

# THE CHOICE OF SURGICAL PROCEDURE IN TYPHOID ILEAL-PERFORATION

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## SUMMARY

*Perforation of the bowel is the most serious complication of typhoid fever. The role of early limited surgery needs to be assessed. This prospective study includes 96 patients with typhoid enteric perforation who under went operative treatment and were divided into two groups each with 48 patients. Group A (early) includes all those cases who had single perforation and history of peritonitis was less than 48 hours. Primary closure after wedge excision of perforation was done. Group B (late) includes those cases who presented with history of peritonitis for more than 48 hours with single or multiple perforation. Primary closure after wedge excision of perforation with addition of proximal ileostomy was done. This study looks at prognostic indices and therapeutic options. The common age group affected was in second and third decade of life with seasonal variation. Widal agglutination test was positive in 79.90 % cases. Pneumoperitoneum at radiography was present in 39 cases (43.33 %). The incidence of wound infection (14.6 %), wound dehiscence (6.25 %), chest infection (6.25 %), acute renal failure requiring haemodialysis (4.17 %) were high in group B and similarly mortality was high in the group (6.25 %). Early diagnosis is the key to the whole problem and similarly early surgery with peritoneal lavage provides optimum results.*

## INTRODUCTION

Typhoid perforation continues to be a major health challenge in the developing world. Ileal perforation is a serious complication of this illness. It is recognized as a major cause of morbidity globally with over 16 million cases worldwide and an estimated

580,000 deaths<sup>1</sup>. This disorder has been virtually eliminated in the developed world but it is still common in the developing world due to poor socio-economic conditions, poor hygiene resulting in contaminated water and food<sup>7</sup>. The purpose of this study is to evaluate different surgical option and also to recognize the prognostic indices.

**DURATION OF FEVER BEFORE OPERATION  
(N=96)**

Duration of fever	No. of patients	% age
7 days	26	27.08
8-14 days	54	56.25
15-21 days	15	15.63
>22 days	1	15.63

TABLE - 1

**MATERIAL AND METHODS**

Postgraduate Medical Institute Lady Reading Hospital in Peshawar is a 1000 bedded teaching hospital with 3 general surgical units. This is a prospective randomized study of 96 patients admitted to surgical C unit in emergency from June 1997 to June 2000. We have followed a specific protocol for the diagnosis and management of typhoid enteric perforation. For this purpose a Proforma was designed to collect information of patients demographics, history, investigations, type of surgery, operative finding, hospital stay, histopathology report, morbidity and mortality. Following investigations were done in all the cases: Blood complete, urine routine examination, renal profile, x-ray abdomen and chest, widal agglutination test and histopathological examination of the perforated bowel tissues.

All the patients were resuscitated and prepared for laparotomy and started on

**DISTANCE OF PERFORATION OF  
ILEOCAECAL VALVE**

Distance	No patients	Percentage
Upto 15 cm	22	22.92
16-30 cm	65	67.71
31-45 cm	7	7.29
Above 45 cm	2	2.08

TABLE - 2

**DIAGNOSTIC STUDY (N=96)**

Investigations	No. of patients	Positive	% age
Chest x—ray gas under diaphragm	90	39	43.33
Widal test	83	63	75.90

TABLE - 3

combination of quinolone (for two weeks) and flagyl (for one week). These cases were operated through mid line incision. On laparotomy peritoneal cavity was contaminated with intestinal contents with pus and gas, perforation was found to be on the antimesenteric boarder of terminal ileum. Wedge excision with biopsy of the perforation was done in all the cases. These cases were divided into two groups with 48 patients in each group. Group A (early) includes all those cases who had single perforation and the history of peritonitis was less than 48 hours. Primary closure after wedge excision of perforation was done. Group B (late) includes those cases who presented with history of peritonitis for more than 48 hours with single or multiple perforation and the bowel was friable. Primary closure after wedge excision of perforation with addition of proximal Ileostomy was done.

**MORBIDITY AND MORTALITY**

Complications	Group A (n = 48)	Group B (n = 48)
Wound infection	2 (4.17 %)	7 (14.6 %)
Paralytic ileus	2 (4.17 %)	0 (0 %)
Wound Dehiscence	1 (2.08 %)	3 (6.25 %)
Faecal fistula	1 (2.08 %)	0 (0 %)
Chest infection	1 (2.08 %)	3 (6.25 %)
Renal failure	1 (2.08 %)	2 (4.17 %)
Mortality	1 (2.08 %)	3 (6.25 %)

TABLE - 4

SURGICAL MORTALITY IN TYPHOID PERFORATION IN DIFFERENT HANDS.<sup>17</sup>

S. No	Authors	Years	Country	Cases	Mortality
1.	Cushing	1901	United States	12	58.4%
2.	Dickson and Cole	1964	Nigeria	32	48%
3.	Archampong C.Q	1969	Ghana	121	29.8%
4.	Kim et al	1975	Korea	161	9.9%
5.	Welch and Mortin	1975	Thailand	50	22.0%
6.	Badejo and Arigbabu	1980	Nigeria	210	14.3%
7.	Eggleston and Santoshi	1981	India	93	26.8%
8.	Chouhan and Pande	1982	India	344	71.5%
9.	Kuran and Hadley	1984	South Africa	26	9.0%
10.	V. Sitaram et al	1990	India	124	44.55%
11.	Kurlberg and Frisk	1991	Sweden	42	24.7 %
12.	Meier et al	1991	Nigeria	108	32.0%
13.	Akhtar Ali Tahir	1994	Pakistan	75	12.0%
14.	Iqbal et al	1994	Pakistan	45	20%
15.	Shahab et al	1995	Pakistan	33	9.9%
16.	Khan M.A.	1996	Pakistan	20	0%
17.	Mughal SA et al	1998	Pakistan	90	7.7%
18.	This series	2000	Pakistan	96	4.17%

TABLE - 5

## RESULTS

A total of 96 patients with typhoid ileal perforation were included in the study. Out of these 62 were males and 34 were females with sex ratio of 1.82:1. The age distribution has been shown in *figure 1*. The common age group affected was in second and third decade. Maximum number of patients were from Peshawar district which is the main catchment area. There is definite seasonal prevalence of typhoid fever with most of the cases occurring in summer and autumn. Most of the patients had been ill for a period of 1 to 3 weeks (*table 1*). Fever and abdominal pain were the most common symptoms. Perforation occurred presumably

in second week of illness (56.25%). Only 26 patients (27.08%) has been ill for one week. Widal agglutination test was performed in all cases & was positive in 75.90% cases.

Abdominal and chest radiographs was done in all cases and has shown pneumoperitoneum in 39 cases (43.33%). All these patients were resuscitated and subjected to laparotomy through midline abdominal incision. There was no tendency towards localisation or walling off the perforation. Sixty five patients (67.71%) had perforation within 30 cm. from ileocaecal valve (*table 2*). Only 2 patients had perforation 45 cm. from ileocaecal valve. In group A wedge excision and primary

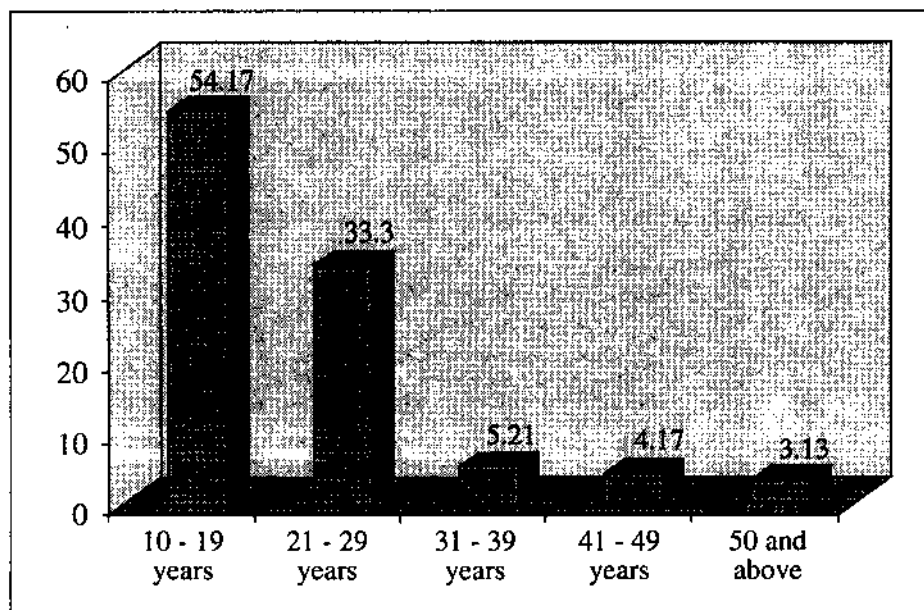


Figure 1: Age Distribution in Enteric perforation

closure with 2/0 vicryl in double layers was carried out while in group B similar procedure was adopted with addition of proximal ileostomy. The biopsy from each group was examined and reported as epithelioid macrophages in all the cases.

Morbidity and mortality has been shown in table 4. Increase incidence of wound infection, wound dehiscence, chest infection and renal failure was observed in group B while in group A two cases of paralytic ileus were recorded which responded to conservative measures. In group A one patient developed faecal fistula on day 4 and this progressed to renal failure and the patient died on day 6. In group B three patients were severely malnourished at the time of presentation and one of them died on day 3 secondary to severe chest infection. While the other 2 developed multiple organ failure secondary to septicemia and died on day 5 and day 7.

## DISCUSSION

Enteric fever is caused by salmonella typhae and is the major health problem with drug resistance in the developing world. It is endemic through the year with seasonal variation<sup>11</sup>. Epidemic occurs in late summers and rainy season when the water reservoirs get contaminated and there is excessive breeding of flies. The bowel perforation is one of the most serious complications of this illness<sup>2</sup>. The use of steroids by quacks quickly aggravate the problem. Most of these patients are malnourished, dehydrated and in a state of toxemia<sup>9</sup>. In our study typhoid ileal perforation is found in both the sexes and in all age groups. It is more common in second & third decade mainly affecting young adults with male preponderance with male to female ratio of 2:1 as supported by other studies<sup>12,13,14,16</sup>. From this study and literature review it is obvious that this serious disease affect the young at the beginning of their productive and earning

life. In most of the cases diagnosis of typhoid perforation can be made without difficulty. There is a history of fever extending over a period of 1 to 4 weeks and finally culminating in acute abdomen. The longer the time interval between perforation and surgery, the worst is the prognosis<sup>9</sup>.

Serological and bacteriological data may be supportive but these tests are frequently negative<sup>8</sup>. Huckstep<sup>7</sup> pointed that the widal test may be negative in patients with typhoid fever, the blood may be sterilized within hours of administration of chloramphenicol and stool culture may not be positive until third week of illness. Other have reported that the widal test is diagnostic in 94.3 % of patients suffering from enteric fever<sup>15</sup> and become positive in upto 85.7 % patients within first week. In our study widal was positive was seen in 63 patients (75.90%). We didn't put reliance on the radiological presence or absence of pneumoperitoneum. Positive finding may be helpful but negative findings can't exclude the diagnosis. Various type of surgical procedure have been recommended by various authors for the treatment of enteric perforation and these are in the form of simple closure, simple closure with wedge excision of perforation, bowel resection and primary anastomosis, exteriorization of perforated bowel, right hemicolectomy and closure followed by proximal jejunostomy<sup>6</sup>. Welch and Morton has produced better results with excision of ulcer (12.8% mortality) to simple closure (mortality 36%). In moribund unfit patient for general anaesthesia, simple drainage of the peritoneal cavity under local anaesthesia may be all that is feasible<sup>6</sup>.

In our series, there appear to be trend towards better prognosis in group A where the cases were operated early. *Table 4* outline the postoperative complications in both groups. Wound infection, wound dehiscence, chest infection and renal failure

is high in group B. This is a much lower incidence as compared to other<sup>9</sup>. Where as paralytic ileus has been recorded only in two cases in group A (4.17 %). This has been supported by other studies revealing that proximal ileostomy prevents the build up of intra luminal pressure and therefore decreases the incidence of paralytic ileus and re-perforation. Mortality ranges between 8 – 57 %<sup>3,4,5</sup> in different studies. In our series, high mortality (*table 4*) in group B is obviously explained by high surgical risk patients in this group and this has been supported by others<sup>14</sup>. The overall mortality is compared to other group is shown in the *table 5*.

## CONCLUSION

Typhoid fever poses a major health problem in Pakistan and this without doubt is due to the ignorance about the basic hygienic principle like contaminated water and food. Patients with enteric perforation should be picked up early, well resuscitated and operated early. Preferably they are operated by mid line incision as these cases are done in emergency, the nature and extent of exact pathology is not known and hence the incision can be extended up and down. Cases presenting late with multiple perforation are in severe electrolytes imbalance, malnourished and prone to septicemia and renal failure and therefore should be aggressively treated. In these cases in addition to wedge excision with closure of perforation proximal ileostomy should be done.

We recommend that preventive measures should be taken against this illness both at government level and public sector so that awareness can be created about the basic hygienic principles like clean water and food. Patient with enteric perforation should be referred early to tertiary hospital where timely intervention can improve the prognosis.

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