Role of Proximal Tube Enterostomy in the Management of Typhoid Enteric Perforation

K M CHEEMA M T ASGHAR M S CHOUDHARY
Department of Surgery, Services Institute of Medical Sciences, Lahore
Correspondence to Dr. Touseef Asghar, Senior Registrar. E mail: asghartouseef@hotmail.com

Typhoid perforation continues to have significant morbidity and mortality. A variety of surgical procedures like primary repair, wedge resection, intestinal resection, ileostomy and hemicolectomy reflect lack of consensus among surgeons. Complications like wound dehiscence, burst abdomen, intra-abdominal abscesses and fecal fistula continue to be unacceptably high. Currently for solitary perforation primary repair is the most acceptable technique whereas for multiple perforations ileostomy is used. Tube enterostomy as an adjunct to primary repair in both solitary and multiple perforations is presented in an attempt to reduce above mentioned postop complications.
Key words: Tube enterostomy, typhoid perforation

Typhoid fever is a persistent global health problem with a devastating socioeconomic impact on the developing countries of the world. Typhoid fever is a systemic illness with mortality rate of 15% if untreated and 1% in those treated with antibiotics[9]. The most lethal complications of typhoid fever are intestinal hemorrhage and perforation. Perforation is reported in 0.9 to 39 percent of the cases[12,1,4]. Surgery for the treatment of typhoid perforation began in the late 1800[3].

A variety of surgical procedures have been recommended for treatment of typhoid perforation. These include primary closure after debridement[7,16,18], wedge resection[17], small bowel resection[5,19], primary suturing with proximal diverting ileotrasversostomy[14,6], right hemicolectomy[11], simple ileostomy.

Tube ileostomy as an adjunct to primary closure of the perforation as originally described by Lozoya[15] in 1948 from Mexico. He used the Witzel technique and found it to be effective.

Objective

- To introduce a method of typhoid enteric perforation repair which is simple and have few post-operative complications.
- To reduce the morbidity and mortality of typhoid perforation surgery.

Patients and methods

Study Design: It was descriptive study carried out from January 2004 to January 2006. All patients presented in emergency of Surgical Unit 1, Services Hospital, Lahore.
Inclusion criteria: All patients with clinical suspicion of Typhoid perforation undergoing exploratory laparotomy with operative findings suggestive of typhoid perforation were included in the study.
Exclusion criteria: Seriously sick, moribund patients were excluded. Patients with long standing fecal peritonitis (history more than five days) were also excluded.
Preoperatively all patients were resuscitated with intravenous fluids, correction of electrolytes, nasogastric decompression and urinary catheterization. Antibiotic used were quinolones and metronidazole which were continued postoeratively.
Technique of Tube enterostomy: All perforations of the intestine were treated by debridement of margins(this tissue was submitted for histopathology) and two layered closure with vicryl 2/0 and silk 2/0 interrupted sutures. After peritoneal toilet, tube enterostomy was done by Witzel method. 16 F nasogastric tube was passed about five feet proximal to perforation with its tip 5 cm proximal to repair. Purse string suture with vicryl 2/0 was applied at the site of enterostomy and after tying it 5 cm serosal tunnel was made for the tube with same suture. Tube was brought out through separate stab in left iliac fossa. Drain was placed in pelvis and abdomen was closed with prolene 1. Skin was left open for delayed primary closure.
Post-operatively: Nasogastric tube was removed on fifth postoperative day with return of bowel activity and tube enterostomy was removed on 14th post operative day. Antibiotics were continued for 14 days. All findings were recorded on Performa.

Results

This study consisted of 33 patients admitted to Surgical Unit-1 Services Hospital from January 2004 to January 2006.Patients ranged in age between 12 to 45 years with a mean age of 25.24 years. There were 6 female (18.2%) and 27 male (81.8%) patients. Highest incidence was found in warmest (April to June- 33.33%) and rainiest (July to September- 36.4%) quarters of the year. In clinical features commonest symptoms were fever (93.9%), abdominal pain (90.9%), constipation (72.7%) and vomiting (69.7%). Commonest signs were abdominal tenderness (93.9%) and absent bowel sounds (93.9%).

The fever perforation interval ranged from 1 to 28 days with mean of 13.34 days. 10(13.3%) of the patients were operated within 24 hours of perforation. Admission operation interval ranged between 3 to 17 hours with a mean of 9.25 hours. At operation single perforation was

found in 30(90.9%) of our patients while multiple were found in 3(9.1%) patients. Peritoneal contamination was minimal in 4(12.1%) patients while gross in 29(87.8%) of the patients.

In complications wound infection was seen in 21(63.6%) of the patients which was managed by wound toilet and delayed primary closure. Wound dehiscence was seen in 2(6.1%) patients. This required re-exploration and closure of abdomen with tension sutures. The mean hospital stay was 20.21 days.

Table 1: Clinical signs at presentation

Sign	=n	%age
Tenderness	31	93.9
Rebound tenderness	12	36.4
Rigidity	19	57.6
Distension	24	72.7
Free fluid	15	45.5
Absent bowel sounds	31	93.9
Chest infection	8	24.3

Discussion

In this study highest prevalence of typhoid is in 2nd and 3rd decade of life which is comparable to most studies[13]. In our study male preponderance (81.8%) of typhoid perforation agrees with other studies[10,5,1,20]. In clinical presentation fever and abdominal pain are commonest symptoms[5]. In investigations positive Widal test might be present in 95.6%[11]. In plain x ray abdomen in our study 72.7% patients had pneumoperitoneum. Other reported percentages are 78.3%[14] and 66.9%[11].

At operation most patients had solitary perforation (91.9%) only 9.1% had multiple perforations. Incidence of multiple perforations is 7%[11] and 19%. Tube enterostomy following primary repair of perforation was devised by Lozoya[15] in 1948 in Mexico. The largest series of tube enterostomy was conducted by Ardhanari and Rangabashyam[2] (1990). They performed tube enterostomy in 55 patients and used to put foley catheter through the perforation. In their study the rate of intra-abdominal abscess, burst abdomen and fecal fistula was significantly less. In our patients main complication was wound infection (63.6%) while burst abdomen occurred in only 6.06% of the patients.

The only disadvantage of tube enterostomy in our study is prolonged hospital stay (mean 20 days). The reason was that tube enterostomy is taken out on 14th postoperative day and patient was discharged following day. In spite of prolonged hospital stay we recommend tube enterostomy as safe method of dealing with typhoid enteric perforation as it is easy to perform and associated with very few post-operative complications.

Conclusions

- Typhoid fever is a major health problem throughout the developing world and one of its major complications is ileal perforation.
- Closure of perforation after debridement and proximal tube enterostomy is safe and effective method of treating typhoid perforation.
- Tube enterostomy is easy to perform and has few complications.
- In future comparative study can be done between primary repair and primary repair with tube enterostomy in typhoid enteric perforation.

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