

Efficacy of strictureplasty in tuberculous strictures of small intestine

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ABSTRACT

Objective: To assess the efficacy of strictureplasty for tuberculous stricture of small intestine.

Methodology: This is a retrospective descriptive study, conducted at Liaquat University Hospital Jamshoro [LUH] during period of 5 years from July 2004 to June 2009. Sixty patients of small intestinal tuberculosis presented with stricture of small intestine and underwent strictureplasty were the subject of this study. The procedure was done conventionally in all cases, in 70% intestine was closed in two layers while in remaining it was done as single layer.

Results: Early complications were seen in 23 cases which included anastomotic leakage with fistula formation {9 cases (15%)}, burst abdomen {5 cases (8.34%)} and sub-diaphragmatic abscess {9 cases (15%)} The late complications observed after mean follow up of two years include intestinal obstruction that necessitated readmission was seen in 9 cases (15%), however the re-exploration was required in five cases. Incisional hernia was seen in 9 cases (15%).

Conclusion: Though the post operative complications are frequent after strictureplasty yet the procedure is safe & simple for tuberculous stricture of small intestine as it requires minimum expertise, less operative time and above all preserve gut's length.

KEY WORDS: Strictureplasty, Tuberculosis, Intestinal tuberculosis.

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INTRODUCTION

Intestinal tuberculosis may present differently, however presentation as stricture and consequent intestinal obstruction is very common in our part of

the world¹⁻³ where ignorance, poverty, overcrowding and malnutrition are prevalent. Once acquired, the disease starts either as transverse ulcers in the small intestine most commonly ileum or as hypertrophic lesion that developed as mass at ileocecal region.^{4,5} Soon stricture develops which lead to the narrowing of the lumen and consequently cause intestinal obstruction, which is usually acute but may be sub acute. Chronic obstruction is not uncommon and leads to malabsorption syndrome.⁷ Laparotomy becomes necessary for obstruction and perforation or surgery may be needed for chronic abdomen. Numbers of various surgical procedures are available to deal such strictures, however strictureplasty is simplest and safe procedure⁸ and provides opportunity to manage multiple lesions simultaneously without scarifying intestinal segment.⁹ It is especially useful for patients with poor general condition.

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This procedure has versatility that multiple lesions may be dealt at the same time without sacrifice of the long segments of the intestine.⁹ The diseases that has inherited tendency to recur like tuberculosis, avoidance of resection and preservation of maximum length of the intestine must be the prime object. Strictureplasty is a time tested technique to treat the intestinal strictures.¹⁰ Like any intestinal procedure, strictureplasty carries risk of suture line failure and recurrence of strictures that mandates periodic evaluation of the procedure to assess the efficacy of this procedure. This retrospective study evaluated the outcome of strictureplasty at our setting. The operation of strictureplasty for tuberculous strictures of gastro intestinal tract [GIT] was first reported in 1977 by Katarya¹¹ from Chandigarh [India].

METHODOLOGY

When record of all patients who had laprotomy done during period of last five years was analyzed, we found 73 cases where laparotomy was done for intestinal obstruction due to tuberculous strictures. However histopathology record was available for 60 patients only. Therefore 13 cases were excluded due to incomplete record, and all relevant information retrieved for remaining 60 patients on a proforma designed for this study. All these cases were resuscitated and laboratory investigations done include complete blood count, serum electrolytes, urea, creatinine and X-rays; including chest and abdomen [erect and supine]. All patients underwent laparotomy under general anesthesia [G/A] in emergency department.

For strictureplasty, the bowel was opened lengthwise by a 5-6 cm incision along the anti mesenteric border and with the strictures at its mid point. Closure was done transversely by two layers or single layer technique depending upon the local edema and induration. Polyglactin 910 with anti bacterial substance (Vicryl plus) was used in all cases. In all cases tissue biopsy was taken from mesenteric lymph nodes and strictures. Post operatively antibiotics were continued for a period of 7-10 days. Once histopathology report was available all these patients

Table-I: Age and Sex distribution. (n=60)

Age Group (years)	Male	Female	Total No. of cases
20-30	14	12	26
31-40	10	08	18
41-50	07	05	12
51-60	01	01	02
61-65	01	01	02

received anti tuberculous drug therapy according to the body weight. We followed all post operative cases once weekly for three months and then monthly for 16 months. The data was analyzed using SPSS version 10.0.

RESULTS

The age of these 60 patients was highly variable and ranged from 20-65 years with a mean of 30 years. The male slightly outnumbers female with male to female ratio of 1.3:1. We found highest prevalence in the 3rd decade of life as shown in Table-I. All patients were from lower socioeconomic class with family history of tuberculosis in 60% of the cases. Seventeen patients with sub acute intestinal obstruction were admitted though O.P.D while 33 patients with acute intestinal obstruction and 10 patients with intestinal perforation were admitted through A & E. Soon after admission these patients were resuscitated with correction of electrolytes and once general condition found stable underwent laparotomy. The abdomen was opened through lower midline incision; the site of stricture(s) sought, dealt with appropriately and abdomen closed back in layers with intra-peritoneal drain. In 30 cases we found more than one stricture and on total we performed 101 strictureplasties in 60 cases as shown in Table-II. All patients received prophylactic antibiotics for 7-10 days.

The early post operative complications were seen in 23 cases. Anastomotic leakage with fistula formation occurred in nine cases (15%), burst abdomen in five cases (8.34%) sub-diaphragmatic abscess in nine

Table-II: Operative findings.

Distance from Ileocecal junction" ↓	Stricture' →	Solitary	Multiple	Total
Within 1 ft		7	8	15
1-3 ft proximal		13	28	41
More then 3 ft proximal		10	35	45
Total		30	71	101

cases (15%). three cases of anastomatic leakage and two cases of burst abdomen were re-explored and responded well after 2nd surgery. Six cases of anastomatic leakage responded well to conservative measures, while re-suturing was done in three cases of partial burst abdomen. The diaphragmatic abscess in all cases was aspirated under ultrasound guidance, pus culture done; and patients responded well to appropriate antimicrobial agents. All these cases were followed for two years and some of these patients developed late complications. Nine patients underwent intestinal obstruction, however it warranted re-exploration in five cases only. Among these five cases; two patients expired due to septicemia and renal failure. Incisional hernia was seen in nine cases and onlay mesh repair done in all cases.

DISCUSSION

Tuberculosis is the common cause of small bowel strictures in our part of the world.^{9,10} Other causes of bowel strictures include crohns disease,¹² irradiation¹³ drugs¹⁴ and mesenteric vasculopathy,¹⁵ but are rare in our subcontinent.¹⁶

As the prevalence of tuberculosis is less and seen mostly in immigrants,¹⁷ international literature from developed countries is scanty when compared to crohn's disease.¹² In less developed countries, intestinal tuberculosis is responsible for about two million deaths per year¹⁸ and is one of the major causes of intestinal obstruction between 15 to 70 years.^{19,20} Abdominal tuberculosis mostly affects young adults²¹; with peak incidence in 3rd decade of life.²² This is consistent with the result of this study where 70% of patients affected were between 15 to 30 years of age. The sex prevalence has variedly mentioned in literature, female affecting more commonly in some study²³ while other studies have shown male outnumbered female. In contrast to some other studies²⁴ that has shown higher incidence of abdominal tuberculosis in female, in our study male outnumbered females.^{25,26} The results of our study showed that males are affected more as compared to females. The clinical diagnosis of intestinal tuberculosis is difficult^{13,27} and in the majority of the cases the diagnosis can be confirmed only after laparotomy²⁸⁻³⁰ that provide opportunity for tissue biopsy. We biopsied mesenteric lymph nodes as well as the intestinal wall, same was practiced by kapoor¹³ and Ahmad. There are three main forms of intestinal lesions ulcerative, hypertrophic and sclerosing fibro stricturous.^{31,32} It is the sclerosing form which leads to single or multiple stricture formation after reactionary fibrosis. Tubercular strictures of the small

bowel, often multiple, which result from cicatrical contraction of encircling ulcers, can cause sub acute or acute intestinal obstruction.³³ In most cases surgical treatment practiced is either resection or entero-anastomosis³⁴; both procedures are invasive particularly for a benign disease. We therefore, whenever possible, have carried out a simple procedure of strictureplasty. The technique may be better than multiple entero-anastomoses for multiple strictures, as it does not sacrifice any part of the small bowel and there is no blind loop problem. The technique can be practiced even in cases with active tubercular enteritis that have not been on anti tubercular treatment.³⁵

Ileum is involved in most cases of abdominal tuberculosis. We found all strictures in ileum and in 85% of cases strictures were one feet proximal to ileocecal junction. Relief of obstructive lesions with anti-tuberculous drugs alone has been described by Anand and colleagues.³⁶ Since the clinical findings are suggestive of intestinal tuberculosis, but not conclusive we did not proceed with conservative management and anti tuberculous drugs were started once the report of histopathology confirmed the clinical suspicion.

CONCLUSION

Strictureplasty is a simple, easy, quick, and safe procedure to manage the small intestinal strictures due to tuberculosis. It must be preferred when long segment of gut is involved in the disease process as it preserves length of the gut. The procedure has been found to be safe simple and effective in relieving obstructive symptoms. It does not appear to carry the disadvantages of enteroanastomosis or multiple and/or massive resections in cases of multiple tubercular strictures of the small bowel.

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Authors Contribution:

MM, conceived and designed.
 ASK, did statistical analysis.
 PA, did editing of manuscript.
 TSM and AM did data collection and manuscript writing.
 NS, did review and final approval of manuscript.