SPONTANEOUS ILEAL PERFORATION: AN EXPERIENCE OF 33 CASES

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ABSTRACT

Objectives: Intestinal perforation due to typhoid fever and tuberculosis is a frequently encountered surgical emergency in underdeveloped tropical countries. They have abrupt onset and a rapid downhill course. We want to share our experience in the management of this problem.

Material and Methods: This Prospective study included a total of 33 patients, including thirty (30) with typhoid and three (3) with tuberculous perforation.

In typhoid with single perforation, simple repair was performed as a procedure of choice. In multiple perforations, friable gut and in tuberculous patients segmental resection of apparently diseased part, followed by primary end to end anastomosis was performed.

Results: The mean age of our patients was 26.27 years. The mean age of typhoid group was 26.8 years and that of tuberculous patients 25.67 years. Male 27 patients (81.82%) females 06 (18.18%). Typhoid group: Male 25 patients (83.33%) female 5 patients (16.67%). Tuberculous group: Male 2 patients (66.67%) female one patient (33.33%). Five patients developed small gut fistulae, 07 wound dehiscence and 03 incisional herniae. The average hospital stay was 11.03 days. The average hospital stay of typhoid group (12.03 days) was significantly more (p < .01) than tuberculous group (6.33 days). Three patients died and the overall mortality was 9%.

Conclusion: Intestinal perforations due to tuberculosis and typhoid have high morbidity and mortality.

Key word: Typhoid ileal perforation, Morbidity, Mortality.
INTRODUCTION

Spontaneous ileal perforation is a common surgical emergency in under developed tropical countries. It is reported to constitute the fifth commonest cause of abdominal emergencies due to high incidence of enteric fever and tuberculosis in these countries.

Despite the availability of modern diagnostic facilities and advances in treatment regimens, this condition is still associated with a high mortality and unavoidable morbidity. In the presence of advanced anaesthesia of today and tremendous improvement of resuscitative measures, every patient diagnosed to have ileal perforation is universally recommended to be treated surgically. The purpose of operative protocol is to correct the pathology while avoiding any serious accidents and to adopt a surgical procedure, which is associated with minimal complications. How to correct the pathology is a question yet to be answered for universal acceptance, and years back Mr Dikson very correctly stated that when I asked the various surgeons "what do you do for perforations I received a great many blank looks".

As a matter of fact good results can never be expected unless the surgeon has a precise pre-operative diagnosis of the underlying pathology. The causes of spontaneous ileal perforations are many and some of them so rare, that no surgical unit can be expected to have come across all of them. The aim of this study is to share our experience in this field and to provide guidelines through the broad base of literature review for the management of this calamity.

MATERIAL AND METHODS

A total of 33 patients having clinical suspicion of ileal perf and preoperative diagnosis of acute abdomen were included in this study. All these patients presented to the casualty department as cases of acute abdomen or diffuse peritonitis, except one who was shifted from Medical unit. Intravenous line was established to administer intravenous fluids and antibiotics, as most of the patients were dehydrated and toxic. For gastric aspiration nasogastric tube was passed in all these patients. To assess the state of kidney function the patients were catheterised by passing Foley’s catheter and urinary out put recorded and monitored. A combination chemotherapy consisting of benzyl penicillin, gentamycine and metronidazole was our standard regimen. In all these cases base line investigations like X-Ray chest including both diaphragms, X-Ray abdomen, blood profile, urine analysis, blood sugar and serum creatinine level were done.

Thirty-two patients were opened through right paramedian incision while one by Grid Iron, which was closed and re-opened via right paramedian incision. After confirming the provisional diagnosis of spontaneous ileal perforation the patient was entered into the study.

On gross appearance of the perforation these patients were divided into two group; typhoid (30 patients) and tuberculous (03 patients). In typhoid group with single perforation, simple repair was the procedure of choice. In multiple perforations due to typhoid, friable gut and in tuberculous patients, segmental resection of apparently diseased part, was followed by primary end-to-end anastomosis.

Typhoid Group:

Twenty-seven cases had single perforations where as in three cases the perforations were more than one. All these perforations were located within sixty centimetre of ileocaecal junction. They ranged from pinhole size to one centimetre in diameter.
and were involving the anti-mesenteric border of ileum. In all except four cases the perforations were closed by simple repair after refreshing their margins. The repair was done in two layers. In three cases because of multiple perforations and in one case due to friable gut the apparently diseased bowel segment was resected and the bowel continuity restored by primary end to end anastomosis. The resected bowel segments and the tissues excised during refreshing margins were sent for histopathology.

**Tuberculosis Group:**

In three cases the finding were suggestive of tuberculous perforations. In one of these cases the perforation was proximal to a stenosing stricture while in the remaining two cases the perforation was located in the stricture area. In one case the distal small bowel presented additional two strictures. The portion of ileum containing the perforation and stricture was resected and the bowel continuity re-established by primary end-to-end anastomosis. In the patient with multiple strictures after resection and anastomosis of perforated segment, stricture plasty was also performed. The resected bowel segment was sent for histopathology.

After dealing with the source of contamination, thorough peritoneal lavage was also performed. Liberal amount of 0.9% saline (8-10 litres) was used for this purpose.

**Statistical Analysis**

As the main variables were nominal, Chi-square test was applied by SPSS version 8.0 to analyze the data.

**RESULTS**

**Pre Operative Diagnosis:** In 18 patients (54.54%) the preoperative diagnosis was typhoid perforation. In ten patients (33.33%) the diagnosis was diffuse peritonitis due to burst appendix. In one case the clinical features were suggestive of perforated duodenal ulcer and in one case the diagnosis was of acute appendicitis. In the remaining three cases the diagnosis was of peritonitis of uncertain origin (table No. 1).

**Operative Findings:** In 30 cases the operative findings were suggestive of typhoid perforations while in 03 cases as tuberculous. In all of typhoid group the biopsy report was necrosis with mononuclear and plasma cell infiltration. Only in eight cases Mallory cell were reported. In tuberculous group the histology report confirmed our provisional diagnosis of intestinal tuberculosis.

**Overall Complications:** Five patients developed small gut fistulae, 07 wound dehiscence and 03 presented with incisional herniae. The average hospital stay was 11.03 days. The average hospital stay of typhoid group was 12.03 days while that of tuberculous group 6.33 days. Three patients died, giving an overall mortality of 9.09%, two patients in typhoid group while one in tuberculous group.

**DISCUSSION**

Spontaneous ileal perforation is a serious complication of a variety of diseases. In developed countries these perforations are reported to be mostly because of foreign bodies, radiotherapy, drugs, Crohn’s dis-
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ease, malignancies and congenital malformations. Due to the rare incidence of typhoid fever and tuberculosis, perforations due to these diseases are seldom encountered in these countries. So much so that the incidence is reported to be one case of perforation per hospital a year. On the other hand in the under developed tropical countries small bowel perforation is quite a commonly encountered surgical emergency. Although tuberculosis is an important cause, the most important one is the endemic prevalence of typhoid fever in these countries. With the result that the doctors in these countries are much aware of this condition. The early detection, timely and proper surgical intervention and good experience of the surgeons has swung the pendulum in favour of a better out come in their hands.

The various methods of surgical management are simple repair of perforation and proper peritoneal lavage, simple repair of perforation plus bypassing the repaired region by end to side ileotransverse anastomosis, simple repair of the perforation plus diversion of ileal fluid by side to side ileotransverse anastomosis, resection of the apparently diseased segment and restoration of intestinal continuity by primary end to end anastomosis. Resection of diseased segment and exteriorisation both ends of ileum by double barrel ileostomy, exteriorisation of perforated bowel segment as loop ileostomy, primary repair and proximal tube ileostomy, right hemicolecctomy plus primary end to end or end to side ileotransverse anastomosis. In our patient we used primary repair in 86.67% and resection followed by primary end-to-end anastomosis in 13.33% cases.

One stage surgery was performed because of the following reasons.

a: Almost all of our patients were toxic, anaemic and debilitated. They were expected to tolerate extensive surgical procedures poorly.

b: The terminal ileum is a useful segment, so we do not recommend its sacrifice without well documented benefits.

c: The multistage operative protocol is not practised because of problems like poverty, ignorance / illiteracy limited hospital resources and workload.

d: In established peritonitis the entire gut is inflammed and the greater the length of anastomosis the greater will be the chances of leak.

In our study group fistulae formation were more (25%) in cases having resection /anastomosis, as compared to 13.44% fistulae rate in those patients with simple primary repair.

Tuberculous Group: Tuberculous perforations constituted 9.09% of our study population. Considering the prevalence of tuberculosis in Northwest Frontier Province and especially in Afghan refugees, this seems to be a genuine incidence. As in most of the reported series it is difficult to make a pre-operative diagnosis of tuberculous perforation. All these three patients were diagnosed as cases of peritonitis of uncertain origin. The laparotomy findings of perforation with associated strictures and mesenteric lymph adenopathy were suggestive of tuberculous perforations. This provisional diagnosis was confirmed by histopathology of the resected specimen and lymph nodes. In all of our cases the distal part of ileum was the site of perforation as compared to other reported series where the ileum was perforated in 50 to 80% cases.

Small bowel fistulae were the most dreadful complications that were encountered during our study. The development of fistulae not only increased the morbidity of our patients and prolonged their hospital stay but also increased their mortality. Two of our patients died because of small bowel
fistulae. Whether these fistulae were the result of anastomotic leak or the patient developed another perforation could not be ascertained in our cases. The literature review clearly demarcates that small bowel fistulae in these patients are almost an unavoidable complication. Their incidence is reported to be 4-21% following any operative protocol. The almost negligible incidence reported by some authorities, ascribed to extensive and multi staged operative procedures, are however not yet well documented. The incidence of 15.15% fistulae formation in our series is however, in comparison to the other reported series and we do not see any reason for adopting other cumbersome procedures.

Abdominal wound dehiscence occurred in 23.23% of our patients. This incidence is quite high when compared to the 3.1% reported by Nadkarni et al. Infection, debility and late presentation are known risk factors for dehiscence\textsuperscript{18} and were possibly the main contributors in our cases as well. Our incidence of wound infection (30.30%) is comparable to the reported incidence of 33 to 63% but is highly compare to the negligible incidence reported by Egglestone and Santoski\textsuperscript{19}. Like these latter authors after closure of deeper layers, if the skin and subcutaneous tissues were left open for daily dressing and closed by delayed primary sutures on fourth or fifth post operative day we might have been able to decrease this high incidence.

The average hospital stay of our patients is much less as compared to that reported by other authors. In our series the average hospital stay was 12.03 days. Nadkorni et al reported an average of 20 days hospital stay and Hedrich et al. 77 days in their series\textsuperscript{20}. We ascribe our short hospital stay to the simple one stage surgical procedure.

The 9.09% mortality recorded in our study population of typhoid group is quite encouraging. We attribute this low mortality to early recognition of this condition, speedy and proper resuscitation, early surgical inter-vention, quick and simple surgical procedures, thorough but gentle peritoneal lavage and postoperative intensive chemotherapy. Other authors have reported 04-60% mortality associated with ileal perforations in their series\textsuperscript{21}.

**Limitations of Study:**

This study was conducted in a peripheral district hospital with a limited catchment area. Consequently although the group of enteric perforations was reasonable 30, the number of TB perforations was limited to 3. This is too small a number to draw comparisons between enteric TB perforations. However it does give an idea of the pattern of ileal perforations seen in the periphery and how best to manage them.

**References**


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