient procedure in selected patients undergoing surgery for obstructive Crohn's disease.

**Key Words:** Abdominal surgery; Crohn's disease; strictureplasty; occlusion; treatment.

## **Introduction**

In the beginning of the surgical treatment of Crohn's disease (1930's), radical resections were considered to be curative. However, mortality and morbidity associated to resection was high (1). Progressively, conservative surgery was preferred to resection. Because of the technical difficulties linked to inflammatory tissues and the high mortality rates of resection, surgeons performed bypasses, anastomosing proximal normal ileum to distal normal transverse colon. In the 70's, surgeons went back to resection because of the high complication rates of bypasses, as recurrence, infection, blind loop syndrome, and carcinoma (2). In 1961, Brooke et al. proposed another conservative treatment, consisting in dividing a stricture longitudinally and sewing it transversally (3). This technique was comparable to Heineke-Mickulicz pyloroplasty. In India, surgeons encouraged this strictureplasty technique by using it on tuberculous enteric strictures (4).

Strictureplasty may avoid bowel resection and the risk of small bowel syndrome (5). Nowadays, many authors have used strictureplasty for short stenotic Crohn's disease without increased fistula or abscess rate. However, the short- and long-term effectiveness of strictureplasty for small bowel stenosis in Crohn's disease has not been fully documented. There are still many controversies concerning septic complications and recurrence rates of strictureplasties in Crohn's disease.

In this paper, the authors retrospectively reviewed their experience of 68 strictureplasties performed in 18 patients suffering from Crohn's disease. They assessed their short-term outcome, such as relief of obstructive symptoms and septic complications, and also reported long-term clinical follow-up.

## **Material and Methods**

The authors performed a retrospective analysis of a consecutive series of 18 patients (10 males, 8 females, mean age 42 years) who underwent strictureplasties between January 1988 and June 1999 for small bowel Crohn's disease in the abdominal surgery department of the University Hospital of Liège Sart Tilman. Detailed informations about prior medical or surgical therapy, initial symptoms, and results of physical examination were carefully recorded from the medical charts. The diagnosis of Crohn's disease was confirmed in each case using clinical, radiological and histopathological criteria. The mean evolution duration of Crohn's disease prior to strictureplasty was 12 years (range: 1 to 27 years). Eleven patients had past history of previous abdominal surgery, mainly bowel resection, but two patients had previous strictureplasties. The main indication for operation was small bowel occlusion unresponsive to medical treatment. Six patients had spread enteritis (jejunum and ileum), 4 had ileitis alone, and 8 had combined ileitis and colitis.

The surgical technique of strictureplasty was similar to Heineke-Mikulicz pyloroplasty. Strictures were identified during laparotomy by inspection, palpation and sometimes bowel calibration with a Folley probe. A hand-sewn strictureplasty with continuous absorbable suture was performed in all cases. If abscess or fistula was demonstrated, or if stricture length was superior to 10 cm, resection was preferred. The number of strictureplasties, the need for concomitant bowel resection and the length of resected bowel were retrieved from the operative report.

The 6 months follow-up was available for all patients. Perioperative complications and their management were analysed from the hospital charts. Long-term follow-up was conducted by clinical examination or paraclinical exams necessary to their regular Crohn's disease follow-up in most patients. Two patients were lost to long term follow-up. The latest data were obtained by phone interview. This interview provided information about recurrent symptoms, weight change,

alteration in medical treatment, and any subsequent hospitalisation or surgical procedures after strictureplasty. Median consultation or clinical follow-up was 53 months (range 10 to 143); the follow-up by phone was 63 months (12-144).

## Results

In the study period, 68 strictureplasties were performed in 18 patients. The median hospital stay was 14 days (range 7 to 39 days). Among the 18 patients, 15 (83%) underwent synchronous resection procedure at the time of strictureplasty (11 small bowel resections, and/or 6 ileo-colic resection). The length of resected bowel was recorded for 17 patients. The total length of bowel resection, including addition of length of previous surgical resections, was  $73.9 \pm 36.7$  cm. There was no perioperative death. Strictureplasty related septic morbidity was observed in 2 patients (one peritonitis due to leakage of a strictureplasty, and one wound abscess). A prolonged ileus was observed in one patient. The anastomotic leakage needed a reoperation at day 3 and benefited from an ileostomy and peritoneal rinsing. Ileostomy was closed 3 months later.

Immediately after the surgical procedure, 88% patients noted relief of obstructive symptoms. Six months after operation, 9 patient felt a marked improvement (50%), a moderated improvement in 3 (16%). Three patients reported minimal to unchanged symptomatology, and two patients reported worsening in clinical status. An average weight gain of 4.88kg (range 0 to 10) was reported in patients 6 months after strictureplasty.

Among the 16 patients available for the latest follow-up, symptomatic stenotic recurrence (intestinal occlusion) had to be medically treated in hospital for 4 patients (25%) with a recurrence delay ranging 19 to 49 months. Another patient (6%) required reoperation for resurgence of occlusive symptoms 48 months after the first operation. The occlusive site was distant from the previous strictureplasty.

## Discussion

The principle of strictureplasty is to correct obstructive stricture without sacrificing the length of the small bowel. It has become an accepted surgical option in the management of obstructive Crohn's disease of the small bowel (6-9). Strictureplasty can only be justified if results prove the procedure to be safe. As strictureplasty involves a suture line fashioned through macroscopic disease, there are many controversies about a possible increase of septic complication or a greater recurrence rate of the disease. However, several studies have demonstrated that recurrence of the Crohn's disease is independent of the presence of disease at the intestinal margin (10-11). Also, Crohn's disease is potentially pan-intestinal, and the patient is always at risk of relapse.

The greatest series on strictureplasty in the literature from the last 15 years was summarised on Table 1. Operative mortality rates for resection in Crohn's disease range from 0.3% to 3.2% (12). To date, no operative mortality has been reported for strictureplasty. Septic complications after classical resection for Crohn's disease were reported in a range of 3% to 49% (12). After strictureplasty, perioperative septic complications may vary from 0% to 10%. It was 11% in our series.

Incidence of recurrence requiring surgery ranged from 0% at 6 months to 28% at 60 months (except the study of Yamamoto concerning strictureplasty for stenotic resurgence on ileocolic resection: 46% at 90 months (13)). Most reoperations were performed for new sites of stenosis.

In conclusion, strictureplasty is a safe alternative to resection in obstructive Crohn's disease. This technique must be considered in parallel to resection and not in replacement of it. Moreover, strictureplasty is not recommended for active disease, or in case of phlegmon, enteric fistula, perforation, or intra-abdominal abscess.



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**Legends of Table 1**

Table 1: Series of the literature