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THE PROGNOSTIC FACTORS IN TYPHOID ILEAL PERFORATION

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ABSTRACT

Objectives: To determine various prognostic factors and to evaluate their role in the outcome of surgical treatment of typhoid ileal perforation.

Materials and Methods: The study was conducted in Surgical Department of Khyber Teaching Hospital, Peshawar from February 2005 to January 2006. Fifty patients with suspected typhoid ileal perforation and confirmed at operation were included in the study. Attention was paid to pre-operative, per-operative and post-operative factors which had a strong effect on the outcome of surgical treatment of typhoid ileal perforation.

Results: The age range was 15-64 years (mean age = 33.5 years) with male to female ratio of 2.3:1. Most of the patients presented in 3rd week of their illness and were operated upon with a mean interval of 34.8 hours between perforation and operation. A total of 8 patients developed complications. Wound sepsis, a common complication in our study occurred in 4 patients, sub-phrenic abscess in 2 patients while re-perforation occurred in only one patient. All of them had presented late with a long history of chronic illness. No mortality was recorded in our study.

Conclusion: The study concluded that surgical treatment of typhoid ileal perforation showed good results in those patients who were in satisfactory health with a short history of illness before perforation. In addition early surgical intervention and satisfactory per-operative findings had significant effects on post-operative outcome.

Key Words: Typhoid fever, Typhoid ileal perforation, Prognostic factors.

INTRODUCTION

The prevalence of typhoid fever is gradually decreasing worldwide; however it still remains endemic in the Indian subcontinent[1]. Ileal perforation is a serious complication and is recognized as a major cause of morbidity globally with over 16 million cases worldwide and an estimated 580,000 deaths[2]. It is reported to be the 5th commonest cause of abdominal emergency due to high incidence of enteric fever and tuberculosis in these countries[3]. In our setup the exact incidence of typhoid ileal perforation is not known but is expected to be quite high. The high incidence has been attributed to late diagnosis and the emergence of multidrug resistant and virulent strains of Salmonella typhi[4]. Although no age group is exempt, it is most common in young productive age groups mostly in 2nd and 3rd decades[5]. Different studies show variable incidence of male to female ratio i.e. 5:1[6] and 3:1[7]. Late presentation, inadequate preoperative resuscitation, delayed operation, number of perforations and the extent of fecal peritonitis have been found to have a significant effect on prognosis[8,9]. Perforation-operation interval has been considered the most important prognostic factor[10]. The aim of this study was to outline various prognostic factors and their effect on the outcome of typhoid ileal perforation.

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MATERIAL AND METHODS

A total of 50 patients with typhoid ileal perforation diagnosed on the basis of typical history and clinical examination supported by radiological and laboratory investigations were included. Duration of the study was one year. Patients with generalized peritonitis due to other causes such as perforated appendix, duodenal ulcer perforation and idiopathic intra abdominal abscess were excluded from the study. All patients presented with acute abdomen having abdominal pain (mean duration: 34.8 hours) along with vomiting, constipation or diarrhea. Preoperative investigations like X-ray chest (erect), Widal test, differential leucocytes count, blood urea, serum electrolytes and blood culture were done. Peritoneal fluid culture and ulcer margin biopsy were also done. Per-operative findings of inflamed and edematous terminal ileum and peritoneal spillage further confirmed our diagnosis.

Intravenous fluids were started, naso-gastric decompression done, per-urethral catheter passed, blood transfused (where hemoglobin was <8g/dl) and intravenous ceftriaxone and metronidazole given to all patients. Adequate urine output and normal serum electrolytes and blood urea were considered good indicators of adequate resuscitation.

All patients underwent exploratory laparotomy via a midline incision. Diagnosis was confirmed and pus and fecal matter was drained. Edge of perforation was trimmed and primary closure in transverse axis was done with Vicryl 2/0 and Chromic catgut 2/0 in double layers. Drains were inserted after thorough peritoneal lavage and midline incision was closed with Proline-1. Those operated within 48 hours of admission were grouped as "early group" while those operated after 48-72 hours were placed in "late group".

Postoperative intravenous fluids, intake-output record, proper antibiotics (ceftriaxone along with metronidazole), blood transfusion (where needed) and nutrition was considered. Patients were closely observed for major complications. The data of each patient was entered into a proforma prepared for the study.

RESULTS

Fifty patients, 35 male and 15 female (M:F=2.3:1) with an age range of 15-64 years (mean: 33.5, standard deviation: 10.2) were included in the study. Five (10%) patients presented within 7 days of illness while 12(24%) patients presented in 2nd week and 31 patients in 3rd or beginning of 4th week. Only 2(4%) patients had 5-6 weeks duration of illness.

Fever was present in all patients with a mean duration of 2.5 weeks (standard deviation: 1.44) showing that perforation had occurred in the 3rd week of illness in the majority of cases. Vomiting was present in 47 (94%) patients, constipation in 33 (66%) patients, diarrhea in 13 (26%) patients and heart rate of >90/ minute was noted in 47 (94%) patients. Widal test showed significant titers in 39 (78%) patients while blood culture was positive in 31(62%) patients. X-ray chest showed gas under diaphragm in 43 (86%) patients.

Regarding the perforation-operation interval, 24-48 hours had elapsed before surgical intervention in 36 (72%) patients while 9 (18%) patients were operated upon within 24 hours. Thus 45 (90%) patients were in the "Early group". Late group (those operated upon within 49-72 hours) had only 5 (10%) patients. The mean duration before operation in our study was 34.8 hours. Proper management and post-admission adequate resuscitation was the cause of this delay.

Small gut contents were seen in the peritoneal cavity in almost all cases while frank pus was noted in 19 (38%) patients. Single perforation was found in 43 (86%) patients and more than one perforation was present in 7 (14%) patients. Perforation size was 5-8mm in 23 (46%) patients, 9mm-1.5cm in 25 (50%) patients and >1.5cm in only 2 (4%) patients. They were situated 20-40cm from ileo-cecal valve in 7 (14%) patients and 41-60cm in 43 (86%) patients. All were on the anti-mesenteric border with hyperemic/ congested gut wall and Peyer's patches. Postoperative complications were infection in 4 (8%) patients and sub phrenic abscess in 2 (4%) patients. One (2%) patient from the late group with more than one perforation developed generalized peritonitis due to recurrent perforation. He was re-explored and re-perforated site was brought out as loop ileostomy. Post operative hospital stay ranged from 7 to 11 days with a mean of 9.2 days (standard deviation: 1.03). Leucopenia was seen in 17 patients.

Although no serious morbidity or any mortality was observed in our study, it was observed that duration of illness and perforation-operation interval had a strong influence on the incidence of postoperative complications. The main reason for the low morbidity in our study was satisfactory general condition of almost all patients, aggressive preoperative resuscitation, single stage surgical procedure and proper postoperative care.

DISCUSSION

The male preponderance and age range of patients in our study was similar to previous studies[11,12,13]. Also our finding that age and sex distribution had no important effect on prognosis and outcome of typhoid ileal perforation was supported by other studies[14].

Mean duration of chronic illness before perforation/peritonitis occurred was 2.5 weeks in our study. Majority of typhoid fever patients who develop perforation do so within the first two weeks of the illness[15]. Fever and generalized abdominal pain were the prominent symptoms in our study similar to the findings in a study by Hosoglu S et al.[16] Leucopenia, an independent risk factor for typhoid ileal perforation was noted in 17 patients in our study similar to the study by Din NS and Hussain[6].

One of the important considerations is the time elapsed between the time of perforation and operation. Complications developed in almost all of the patients belonging to the "Late group" of our study having long "Illness-perforation interval". Poor general condition resulting from chronic illness was found to affect the outcome adversely and this significant association between the duration of symptoms and perforation is consistent with the clinical evidence in published case series.[17,18,19]

An effective, quick and single stage procedure aimed to halt contamination and remove the existing collection was achieved by simple closure of perforation after trimming of the ulcer margin followed by thorough peritoneal lavage and closure of abdominal wall. This had been favored by most of the national and international authors provided that the patient presented early, perforations are not multiple and cavity condition is reasonable[20,21].

Burst abdomen did not occur in our patients and the important reason among others was closure of rectus sheath with Proline-1 and avoidance of early nasogastric tube removal. Some workers have closed the abdominal wall with tension sutures but the value of delayed primary closure is doubtful[22,23].

Drastic complication like fecal fistula was also not seen in our study and this was thought to be due to proper surgical technique i.e. primary closure in double layers after trimming of ulcer margin. Double layer closure has been found effective in reducing postoperative fecal fistula by Maurya SD et al[13]. Four (8%) patients developed wound sepsis, 2 (4%) patients intra-peritoneal collection and one (2%) patient re-perforated leading to generalized peritonitis. This was much less compared to the 9-43% morbidity and 4-80% mortality found in various studies[24,25].

Mean hospital stay in our study was 9.2 days which is comparable to the 12.3 days stay reported by Rehman A[20] while much longer stay has been reported in other studies[26,27].

No mortality was seen in our study and this was attributed mainly to proper selection and preparation of the patients having short history of illness, short interval between perforation and operation as well as satisfactory per-operative findings. The same had been reported with encouraging results and less postoperative complications by various national and international studies.

CONCLUSION

Typhoid ileal perforation is a serious complication. Late presentation, delayed operation, multiple large size perforations, severe peritoneal contamination and poor gut condition are the factors that have adverse effect on the outcome of surgical treatment and postoperative hospital stay.

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