

Clinical Pattern and Management of Typhoid Ileal Perforation

Faiza Hameed ¹, Fida Hussain Shah ², Muhammad Hanif ³

¹ Senior Registrar, Department of General Surgery Liaquat University of Medical & Health Sciences Jamshoro

² Assistant professor, Department of General Surgery Liaquat University of Medical & Health Sciences Jamshoro

³ Assistant professor, Department of General Surgery Indus Medical College Sindh

ABSTRACT

Objective: To determine the clinical presentation of typhoid ileal perforation and its outcome after treatment at tertiary care Hospital.

Material and Methods: This cross-sectional study was carried out in the Department of General Surgery, LUMHS/Jamshoro from October 2010 to September 2011. All the cases that presented with typhoid perforation on clinical basis and had X-ray demonstration of air-fluid and gas under the diaphragm were included in the study. All the cases underwent surgical emergency with coverage of broad spectrum antibiotic, nasogastric suction, and correction of fluid. Electrolyte imbalance was cured and blood transfusion was done before the surgery. All the data regarding clinical presentation, postoperative complications and mortality was recorded in the proforma. Data was analyzed by SPSS version 16.

Results: Total 40 patients were studied. Mean age of the patients was 27.08±22.0 years with the range of 10 to 60 years. Most common 82.5% were male and 17.5% were female. Abdominal pain and tenderness was found in all the cases. Regarding signs and symptoms, abdominal distension (97.5%) and fever (95%) were the most common presenting complaints. Primary closure in two layers was done in 40.0% cases, segmentation resection end to end anastomosis procedure was done in 10.0% cases and primary repair with proximal ileostomy was done in 50.0% cases. Wound infection developed in 62.5% patients followed by wound adhesion in 30.0% cases. Mortality rate of 10.0%.

Conclusion: We observed wound infection and wound adhesion were the commonest complications with mortality rate was 10%.

Key words: Clinical presentation, Ileal perforation, Treatment, Typhoid.

Author's Contribution

¹ Conception, synthesis, planning of research and manuscript writing Interpretation and discussion

^{2,3} Data analysis, interpretation and manuscript writing, Active participation in data collection.

Address of Correspondence

Faiza Hameed

Email: dr.saeedarain786@gmail.com

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Introduction

Typhoid fever is a systemic illness caused by *Salmonella enterica* serovar Typhi, a Gram-negative bacterium. Transmission mostly occurred by the ingestions of food and water contaminated by feces from acutely infected or improving cases or asymptomatic carriers. Incubation period is of 1 - 2 weeks usually, while its range may be from 3 - 60 days.¹ This disease presents with sustained

fever and many other sign and symptoms as dry cough, abdominal pain, fatigue, constipation and the diarrhea.² Disease causing organism is a multi-organ pathogen which inhabited the lymphatic tissue in small intestine, spleen, liver and bloodstream in the infected persons.³ Enteric fever is more frequent in children older than five years and its complications have been seen in

more than one third cases reported.⁴ The reported incidence in children with 2–5 year is 573.2 in Pakistan, 340.1 In India and 148.7 in Indonesia per 100,000 person per year respectively. It was estimated 451.7 out of 100,000 cases per years in children from age 2–15 year. Its rate was higher significantly in countries of south Asia including Pakistan as compared to south-east countries and north-east countries of Asia.⁵ Many complications are associated with typhoid fever. Ileal perforation is one of the most fatal complication ⁶ and is frequent surgical emergency. However surgery is recognized as definite management and exact surgical procedure choice remains controversial.⁷ Mostly studies reported that simple closure of perforation and its resection, and anastomosis in the cases having multiple perforations showed satisfactory outcome.^{8,9} These surgical procedures though appear interesting, particularly in the emergency setup, while it is not free from complications.⁷ Nowadays, the mortality rate is decreasing, but still it is very higher as 1 to 39% with the significant morbidities inspite of the progression of therapies.¹⁰ However surgeries associated with higher rate of morbidity and mortality, offer great survival hope.¹¹ Though insufficiency of incidental data and inadequate resources of financial status in developing countries such as ours preclude the effective applications of preventative strategies.⁶ This study has been conducted to determine the clinical pattern of ileal perforation and its outcome after treatment in term of postoperative complications and mortality.

Material and Methods

This cross sectional study was conducted in The Department of General Surgery LUMHS Jamshoro from October 2010 to September 2011. Sample size was calculated by raosoft-software. Anticipated proportion of typhoid perforation was used as 9.2% with 95% confidential level and 9% marginal error.¹⁸ Calculated sample size was 40 patients. All the cases that presented with typhoid perforation on clinical basis and had X-ray demonstration of air-fluid and gas under the diaphragm were included in the study. Cases with non-typhoid ileal perforations including tuberculosis and traumatic perforations including perforated appendicitis, duodenal ulcer perforation, tuberculosis, bacterial peritonitis and Meckle’s diverticulum perforation were excluded from the

study. All the cases underwent surgical emergency with coverage of broad spectrum antibiotic, nasogastric suction and correction of fluid balance. In all patient’s electrolytes were balanced and blood transfusion was done before the surgeries. Exploratory laparotomy was carried out under General anesthesia. Operative procedures were decided according to condition of disease and operative findings. All the cases were followed for outcome in terms of complications. Parenteral antibiotics were continued in all the cases for five days. The data was entered and analyzed by SPSS version 16.

Results

Total 40 patients were included in this study. Mean age of the patients was 27.08±22.0 years with the range of 10 to 60 years. Majority of cases 70.0% were with in age group of 26 to 40 years. Male gender was most common 82.5% as compared to female 17.5% (Table 1).

Table1: Distribution of study participants according to age and gender (n=40)

Age groups (year)	Frequency	Percentage
10 to 25	07	17.5
26 to 40	28	70.0
41 to 50	05	12.5
>50	0	0
Gender		
Male	33	82.5
Female	07	17.5

Abdominal pain and tenderness were found in all the cases. Regarding sign and symptoms, abdominal distension was present in 97.5% patients and fever in 95% (Table 2). Perforations were surgically treated depending upon the number of perforations, general health status of patient and degree of faecal contamination. Primary closure in two layers was done in 40.0% cases, segmentation resection end to end anastomosis procedure was done in 10.0% cases and primary repair with proximal ileostomy was done in 50.0% cases (Figure 1). Wound infection was present in 62.5% patients followed by wound adhesion in 30.0% (Table 3). Majority of the patients (37.5%) were discharged between

Table 2: Clinical presentation of study participants (n=40)		
Sign and Symptoms	Frequency	Percentage
Sign		
Anaemia	29	72.5
Pedal edema	05	12.5
Dehydration	07	17.5
Distention	39	97.5
Tenderness	40	100.0
Guarding	04	10.0
Symptoms		
Abdominal pain	40	100.0
Fever	38	95.0
Constipation	30	75.0
Diarrhea	02	05.0
Vomiting	25	62.5

5 to 15 days including 1 death, remaining 30.0% patients were discharged between 16 to 25 days and 25.0% were discharged between 26 to 30 days including 1 death, while only 3 cases were discharged after 30 days and out of them 2 died (Table 3).

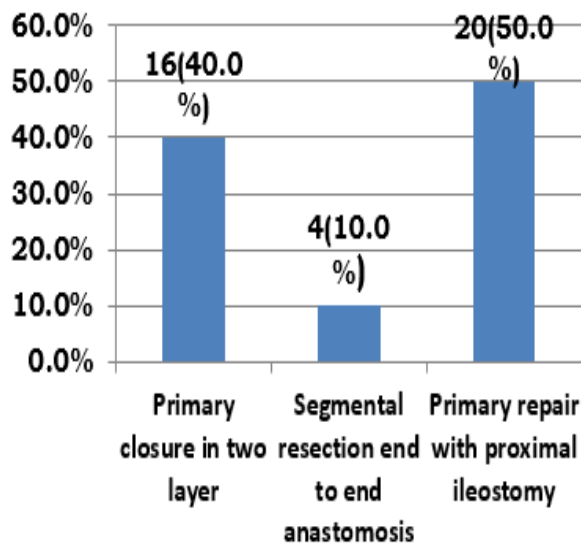


Figure 1: Different Surgical approaches opted in study patients

Table 3: Post-operative complications in hospital stay (n=40)		
variables	Frequency	Percentage
Complications		
Wound infection	25	62.5
Wound dehiscence	12	30.0
Ileostomy	03	07.5
Retraction	03	07.5
Herniation	04	10.0
Intra-abdominal abscess	06	15.0
Septicemia	04	10.0
Mortality	04	10.0
Hospital stay (in days)		
5 to 15	15	37.5
16 to 25	12	30.0
26 to 30	10	25.0
> 30	03	07.5

Discussion

Typhoid fever and its complications are serious public health issues. This study has been conducted to determine clinical presentation and treatment outcome in patients with typhoid ileal perforation and perforations were surgically treated depending upon the number of perforations, general health status of patient and degree of faecal contamination. In this study primary closure in two layer was done in 40.0% cases, 10% cases underwent segmentation resection end to end anastomosis and primary repair with proximal ileostomy was done in 50.0% cases. Similar findings were reported by Ansari AG et al.¹¹ On other hand Ugochukwu AI et al⁶ reported that 60.5% underwent simple closure, 21% underwent ileal resection and entero-anastomosis, 8.1% were treated by tube ileostomy, primary suture and proximal ileo-transverse anastomosis were done in 5.8% cases and 4(4.7%) cases underwent right hemicolectomy. Surgical treatment is associated with many complications and mortality. In the present study according to the complications wound infection was found in 62.5% patients, wound adhesion in 30.0%, development of

herniation was found in 10.0% patients, intra-abdominal abscess was noted in 15.0% cases and septicemia was found in 10.0% of the patients. Mortality rate was found 10.0%. Ansari AG et al.¹¹ in their study reported that wound infection in 68.18% of cases, wound dehiscence in 27.27%, intra-abdominal abscess in 9.09% patients and entero-cutaneous fistula was found in 13.36% patients.

In this study mortality rate was 10.0%. Ugochukwu AI et al.⁶ reported that overall death ratio was 18.6%. Ansari AG et al.¹¹ reported mortality rate 13.36%. These studies showed high mortality rate as compared to our study. Malik AM et al.¹² reported that mortality rate was 6.25% Siddiqui FG et al.⁷ also reported death rate in 8.3% patients. In this study herniation developed in 5(10.0%) patients. Ansari AG et al.¹¹ stated that 36.36% cases had developed incisional hernia. Farooq U et al.¹³ reported that herniation developed in 10.0% cases. In this study mean age of the patients was 27.08+22.0 years with the range of 10 to 60 years. Ansari AG et al.¹¹ reported mean age was 29.36 years, ranged from 10 to 45 years, in another previous study also found comparable findings regarding age.¹⁴ Majority of cases 38 (76.0%) were between 13 to 45 years of age.

In this study male gender was most common (82.5%) as compared to female (17.5%). Ansari AG et al.¹¹ reported that 63.63% males and female were 36.36%. Some other studies of Kouame J et al.,¹⁵ Malik AM et al.,¹⁶ and Chanh NQ et al.¹⁷ reported comparable findings. Typhoid ileal perforation still found higher in male gender in our population, this may be because young males are more involved in outdoor activities and utilize unhygienic food and water outside of home.

According to the clinical presentation, all the patients presented with abdominal pain and tenderness, signs as distension in 97.5%, anaemia 72.5%, pedal edema in 12.5%, dehydration in 17.5%, and guarding in 10.0%, fever in 95.0%, constipation in 75.0%, diarrhea in 5.0% and vomiting was in 62.5%. Ansari AG et al.¹¹ reported fever, abdominal pain and distension were in all study subjects followed by diarrhea 5 (11.36%), vomiting and constipation in 12 (27.27%) and 4 (9.09%) cases respectively. Kabwama SN et al.¹ also stated that fever was found in all cases including abdominal pain in 72.72% and headache in 69.69% cases. Siddiqui FG et al.⁷ reported that presenting symptoms were abdominal pain

was in all cases. He further reported that the mostly 87% cases were anemic and had haemoglobin level <10 g/dL. Ugochukwu AI et al.⁶ also did a study on typhoid ileal perforation and reported that mostly cases 90.7% presented with pain of abdomen, abdominal distention was found in 75.6% cases, 70.9% cases had nausea and vomiting, 54.7% had history of constipation, while fever was found in 50.1% cases. Farooq U et al.¹³ conducted study on ileac perforation and reported that postoperative complications were as; infection 66.0%, wound dehiscence 34.0%, stenosis 6.0%, intra-abdominal abscess 10.0% and septicemia was seen in 8.0% patients. In this study according to the Hospital stay majority of the patients (37.5%) were discharged between 5 to 15 days including 1 death, remaining 30.0% patients were discharged between 16 to 25 days and 25.0% were discharged between 26 to 30 days including 1 death, while only 3 cases were discharged after 30 days and out of them 2 died.

Conclusion

Abdominal pain, distension, fever, vomiting and anemia were the commonest clinical features. Wound infection and wound adhesion were the commonest complications and 10% was mortality rate. Primary ileostomy is optional surgical procedure in late admitted patients with massive fecal contamination. Segmental resection and end-to-end anastomosis is optional for multiple perforations. Primary repair is reliable surgical procedure for single perforation. Early diagnosis and treatment of enteric fever may reduce the morbidity and mortality.

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