ORIGINAL ARTICLE

Typhoid Perforation: Comparison of Outcomes between Primary Repair and Ileostomy in Children

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ABSTRACT

Aim: To examine the outcomes of primary repair and ileostomy in patients presented with typhoid perforation.
Study Design: Comparative study.
Place & Duration of Study: Department of Pediatric Surgery Bolan Medical College Hospital Quetta from 1st January 2019 to 30th June 2019.
Methods: Total 80 patients of both genders ages of 1 to 15 years presented with typhoid perforation were included in this study. Patients were divided into two groups. Group A consist of 40 patients and received primary repair, Group B consist of 40 patients and received ileostomy. Postoperative outcomes were examined and compare the findings between both groups.
Results: There were 28 males and 12 females with mean age 9.25±3.45 years in Group A and in Group B 26 patients were males and 14 were females with mean age 9.12±2.96 years. Overall complications rate was high in Group B as compared to Group A patients (p=<0.05). Mortality rate was high in Group B 20% as compared to Group A 7.5%.
Conclusion: Primary repair in patients with typhoid perforation is better treatment modality as compared to iliostomy in term of morbidity and mortality.
Keywords: Typhoid perforation, Primary repair, Iliostomy, Complications, Mortality

INTRODUCTION

Typhoid fever is a severe febrile disease caused by a gram-negative Bacillus Salmonella Typhi which is transmitted by fecal-oral route. It is becoming a major health problem in developing countries due to limited availability of clean potable water and poor sanitation[1]. Its incidence varies in different parts of the world but higher incident reported in developing countries[2]. Typhoid perforation is a serious complication of typhoid fever which usually occurs at second to third week of disease due to necrosis of payer's patches in terminal ileum and causes severe peritonitis[3]. It carries significant morbidity and mortality in developing countries and is always managed surgically.[4] In Pakistan typhoid perforation remains a frequently fatal disease with high prevalence in remote areas of Sindh[5]. The diagnosis of typhoid perforation is mainly clinical supported by laboratory investigations and radiologically by free gas under diaphragm on erect abdominal x-ray and free fluid on ultrasound and typical perforation in anti-mesenteric border of terminal ileum on laparotomy.[6] Many surgical techniques have been used for typhoid perforation management ranging from simple peritoneal drainage under local anesthesia (in moribund patient), primary repair, segmental intestinal resection and anastomosis, ileostomy formation and right hemicolectomy if caecum is involved but results favor primary repair[7].

Primary repair is favored over resection and anastomosis as in later greater morbidity is reported due to anastomotic dehiscence.[8] The major drawback of ileostomy is the need for second surgery to restore intestinal continuity, longer hospital stay, ileostomy care and attendant cost which reduces its popularity.[9] Primary repair is preferred over all other procedures due to its lower rate of complications such as wound infection 23%, intraabdominal collection 20%, anastomotic leakage 3% and wound dehiscence 6%[10].

The present study was conducted to examine the complication occurred after primary repair and iliostomy in patients with typhoid perforation and compare the results between both procedures.

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MATERIALS AND METHODS

This study was conducted at Department of Pediatric Surgery Bolan Medical College Hospital Quetta from 1st January 2019 to 30th June 2019. A total 80 patients of both genders ages of 1 to 15 years presented with typhoid perforation were included in this study. Patients detailed demographic including age, sex and socio-economic status were recorded after taking informed consent. Patients other than typhoid ileal perforation, patients with diabetes mellitus, patient with chronic liver disease were excluded. All the patients were divided into two groups; Group A and Group B. Group A consist of 40 patients and received primary repair, Group B consist of 40 patients and received ileostomy. Postoperative complications such as wound infection, wound dehiscence, intra-abdominal collection and anastomotic leakage were examined. Primary outcome such as mortality were examined at 10th postoperative day. Compare the outcomes between both groups. Data was analyzed by SPSS 24.0. Chi-square test was used to compare the outcomes between both techniques. P-value <0.05 was considered as significant.

RESULTS

In Group A 28 (70%) patients were males and 12 (30%) patients were females with mean age 9.25±3.45 years and in Group B there were 26(65%) males and 14 (35%) were females with mean age 9.12±2.96 years. 22 (55%) and 20 (50%) patients had low socioeconomic status in Group A and Group B (Table 1).

Postoperative wound infection was the most complication found in 20% patients in Group A and 27.5% patients in Group B. Wound dehiscence found in 3(7.5%) patients and 5(12.5%) in Group A and Group B. 2 (5%) in Group A and 4 (10%) patients in Group B had anastomotic leakage. Intra-abdominal collection found in 3 (7.5%) in Group A and 6(15%) in Group B. The overall complications rate in Group B was high as compared to Group A (Table 2). In Group A 3(7.5%) patients and in Group B 8(20%) patients were died during ten days follow-up. Mortality rate was high in Group B 20% as compared to Group A 7.5% (Table 3).

Table 1: Baseline characteristics of patients

Variable	Group A (n=40)	Group B (n=40)
Gender		
Male	28 (70%)	26 (65%)
Female	12 (30%)	14 (35%)
Age (years)		
<10	24 (60%)	25 (62.5%)
>10	16 (40%)	15 (37.5%)
Socioeconomic status		
Low	22 (55%)	20 (50%)
Middle	18 (45%)	20 (50%)

Table 2: Postoperative complications

Complication	Group A (n=40)	Group B (n=40)
Wound infection	8 (20%)	11 (27.5%)
Wound Dehiscence	3 (7.5%)	5 (12.5%)
Anastomotic leak	2 (5%)	4 (10%)
Intra-abdominal collection	3 (7.5%)	6 (15%)
Total	16 (40%)	26 (65%)

P value <0.05

Table 3: Comparison of mortality between both groups

Mortality	Group A (n=40)	Group B (n=40)	P-value
Yes	3 (7.5%)	8 (20%)	>0.05
No	37 (92.5%)	32 (80%)	

DISCUSSION

Typhoid fever is one of the major health issue in developing countries with high rate of morbidity and mortality due to lack of resources and poor sanitation.[11] In children typhoid perforation is the major malignant disorder with high mortality rate. There is many of procedures for the treatment of typhoid ileal perforation, but primary repair and ileostomy are most common performing procedures[12,13]. Present study was conducted to examine the outcomes of primary repair and ileostomy in patients with typhoid perforation. For this purpose we included 80 patients of both genders with ages 1 to 15 years and divided all the patients into two groups. Group A received primary repair and Group B received ileostomy. In Group A 28(70%) patients were males and 12(30%) patients were females with mean age 9.25±3.45 years and in Group B there were 26(65%) males and 14 (35%) were females with mean age 9.12±2.96 years. 22 (55%) and 20 (50%) patients had low socioeconomic status in Group A and Group B. These results showed similarity to some previous studies in which male patients was predominant 60 to 80% with majority of patients was less than 10 years of age[14,15].

In present study the overall complications rate was high 65% in patients treated with ileostomy and 40% in patients treated with primary repair. These results were comparable to many other studies[17,18]. In this study wound infection was the commonest postoperative complication found in 20% patients in Group A and 27.5% patients in Group B. Wound dehiscence found in 3(7.5%) patients and 5(12.5%) in Group A and Group B. 2(5%) in Group A and 4 (10%) patients in Group B had anastomotic leakage. Intra-abdominal collection found in 3(7.5%) in Group A and 6(15%) in Group B. A study conducted by Ahmed et al[19] reported that patients received primary repair had 24.4% postoperative wound infection, wound dehiscence found in 5%, intra-abdominal collection found in 6.4% patients and anastomotic leakage found in 4.3% patients. Another study conducted by Naga Babu et al[20] reported that 4 patients had wound infection who received ileostomy and 3 patients with primary repair. In our study we found that patients received ileostomy had a high rate of reoperation 22.5% as compared to primary repair group 5%. These results showed similarity to some previous studies in which ileostomy had a high rate of reoperation as compared to primary repair[21,22].

In present study the mortality rate in group A was 7.5% and in Group B it was 20%. These results showed similarity to some other studies[23], However, some of studies reported no significant difference in term of mortality and morbidity in patients treated with primary repair and ileostomy[24,25].

CONCLUSION

Typhoid perforation in children reported high rate of mortality and morbidity. We concluded from this study that primary repair in patients with typhoid perforation is better treatment modality as compared to ileostomy in term of morbidity and mortality. Moreover, early and accurate treatment may helps to reduce the complications rate. The choice of procedure is depends on the patient clinical presentation. Surgeons must have to adopt better modality for the treatment of typhoid perforation.

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