

ILEOSTOMY ; IN TYPHOID PERFORATION

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ABSTRACT

OBJECTIVES: To study mortality and morbidity associated with ileostomy in typhoid peritonitis. To compare results with primary closure and resection/anastomosis in typhoid peritonitis. **DATA SOURCES:** Patients admitted to A&E Department of B.V. Hospital with typhoid peritonitis. **DESIGN OF STUDY:** Prospective. **SETTING:** Surgical ward – 3, Bahawal Victoria Hospital, Bahawalpur. **PERIOD:** December 1996 to June 1998. **MATERIAL & METHODS:** 54 patients included in this study after diagnosis and resuscitation, patients were subjected to exploratory laparotomy and peroperative decision was made about definitive surgical procedure. **RESULTS:** Ileostomy as compared to other surgical procedure for typhoid peritonitis has shorter hospital stay, suitable for multiple perforations and for peritonitis of longer duration. **CONCLUSION:** Ileostomy should be preferred procedure in toxic, moribund patients due to typhoid perforation leading to peritonitis.

INTRODUCTION

Typhoid fever is a common disease in our country. Many patients of typhoid fever are admitted in a surgical ward with a complication of typhoid peritonitis. There are different surgical methods for management of the typhoid peritonitis. The purpose was:

- A- To study the results of ileostomy in typhoid peritonitis.
- B- To find out the mortality and morbidity associated with ileostomy in typhoid perforation.
- C- To compare the results of ileostomy with that of primary closure and resection and

anastomosis in typhoid perforation.

The comparison criteria were:

- 1- Morbidity
- 2- Mortality
- 3- Chances of re-perforation
- 4- Starting of oral diet after operation

Typhoid enteritis leading to small gut perforation is still a common problem in the tropics. The patients usually have a history of fever. They are anemic and malnourished. Most of them are very toxic and are in varying degree of fluid electrolyte imbalance and shock. Surgical intervention after resuscitation is usually required on emergency basis. The procedures performed are:

- 1- Primary closure
- 2- Resection and anastomosis
- 3- Formation of controlled fistula in the form of ileostomy.

Since this is a common problem, that is why this important study was conducted to compare the results of these procedures.

PATIENTS & METHODS

All the patients of peritonitis due to typhoid perforation admitted in surgical ward-3 B.V.Hospital, Bahawalpur were included in the study during the period from 11-12-1996 to 10-06-1998. The diagnosis was made on basis of suggestive history and clinical examination. The usual investigations like blood examination, urine examination, serum electrolytes, renal profile, and x-rays abdomen in erect posture and Widal test performed in every patient. The final diagnosis of typhoid perforation was made during laparotomy. All the patients were managed on the following lines;

- 1- The fluid and electrolytes were corrected using appropriate I/V fluid, plasma expanders and blood transfusions where required.
- 2- The response to this resuscitation was monitored by frequent clinical examination and by meticulous observation of intake, output chart.
- 3- Nasogastric tube and Foleys catheter were passed in the subject as a routine.
- 4- Patients were kept NPO.
- 5- Preoperative antibiotics were continued postoperatively. The usual choice was injectable Amoxicilline, Gentamycin and Metronidazole.

After successful resuscitation patients were shifted to operation theater. The operative findings were one of the most important criteria for diagnosis of typhoid peritonitis. The classical is an oval or round ulcer in the terminal ileum on the anti-mesenteric border. Importance was given to clinical assessment and operative findings even if the investigations did not support it. In those patients who were not fit for surgery and general anaesthesia, simple drainage of the peritoneal cavity done under local anaesthesia with the help of drains until the patient was fit for surgical procedure. We preferred midline incision and confirmed the pathology. Abdominal toilet was done after removal of peritoneal debris with copious saline. According to assessment of the surgeon, patients were managed by primary closure, resection and anastomosis or ileostomy was performed. Postoperative antibiotics continued and the patients were managed keeping fluid and electrolyte balance. Patients were shifted to oral diet when bowel started functioning. The daily progress notes and relevant data were noted.

RESULTS

54 patients were included in this study. History of fever, age range, blood pressure, pulse rate,

temperature, hemoglobin and total leukocyte counts are shown in table-1.

Table-1 History proforma of patients and their group distributions

	C 1/n	C 2/n	C 3/n	C 4/n
Duration of Fever	Upto 10 days/12 pts	11-12 days/30 pts	21-30 days/11 pts	>30 days/One pt
Age Incidence	Upto 10 yrs/04 pts	11-30 yrs/35 pts	31-50 yrs/09 pts	>50 yrs/06 pts
Pulse Rate	<90-min/03 pts	90-100-min/05 pts	101-120-min/18 pts	>120-min/28 pts
Blood Pressure	Normal/26 pts	90/60mmHg/07 pts	7-90/60-40/11 pts	--
Temperature	Normal /03 pts	90-100 F/18 pts	100-101-F/23 pts	>101-F/10 pts
Hemoglobin	>12gm%/One pt	10-11 gms%/34 pts	5-9 gms%/18 pts	>5 gm%One pt
TLC	<4000/One pt	4000-11000/36 pts	>11000/11 pts	--

C: Criterion, n: Number of Patients, pts: Patients

At operation 38 patients showed a solitary perforation, 12 had 02 perforations and in 04 patients there were more than 02 perforations in the ileum (Table-2).

Table 2. Number of perforations

	No of patients
1 Single Perforation	38
2 Two Perforations	12
3 More than two perforations	04

In 22 patients the perforation was closed primarily after making the margin fresh with double layer closure of the perforation. "Double layer closure of typhoid ileal perforation has a lower mortality rate as compared to single layered closure ⁴⁹". Four patients underwent primary closure in the form of

resection of the involved segments and end to end anastomosis. 28 patients was treated with ileostomy. 21 patients in the form of exteriorization of the perforation. 5 patients in the form of closure of perforation and proximal loop ileostomy and 02 patients in the form of end ileostomy with resection of the involved segment and closure of distal ileum (Table-3). The overall mortality in our series was 4/54 (7.4%). The mortality in the primary closure group was 3/22 (13.6%) and in ileostomy group it was 1/28 (3.6%). In resection and end to end anastomosis, the mortality was 1/4 (25%).

Oral feeding was started within 5th postoperative day in both primary closure and resection/anastomosis group. Whereas it was started within 48 hours in ileostomy group (Table-4).

Table 3 The operative procedures done (n=28)

Primary closure	22 patients
Resection and anastomosis	4 patients
Ileostomy 21 pts (exteriorization of perforation) 5 pts (closure of perforation and proximal loop ileostomy) 02 pts (end ileostomy with resection of involved segment and closure of distal leum).	28 patients
Drain put in	5 patients
Preoperative expired	3 patients

Table 4 Mortality and Complications in operated patients

Name of the procedure	Mortality	Complication	Oral start after operation
Primarily closure	13.63 %	63.63 %	Within 4-5 days
Resection and end to end anastomosis	25 %	50 %	Usually on 5 th day
Ileostomy	3.57 %	35.71 %	Within 24-48 hours

Following complications were observed in patients:

Wound Infection occurred in 10 patients. 6/22 were of primary closure group, 3/28 of ileostomy group and 1/4 of resection and anastomosis.

Re-perforation & Faecal Fistula formation occurred in 04 patients. 02 of them were of primary

closure, one had ileostomy and another was of resection and anastomosis group.

Table 5. Post operative complications after different operative procedures

Complication	Primary closure group	Anastomosis	Ileostomy group
Wound infection	27.3%	25%	11%
Reperforation & faecal fistula	9%	25%	3.7%
Burst abdomen	9.1%	-	3.5%
Chest complications	18.2%	-	10.0%
Thrombophlebitis	-	-	3.3%

Table 6. Overall post operative complications

Name of complications	No of patients	%age
Wound infection	10/54	18.52
Chest complications	7/54	12.96
Reperforation & faecal fistula formation	4/54	7.41
Burst abdomen	3/54	5.55
Thrombophlebitis	1/54	1.85

Burst Abdomen developed in 03 patients whereas one patient developed retraction of the ileostomy, which was revised.

Chest Infection was seen in both groups. 4/22 of primary closure and 3/28 of ileostomy group.

Thrombophlebitis developed in one patient in ileostomy group. The results of different complications developed are shown in table-5 and table-6.

Table 7. Comparison of complications in various studies in which ileostomy was done

Study	No of pts	Wound infection	Chest infection	Re-perforation	Burst abdomen
Rehan et al (43)	41	65.6%	-	3.1%	9.4%
Khan et al (44)	20	25%	25%	-	15%
Sultan & Waheed (52)	24	54%	-	8%	4%
Durrani et al (38)	23	21.7%	26%	-	8.6%
Tariq et al (45)	300	42.7%	15.3%	5.3%	-
Our study	28	11%	10.3%	3.7%	3.5%

Table 8 Comparison of mortality in various studies

Studies	No of pts	Mortality
Rehan et al (43)	32	3.1%
Rasheed et al(50)	87	11.4%
Sultan and Waheed (52)	24	4.1%
Durrani et al (38)	41	9.7%
Tariq et al (45)	171	2%
Our study	28	3.6%

DISCUSSION

Typhoid fever, caused by *Salmonella typhi* is a common disease of under developed countries^{1,2}. This disease is transmitted by orofaecal route and is common in the circumstances where hygiene/hygienic conditions are not good and people live below standard social and economic conditions^{4,5}.

In Pakistan, where 75% of population resides in rural areas, facilities of safe drinking water and disposal of excreta are not good and animals live under some roof with humans, typhoid fever is very common⁷.

The disease is associated with very high morbidity and mortality on its own and when it is complicated with intestinal perforation it become extremely high.

The factors responsible for the perforation in a patient with typhoid disease have unfortunately, never been studied in our country^{6,7}. The most probable factors are late diagnosis of the disease, inadequate antibiotics, non-compliance on the part of patient leading to early relapse, emergence of resistant strains of the bacteria and steroids prescribed by the general practitioners to the patients of undiagnosed fever due to the reasons best known to them⁷.

In an ongoing incomplete study it was found that 27% of patients with typhoid perforation received steroids during their course of management³⁸. The incidence of perforation received steroids by different workers ranges from 4 – 13.6%^{12,13}, however these figures just indicate the frequency of detectable cases remain undetected and the actual incidence is much higher than those quoted in various studies.

The maximum incidence of perforation is in the age group of 21 – 30 years^{6,10}. In other words most of the sufferers are in the most productive years of

their lives. In our study the maximum incidence of perforation was found to be in the age group of 11 – 20 years.

The male to female ratio was 3.2:1, which is comparable with other similar studies^{6,8}. The reasons for males to get this disease more often is, perhaps the males in our society are more involved in outdoor activities as compared to females. The diagnosis of typhoid perforation is usually straight forward typical case has a history of fever for more than 02 weeks. He is usually malnourished and emaciated and has typical features of peritonitis. In some patients diarrhea and /or bleeding per rectum may also be one of the presenting features^{17,19}.

In our study almost all the patients had this typical presentation. Confirmatory laboratory tests usually do not effect the management policy. However investigations to assess the fitness of the patient for anaesthesia and surgery must be done before the operation. Widal test is probably unnecessary, as it may not be positive in all the cases²¹.

In our study it was only positive in 78.3% of the patients. These patients are usually in very toxic and moribund condition; so much so that in some studies the treatment advocated is only the medical management⁸. In these studies, it is recommended that patients should be managed with conservative policy as the systemic toxicity makes the patients very risky as far as anaesthesia and emergence of new antibiotics, this view of conservative policy is no more acceptable and most of the patients can be resuscitated enough to be safely operated.

In our study 5/62 (9.2%) of the patients could not be operated, as they were unfit for surgery. As regards the operative procedures the decision is based on operative findings. There are studies which showed that the results of primary closure of the perforation in most the patients are very acceptable.

Ajao²¹ recommended it as a procedure of choice, however the incidence of faecal fistula after primary closure is high. If a patient develops faecal fistula the morbidity and mortality increases. Under these circumstances if the perforation is very small, it is single and the neighboring gut is healthy, most of the patients should be managed with ileostomy. Our study supports the value of ileostomy in typhoid perforation. In 28/54 ileostomy was done. In 22 patients primary closure was done and in 04 patients resection and anastomosis was performed.

The results of ileostomy patients were better with respect to mortality, morbidity and start of oral diet after operation. This is important to note that ileostomy patients are much more serious than patients of other groups. The overall mortality in ileostomy group was 3.6% while in primary closure it was 13.6% and in resection and anastomosis it was 25%. The overall complication in ileostomy group were 35.7% while in the primary closure group it was 63.6% and in resection group it was 50%.

CONCLUSION

Typhoid perforation is the most lethal complication of enteric fever. Out of the various surgical treatment options, ileostomy was found to be superior to other surgical procedures. It is concluded that wound infection, re-perforation and faecal fistula formation, burst abdomen, chest complications and also mortality were very less in cases of ileostomy as compared to surgical treatment of typhoid peritonitis. No doubt that there are complications of ileostomy performed for typhoid peritonitis but these complications are manageable.

Ileostomy is also the best surgical method to minimize re-perforations. We found the ileostomy as best surgical treatment for typhoid peritonitis except for early perforation.

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