

Selective Management of Typhoid Perforation of Bowel

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ABSTRACT

Objective To evaluate the selective management of enteric typhoid perforation, according to the time of presentation, in terms of morbidity and mortality.

Study design Descriptive case series.

Place & Duration of study Surgical unit of DHQ teaching hospital, Rawalpindi, from April 2004 to April 2011.

Methodology A total of 84 patients were included, and divided into two groups. Forty patients, who presented early (within 48 hours) constituted group A, were managed by primary closure of perforation while patients who presented late were put in group B and stoma was made.

Results The age range was 10 to 40 years. Seventy five patients were males and 9 females. Forty four patients presented with features of systemic toxicity. All group A patients were managed by primary closure of perforation. In group B, ileostomy was performed in 20 patients after bowel resection, and the perforation was exteriorized in 22 patients with single perforation. Two patients had primary anastomosis. Overall mortality was 11.9 %.

Conclusions Primary closure should be reserved for selective patients who present early, without gross peritoneal contamination. Patients who present late, or are severely ill, should be managed by ileostomy.

Key words Enteric perforation, Selective management, Morbidity, Mortality.

INTRODUCTION:

Intestinal perforation is one of the most serious complications of typhoid. It classically occurs during the third week of illness, but may occur earlier. Diagnosis may be difficult, and many of the usual symptoms may be masked by the general toxic state of the patient, and by local adhesions around the leakage.¹⁻⁴

The incidence of perforation is 1.1% to 2.5%, and the mortality rate vary from 1% to 39.3% in various

studies.⁵ With emergence of effective medical therapy in the form of quinolone, showing a clinical response of 100% and bacterial clearance rate of 99.5%, there is decrease in the incidence of complications of typhoid fever and the resultant mortality rate.⁶ The socioeconomic impact of the disease is significant because most of the times, several months are necessary for a patient to recover completely and resume normal work again.⁷ Postoperative complications include wound infection, fecal fistula, abscesses and wound dehiscence.⁶ The morbidity is approximately 67%.^{8,9} The most common modes of death in enteric perforation are complications like peritonitis, dehydration, electrolyte imbalance and over whelming sepsis.¹⁰

METHODOLOGY:

The study was conducted at surgical unit in DHQ teaching hospital, Rawalpindi over a period of seven

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years. A total of 84 patients were included in this study (April 2004 to 21st April 2011).

All patients with peritonitis due to enteric typhoid perforation were included in this study. There was no age /sex limitation. Patients with doubtful history, clinical examination and per-operative findings other than typhoid perforation of bowel, were excluded from the study. Patients with co-morbid disease both medical / surgical were also excluded.

Patients were diagnosed according to clinical signs and symptoms of peritonitis with history of fever, abdominal pain and other relevant gastrointestinal symptoms. Investigations included CBC, Widal test or blood culture, urea and electrolytes, LFT's and x-ray chest and abdomen. Diagnosis was later confirmed by histopathology of the ulcer margins.

Patients were divided into two groups. Group A had 40 patients with history of <48 hours of abdominal pain at arrival to hospital, without any shock or evidence of systemic toxicity, and without any severe derangement in biochemical profile. Patients who presented with history of more than 48 hours on arrival to the hospital and showed features of systemic toxicity, were put in group B.

Central venous line was placed and patients resuscitated with normal saline / Ringers lactate. Nasogastric tube and Foley catheter were passed. Laparotomy was done under general anesthesia. Midline incision was made and enteric perforation was managed by primary closure with polyglycolic 2/0 in 40 patients of group A. In 44 patients of Group B, 20 patients had bowel resection and ileostomy. In 22 patients with single perforation, the perforation was exteriorized. Two of the group B patients had primary anastomosis.

RESULTS:

Eighty four patients (75 males and 9 females) in the study were divided into group A and B with 40 patients in group A and 44 patients in group B. The age range was 10 to 40 years (table I).

Group B (n 44) patients presented with features of systemic toxicity and group A (n 40) patients presented with no evidence of systemic toxicity. 70% of patients showed positive Widal test and histopathological features. 30% had Widal test negative, but histopathology features were in favor of typhoid fever. Erythrophagocytosis was present in 10% of cases on histopathology. 20% were diagnosed on the basis of presence of infiltration by macrophages, lymphocytes and plasma cells suggestive of acute or chronic inflammation in enteric

perforation. Gas under diaphragm in erect x-ray abdomen was present in 81 patients. Leucopenia (<4000/cu.mm.) was present in the majority (61%).

In group A, two patients developed fecal fistulae. In group B, three patients developed fecal fistulae from impending perforations. Two patients had multiple perforations. Wound infection was most common complication followed by chest infection, wound dehiscence, ileostomy prolapse and retraction (table II). Two patients from group A and eight from group B died. Overall mortality was 11.9%.

Table I: Frequency According to Age

Age range	Frequency	Percentage
10 -19	20	23.81
20 - 29	54	64.29
29 - 40	10	11.90

Table II: Complications

Complications	No. of Patients	%
Chest infection	06	7.14
Urinary tract infection	03	3.57
Wound infection	24	28.57
Abscess (intra abdominal)	07	8.33
Ileostomy prolapse	03	3.57
Fecal fistulae	05	5.95

DISCUSSION:

Enteric fever is caused by Salmonella infection, which if untreated, can cause serious complications. Enteric perforation is the most serious complication of this disease.⁹ Male young adults are most common sufferers with incidence of perforation ranging from 0.5% - 33.6 % in different studies.¹⁰⁻¹²

The incidence of perforation is maximum between 21 and 31 years of age.¹³ 70% of patients showed positive results for typhoid by both serological as well as histo-pathological investigations,^{14,15} as found in this study. Presence of erythrophagocytosis in biopsy material obtained from the edge of ileal perforation was taken as one of the diagnostic criteria.¹⁶ Widal test in 30% of cases was negative although histopathology features were in favour of typhoid fever. The negative Widal test could be attributed to various features like antibiotic therapy, early blood sampling, etc.^{1,17} Gas under diaphragm in erect x-ray abdomen is an important finding, and helpful in diagnosis. In typhoid perforation cases,

leucopenia (<4000/cu.mm.) was present in the majority (61%) of cases in spite of peritonitis. It may be due to bone marrow depression by enteric toxemia.¹⁸

Enteric perforation is best managed surgically as it prevents further peritoneal contamination by intestinal contents. After a proper peritoneal toilet, a wide variety of operative procedures are tried in enteric perforation cases, but all have a high morbidity and mortality. The management options include: simple closure,⁸ simple closure and loop ileostomy,¹⁹ double layer closure,²⁰ exteriorization,⁵ gut resection with exteriorization of both ends,⁶ right hemicolectomy and exteriorization,⁶ and gut resection and primary anastomosis.⁶

Due to selective management in this study the mortality dropped to 11.9 %. Lowest rate of mortality was seen in our group A patients i.e. 5 % compared with 57 % in study done at Nigeria where every patient was managed by primary closure.²⁰ Also the fecal fistulae rate was as low as 5.95% as compared to rate of 14% in another study done at Sindh.⁶ Post operative morbidity and mortality can also be reduced by careful fluid and electrolyte balance and antibiotic therapy, which was evident in this study as the mortality rate was 11.9% compared to other studies where it ranged from 5% to 57%.²¹ Development of fecal fistula due to re-perforation or perforation from another ulcer is a significant factor, affecting mortality and every effort should be done to avoid this.

Repair of perforation should be the choice of treatment in enteric perforation because this is a simple, quick and cost-effective procedure. Ileostomy is more expensive as all the patients have to undergo re-operation for closure of ileostomy and it further needs specialized care prior to closure. Ileostomy should be considered as a secondary procedure in patients who have developed fecal fistula and who present late as in our study.¹⁴

CONCLUSIONS:

Primary closure should be reserved for selective patients who present early. Patients with gross peritoneal contamination, who present late or are severely ill, should be managed by ileostomy. Widal test should be complimented with biopsy of ulcer.

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