

The Surgical Treatment of Multiple Small Bowel Strictures in Crohn's Disease by Combined Resection and Strictureplasty

C.K. Kum, FRCSE
E.K.W. Sim, FRCSE
S.S. Ngoi, FRCSE
P. Goh, FRCSE
R. Sinniah, FRCPath

Department of Surgery & Department of Pathology, National University Hospital, Singapore

Summary

Crohn's disease is extremely rare among Asians. Resection of strictures causing obstruction has traditionally been the accepted choice in surgical therapy. This may lead to problems such as iatrogenic short bowel syndrome and its sequelae. Strictureplasty is an acceptable and safe alternative. We report a case where combined strictureplasty and resection was performed safely and advocate its use.

Introduction

Crohn's disease, as in the rest of Asia, is extremely rare in Singapore^{1,2}. Traditionally, obstructing lesions in a small bowel were treated by bowel resection. This can result in malabsorption if too much small bowel is removed. Strictureplasty to enlarge stenotic segments of the small intestine was thought to be dangerous as anastomosing diseased bowel was believed to result in anastomotic breakdown.

We present a case of Crohn's disease with multiple strictures which had combined resection and multiple strictureplasties to relieve small bowel obstruction. We feel that this is a viable approach for treating multiple strictures from Crohn's disease.

Case Report

The patient, a 34 year old Chinese male, was admitted to the National University Hospital on the 18th of October 1989, with complaints of abdominal distention associated with absolute constipation for 1 day. A month prior to admission, he had intermittent abdominal distension and colicky pains. On review, we found that he had been diagnosed 5-6 years earlier as having irritable bowel syndrome. On examination, the patient seemed comfortable. His abdomen was distended and bowel sounds were hyperactive. Abdominal X-rays showed distended loops of small bowel and fluid levels. Within 24 hours of admission, the abdominal distension subsided after he passed large amounts of flatus and stools.

A barium meal and follow-through was done and this showed multiple short strictures in the proximal ileum (Fig 1). A differential diagnosis of lymphoma, inflammatory bowel disease or tuberculosis was made. The CT scan of his abdomen showed a normal liver and no evidence of lymph node enlargement. A colonoscopy was normal and an ileoscopy and biopsy of the ileum showed non-specific inflammatory changes. The Mantoux test was strongly positive. His symptoms of intermittent abdominal distension persisted. In view of his symptoms, exploratory laparotomy was performed 6 weeks after his first admission.

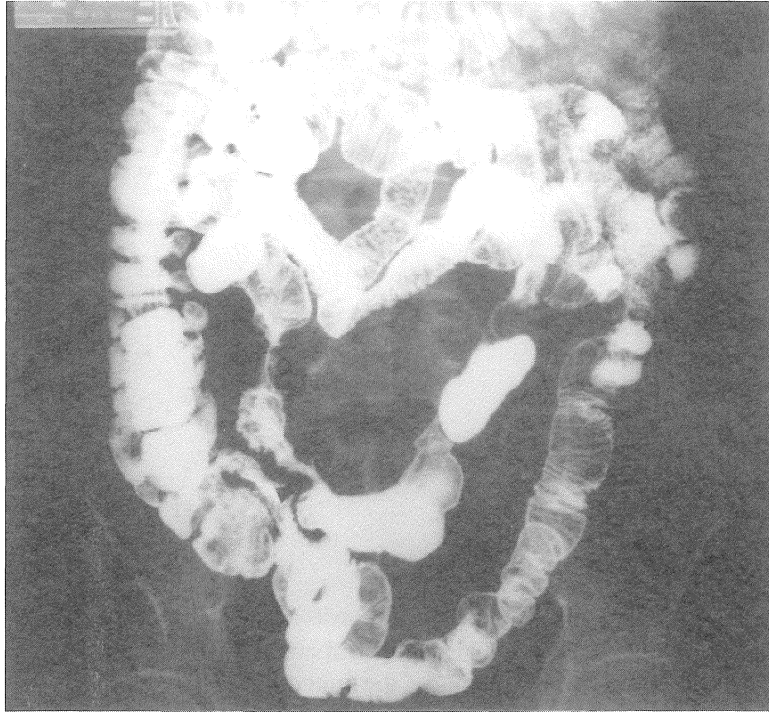


Fig 1: Barium meal and follow-through showing multiple strictures at the mid ileum

At laparotomy, 5 strictures in the ileum were seen. Three of the strictures were close together and almost completely obstructing the lumen. One of the strictures measuring 1.5 cm in length was excised and sent for frozen section histology to exclude malignancy, and this was reported as Crohn's disease (Fig 2-4). Two other strictures very close to the first were resected. The remaining 2 strictures were about 20 and 40 cm away from the resected segment of intestine and a Heineke-Mikulicz type stricturoplasty was performed on these. The post-operative recovery was uneventful and the patient started feeding on the fifth day. On the tenth post-operative day, he was discharged from hospital and has been well on follow-up till the date of this report.

Discussion

The incidence of Crohn's disease world-wide varies markedly with the geography, urban development and demographics of the population studied³. In 1 study, the highest incidence appeared in young urban females with a prevalence as high as 330 per 100,000 population⁴. Crohn's disease is rare in Asian populations^{1,2,5}. In Singapore there has only been 1 other clinical report of 9 cases seen over a span of 9 years (1978-1986) in which 2 were treated surgically, both with resection of strictured bowel¹. There has also been 1 other report on 6 pathological specimens collected over 6 years².

The accepted indication for surgery in Crohn's disease is to treat complications and relieve symptoms⁶. A further indication is the failure of conservative treatment. Hulten believes that early operation will lower complication rates and advocates surgery when a 2-3 month course of intensive medical therapy has failed to induce a full remission⁷. As for the timing of surgery, it is well known that patients who have radiologically tight strictures may still continue to be asymptomatic whereas patients with less obstructing lesions may have significant symptoms. There is still debate over when to perform surgery in a patient with

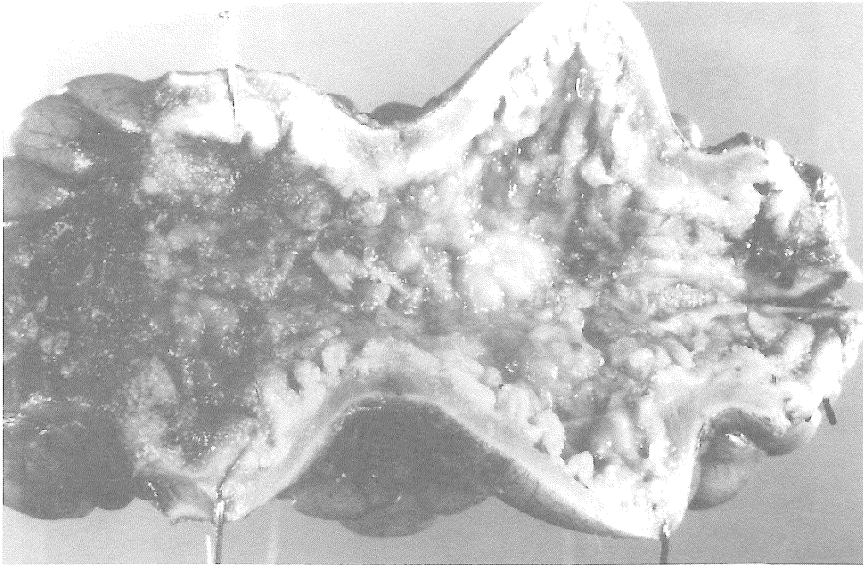


Fig 2: Crohn's disease involving segment of small intestine. There is thickening of the wall and narrowing of the lumen

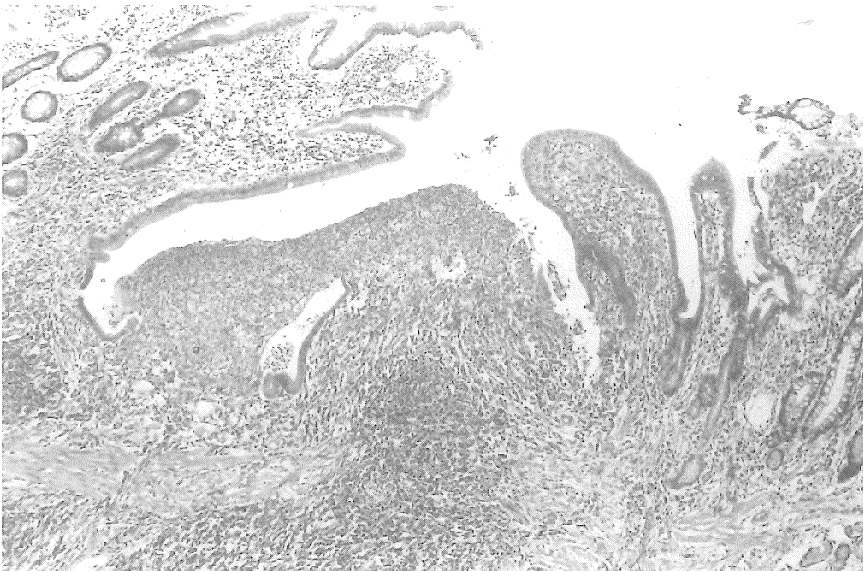


Fig 3: Light microscopy shows mucosal ulceration with fissure formation, chronic mononuclear inflammatory cellular infiltrates and lymphoid aggregates (Hematoxylin & eosin x 40)

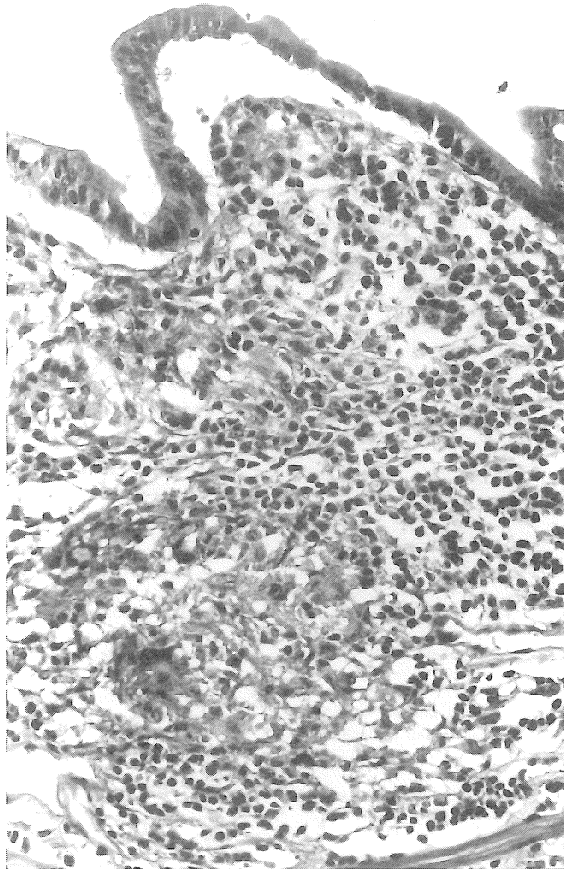


Fig 4: Heavy chronic mononuclear cellular infiltration of the lamina propria, with non caseating granuloma; features of Crohn's disease (Hematoxylin & eosin x 250)

Crohn's disease and the degree of stenosis required before a stricture will be symptomatic⁶. In a patient with multiple strictures, the question as to which stricture should be treated and which should be left alone is difficult to resolve. Alexander Williams and Haynes advocate the use of a Foley catheter inflated to approximately 2 cm diameter intraoperatively. If the balloon can pass through the stricture, then treatment is not required, but if the balloon cannot pass through, then the stricture should be treated⁸.

For obstructing strictures in Crohn's disease, limited resection has long been the standard procedure. However, in patients with obstruction in whom small bowel resection is performed, there is a 10 year recurrence rate associated with re-operation ranging from 30% to 50%^{7,9-11}. This high re-operation rate, together with removal of large segments of intestine leading to a short bowel syndrome, has led to the increasing practice of conservative surgery in Crohn's disease. For a time bypass was advocated, but this was associated with a high re-operation rate and the procedure has fallen into disfavour. Recently, stricturoplasty has been reported to achieve better results¹²⁻¹⁵. A recent series reported 36 stricturoplasties in 14 patients, using both the Heineke-Mikulicz and Finney techniques. Complications were minor in their series and occurred in only 3 patients without any mortality or re-operation¹⁵. Hulten similarly reported good results with stricturoplasty for short segment Crohn's disease of the small bowel.

In the case presented, resection was done where the stricture was very tight and also for frozen histology to exclude malignancy. Resection was combined with multiple stricturoplasties for the remaining strictures.

Conclusions

A policy of resection in multiple level obstruction from small bowel Crohn's disease can often lead to a short bowel syndrome. Stricturoplasty is a safe and effective procedure which can conserve small bowel length. The long-term results are not yet determined but it appears to be an attractive strategy for treating this difficult problem.

References

1. Teh LB, Ng HS, Ho MS et al. Crohn's disease—a diagnostic rarity in Singapore. *Ann Acad Med Singapore* 1987;16(3) : 490-7.
2. Lee SK. Crohn's disease in Singapore. *Med J Aust* 1984;1 : 266-8.
3. Goligher JC. *Surgery of the anus, rectum and colon*. 5th Ed London: bailliere Tindall 1984;973-83.
4. Pinchbeck BR, Kirdeikis J, Thomson ABR. Inflammatory bowel disease in Northern Alberta. An epidemiologic study. *J Clin Gastroenterol* 1988;10 : 505-15.
5. Higashi A, Watanabe Y, Ozasa K et al. Prevalence and mortality of ulcerative colitis and Crohn's disease in Japan. *Gastroenterol Jpn* 1988;23(%) : 521-26.
6. Cohen Z. Surgery in inflammatory bowel disease. In: IAD Bouchier, RM Donaldson Jr (eds). *Current Opinion in Gastroenterology* 1989;5(40) : 514-19.
7. Hulten L. Surgical treatment of Crohn's disease of the small bowel or ileocecum: *World J Surg* 1988;12(2) : 180-5.
8. Alexandra Williams J, Haynes IG. Conservative operation for Crohn's disease of the small bowel. *World J Surg* 1985;9 : 945-51.
9. Lennard Jones JE, Stalder GA et al. Prognosis after resection of chronic regional ileitis. *Gut*;67(8) : 332-6.
10. Hellberg R, Hulten I, Rosergeren C et al. The recurrence rate after primary excisional surgery for Crohn's disease. *Acta Chir Scand* 1980;146 : 43-6.
11. Lock MR, Farmer RG, Fazio VW et al. Recurrence and re-operation for Crohn's disease: the role of disease location in prognosis. *N Engl J Med* 1981;304 : 1586-8.
12. Lee EC, Papaioannou N. Minimal surgery for chronic obstruction in patients with extensive or universal Crohn's disease. *Ann R Coll Surg Engl* 1982;64 : 229-33.
13. Alexander Williams J, Fornaro M et al. Stricturoplasty in Crohn's disease. *Chirurg* 1982;52 : 799-801.
14. Alexander Williams J. The technique of intestinal stricturoplasty. *Int J Colo-rectal Dis* 1986;1 : 54-7.
15. Silverman RE, McLeod RS, Cohien Z. Stricturoplasty in Crohn's disease. *Can J Surg* 1989;32 : 19-22.