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Different Surgical Options and Ileostomy in Typhoid Perforation

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Abstract: To find out the value of primary ileostomy as a life saving procedure in patients of typhoid ileal perforation. 112 diagnosed cases were included in this study with a mean age of 18.66 years with a male to female ratio of 1.5:1. After diagnosis and resuscitation, all of the patients were operated within 48 h of admission. The operative procedure was determined by the general condition of the patient, number of perforations and degree of peritoneal contamination. Primary ileostomy was done in moribund patients with massive faecal contamination of peritoneal cavity, while primary double layered closure of the perforation was attempted in clinically stable patients with a single perforation and resection followed by end- to- end anastomosis was attempted in cases where there were more than one perforations or the perforation was present too close to the ileocaecal junction. Age ranged from 8 years to 50 years and the maximum number of patients were in the age group 31-40 years, with a male dominance. On laparotomy 98 (88.5%) patients had a solitary perforation in the terminal ileum and 14 (12.5%) patients had more than one perforation. Primary double-layered closure was done in 40 (35.71%) patients; primary ileostomy in 54 (48.21%) patients and resection followed by end-to-end anastomosis was done in remaining 18 (16.07%) patients. Faecal fistula was the most dreaded and fatal complication and was found to be commonest in patients where primary closure was done (07, 17.55). Over all mortality was (7.14%) of which 6 (5.35%) died secondary to the development of faecal fistula while one patient developed severe peri-stomal excoriation and progressive malnutrition leading to septicemia and death. Minimum hospital stay was associated with primary ileostomy patients and so was the complication rate. Primary ileostomy was found to be superior to other surgical procedures as far as the morbidity and mortality is concerned and especially so in moribund patients presenting late in the course of illness, where it proved to be a life saving procedure. We recommend that primary ileostomy is a safe way of managing typhoid ileal perforation.

Key words: Typhoid perforation · primary ileostomy · primary closure · resection anastomosis

INTRODUCTION

Typhoid fever is a life-threatening problem in Pakistan especially due to the emergence of multiresistant strains of salmonella typhi [1]. Intestinal perforation is one of the most dreaded and common complication of typhoid fever, remarkably so in the developing countries where it usually leads to diffuse peritonitis [2-5]. It was considered to be an almost fatal condition in the past and the mortality and morbidity still remains very high despite remarkable improvements in the surgical management. The current surgical options include primary double layered closure [6], segmental resection and end- to- end anastomosis [7] and primary ileostomy [8, 9]. Studies with controversial outcome [10, 11] have been published and there remains a difference of opinion as to the best surgical procedure in typhoid ileal perforation. Various factors influence overall prognosis and outcome of surgical treatment such as delayed presentation, adequate pre-operative resuscitation, delay in surgery, number of perforations and degree of faecal contamination of the peritoneal cavity [12, 13]. The present study was conducted to compare the results of different surgical techniques employed in typhoid perforation in terms of overall morbidity and mortality and to find out the role of ileostomy as a life saving procedure especially in moribund patients presenting late in the course of illness and having heavy faecal contamination and diffuse peritonitis.

MATERIALS AND METHODS

One hundred and twelve patients with typhoid perforation were admitted and treated between June 2003

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to June 2005 in department of Surgery (Unit-1) at Liaquat University Hospital Hyderabad Jamshoro. All the admissions were carried out through the casualty department as cases of acute abdomen. All the patients were closely monitored during the post operative period in terms of post-operative complications, morbidity, mortality, total hospital stay and convalescence. All the patients were provided same management facilities. Majority (86.60%) of these patients presented with abdominal distension, tenderness and abdominal rigidity. There was marked dehydration and toxaemia in those who presented late in the course of illness (patients were brought after 48 hours of the development of symptoms in most of the instances). Immediate resuscitative measures were taken in all the patients regardless of their age and sex. This comprised maintenance of intravenous line, catheterization, intravenous broad spectrum antibiotics and intravenous fluids. Blood transfusion was needed in 17 patients (15.17%) pre-operatively. The principle diagnostic tools in all the patients were a detailed history and examination, presence of free gas under the right dome of diaphragm and a positive widal test.

Seventy eight (78) (69.64%) patients were operated with in 24 hours of admission after preliminary investigations and resuscitation. The remaining 34 (30.35%) patients needed more aggressive resuscitation because of severe toxemia and dehydration and were therefore submitted for surgery comparatively late but with in 48 hours of admission. Laparotomy was performed by a midline incision and there was a yellow purulent material present in the abdominal cavity with patchy fibrinus coating on the bowel wall in almost all the patients. A single perforation of about 1 cm size was found on the anti- mesenteric border of terminal ileum in 98 (87.5%) patients, while more than 1 perforation was found in 14 (12.5%) patients. The abdominal cavity was found to be heavily contaminated in 64 (57.14%) patients, while in 48 (42.85%) patients the peritoneal cavity was found in a comparatively better condition. The choice of surgical operation was determined by the number of perforations, general condition of the patient and the degree of faecal contamination of the peritoneal cavity. Double layer primary closure of the single perforations was done in 40 (35.71%) patients, while primary ileostomy was performed in 54 (48.21%) patients in which there was heavy faecal contamination and the general condition of the patients was not satisfactory. In 18 (16.07%) patients we performed segmental resection and end- to- end anastomosis because of multiple perforations and in some the perforation was very close to ileocaecal valve.

In all the cases, the peritoneal cavity was thoroughly washed with copious amount of normal saline and drains were left in pelvis. The variables studied in the post operative period were post operative complications such as wound infection, wound dehiscence, faecal fistula, mortality and septicaemia, total hospital stay and follow up of all the patients with different surgical techniques employed.

Data collection: The data of each patient was collected on a proforma specifically designed for this study and included demographic details, clinical features, past medical history, interval between onset of symptoms and admission, operative findings, procedure performed, post-operative complications and duration of stay in the hospital.

Statistical analysis: The results were finally compared and concluded on SPSS version 10.

RESULTS

Age ranged from 08 years to 50 years and the maximum number of patients were in the age group 31-40 years as depicted in Fig. 1. The proportion of male patients was significantly high (60.71%) as shown in Fig. 2.

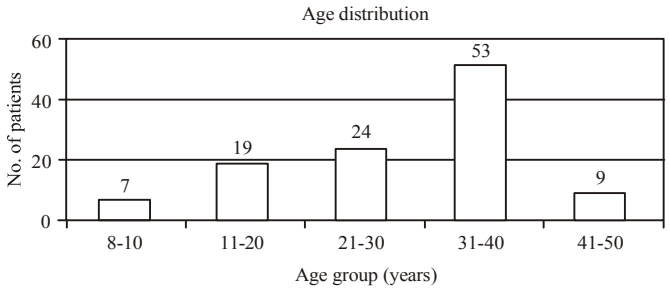

Fig. 1: Age distribution

Table 1: Post-operative complications

Complication	Primary Ileostomy n = 54 (48.21%)	Primary closure n = 40 (35.71%)	Resection and end to end anastomosis n = 18 (16.07%)
Wound Infection	05 (9.25%)	05 (12.5%)	02 (11.11%)
Wound dehiscence	02 (3.70%)	07 (17.5%)	01 (5.55%)
Faecal fistula	01 (1.85%)	07 (17.5%)	03 (16.66%)
Mortality	01 (1.85 %)	05 (12.5%)	02 (11.11%)
Septicemia	01 (1.85%)	02 (5.0%)	01 (5.55%)
Intra-abdominal abcess	01 (1.85%)	03 (7.5%)	01 (5.55%)
Post - operative chest infection	02 (3.70%)	05 (12.5%)	02 (11.11%)

Fig. 2: Sex distribution

Postoperative complications were encountered in varying proportions in different surgical techniques, especially so in elderly patients presenting late in the course of illness. Faecal fistula was the most dreaded and fatal complication and was found to be commonest in patients where primary closure was done. The overall rate and incidence of complications with different surgical techniques employed is detailed in Table 1.

Of the total patients, 8 (7.14%) died in the post operative period, of which 6 (5.35%) died secondary to the development of faecal fistula while one patient developed severe peri-stomal excoriation and progressive malnutrition leading to septicemia and death.

In this study, the maximum complication rate was observed with those in which primary closure of the perforation was performed and thus their stay was maximum, ranging from 3 weeks to 35 days, Minimum stay was associated with primary ileostomy patients and so was the complication rate.

In addition to these, 8 (14.81%) patients out of total 54 in which primary ileostomy was performed developed skin excoriation due to faecal spillage. Four patients (7.40%) developed stoma related complications (prolapse in 2, retraction in 1 and bleeding in 1) and in them refashioning of the ileostomy was resorted to. Of the total 54 patients in which we performed primary ileostomy, 49 (90.784) were successfully re-operated for the reversal of ileostomy after a period of 8 to 12 weeks, while remaining 05 (9.25%) patients were lost to follow up.

DISCUSSION

Typhoid fever remains a major health problem in the developing countries. Among its various complications, enteric perforation is the most lethal and dreaded complication that the surgeons are confronted with. The perforation is common in 2nd and 3rd decade as evidenced by other studies [14]. There is a universal consensus that the typhoid ileal perforation is best treated surgically, contrary to the former believe that they are better managed conservatively [15]. The conservative treatment carries a high mortality compared to a mortality rate of 25% by surgical treatment [16].

Early surgery is the best treatment option by consensus as it ceases the source of further faecal contamination of the peritoneal cavity [17]. A wide variety of surgical techniques have been tried and none proved to be satisfactory as far as the mortality and morbidity are concerned [18-20]. Age incidence in our study is also consistent with other similar studies [21, 22] and ranged from 08 years to 50 years. In accord with the other published studies [23-25), there was a clear male predominance in our study.

We performed three different surgical operations in our patients depending upon the general condition of the patient, the duration of the illness, degree of contamination of the peritoneal cavity and the number of perforations at laparotomy. It is generally claimed in the literature that the mortality and morbidity associated with typhoid ileal perforation is not related to the surgical technique employed but rather on the general status of the patient and duration of the illness and this necessitates an aggressive pre-operative resuscitation [26, 27]. The present study reveals that mortality and morbidity were significantly influenced by the surgical technique employed in the operation.

In our series the best results in terms of mortality, morbidity, post-operative complications and overall hospital stay were found to be in patients with primary ileostomy.The primary closure of the perforation was associated with an overall 65% complication rate. The

faecal fistula remains the most dreaded complication affecting the mortality and was found in highest number with the primary closure of the perforation (17.5%) in our series. Primary ileostomy proved to be most successful procedure in our study in terms of overall mortality and morbidity, a finding strongly supported by a number of similar local and western studies [5, 9, 10]. This is contrary to the observation of AA Shah *et al*. [28], who found resection and anastomosis to be the best surgical option for typhoid enteric perforation, a technique favored by Meh *et al*. [10], claiming a lower risk of re-perforation and mortality with segmental resection. There is, however, a consensus that late presentation, delay in operation, multiple perforations, degree of faecal contamination of peritoneum and old age determine mortality and morbidity associated with this problem [27].

CONCLUSIONS

Early surgery and adequate resuscitation are the key to successful management of patients with typhoid perforation. We recommend that primary ileostomy should be given priority over other surgical options especially in those moribund patients who present late in the course of their illness, have more than one perforation with massive faecal contamination of the abdominal cavity. Primary double layer closure of the perforation is a preferred technique in clinically stable patients with a single perforation with minimal soiling of the abdominal cavity.

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