

A STUDY OF TYPHOID BOWEL PERFORATION IN BALOCHISTAN

JAMIL AHMED KHAN, SHAFIQ-UR-REHMAN, ARBAB GHULAM RASOOL,
ABDUL QAYYUM, MUKHTAR MEHBOOB

Department of Surgery (Unit II), Bolan Medical College & Civil Hospital, Quetta.

Correspondence : Dr. Jamil Ahmed Khan.

ABSTRACT : A prospective study was carried out for two years in Surgical Unit II of Civil Hospital, Quetta on 57 patients with typhoid perforation. Of these 47 were males and 10 females. The peak incidence was in the second and third decade of life. Abdominal pain, fever, vomiting, constipation and loose motions were the major presenting symptoms. Abdominal distension, tenderness, rigidity, and absent gut sounds were the main signs observed. Wide differences were observed in haemoglobin, total leucocyte count, urea, creatinine and electrolytes. Specific diagnostic tools were Widal test and radiography. All patients underwent emergency surgical procedures like wedge resection, resection and end to end anastomosis, ileostomy and right hemicolectomy with an overall mortality of 33%. Major causes of mortality were shock, septicaemia, renal failure and postoperative respiratory tract infection.

KEY WORDS : Typhoid fever, Enteric perforation.

INTRODUCTION

Typhoid fever is one of the major causes of morbidity and mortality in developing countries¹, especially where the availability of drinking water and facilities of water sanitation are inadequate².

Typhoid fever is caused by the gram negative coliform bacteria *Salmonella typhi*. The major routes of infection are flies, fingers, food, faeces and fomites³. Complications like perforation of the intestine tends to occur mostly from 10-14 days of onset^{4,5}, if the disease is not treated properly by medical therapy⁶. Ileal perforation is the most lethal complication of typhoid fever⁷, which accounts for 50% of the total intestinal perforations⁸. The common cause of death in enteric perforation is peritonitis, dehydration, electrolytes imbalance and overwhelming sepsis.

This study summarizes the two years experience of the management of typhoid perforation at Surgical Unit II, Civil Hospital, Quetta attached to Bolan Medical College.

PATIENTS & METHODS

All cases of perforated typhoid enteritis treated at Surgical Unit II, Civil Hospital, Quetta between September 1995 to September 1997 were included in the study. Civil Hospital, Quetta is the main referral hospital for a large number of District and Divisional Headquarter Hospitals throughout the province with bulk of patients coming from much of Afghanistan and part of Iran. Patients arriving in Quetta have often travelled for many days in dire conditions.

Emergency laparotomy was done in all patients under general anaesthesia after haemodynamic stability. Prior to operation high doses of antibiotics were given which were continued post operatively for 10 days. Abdominal cavity was opened via mid line, right lower paramedian or Rutherford Morison incision.

RESULTS

There were 57 patients with typhoid enteric perforation, 47 males and 10 females, a male to female

Table 1. Age and Sex Distribution

Age in years	Male	Female	Total
11-20	26	6	32
21-30	14	3	17
31-40	5	1	6
41-50	1	—	1
> 50	1	—	1
Total	47	10	57

Table 2. Clinical Features

Clinical Features*	No.	%
Abdominal pain	57	100.00
Abdominal tenderness	57	100.00
Fever	53	92.98
Abdominal distension	46	80.70
Constipation	39	68.42
Dehydration	35	61.40
Vomiting	34	59.64
Anaemia	15	26.31
Shock	14	24.56
Diarrhoea	5	8.77
Jaundice	2	3.50

* Patients had more than one feature

Table 3. Arrival at Hospital

Arrival in hrs.	No.	%
< 24	12	21.0
25-48	9	15.7
49-72	11	19.2
73-96	6	10.5
> 96	19	33.3

ratio of 4.7:1. The major bulk of them i.e. 56% were in the second decade while the second largest group of about 29.8% were in the third decade (Table 1). All patients were admitted through emergency department. The presenting signs and symptoms were abdominal pain, tenderness, fever, distension, dehydration, vomiting, anaemia, shock, diarrhoea, and jaundice (Table 2). Most patients appeared seriously ill because they reached hospital several hours after perforation (Table 3). Abdominal X-ray taken in all patients showed pneumoperitoneum in 71.9% while 65.9% have multiple fluid levels with gas shadows. Widal test was positive in 36 patients (63.15%) with a titre of 1:160 or more.

Table 4. Number of Perforations

No. of Perforation	No.	%
One	47	82.46
Two	7	12.28
Multiple	3	2.26
Total	57	100.00

Table 5. Complications after Surgery

Complication	No.	%
Wound	25	43.85
Septicemia	12	22.80
Shock	11	19.29
Respiratory infection	09	15.78
Renal failure	7	12.28
Faecal fistula	4	7.01
Wound dehiscence (complete)	4	7.01
Residual abscess	2	3.50

After resuscitation all patients were operated as early as possible. Lower mid line incision was made in most cases (78.94%), being quick, made easily, extendable, opens minimum of tissue planes and allows excellent access to all the recesses of the peritoneal cavity⁵. However, right lower paramedian and Rutherford Morison's muscle cutting incision were also made in 9(15.78%) and 3(2.26%) cases respectively. There was moderate to severe intraperitoneal contamination. In 47(82.46%) cases solitary perforations were situated less than 20 cm. proximal to ileocaecal junction. (Table 4). Wedge resection and closure of perforation in two layers was the main procedure being performed in 40(70.17%) cases. The mortality in our study was 33.3% (19 patients), 40 patients were operated by wedge resection technique with 27.5% (11 patients) deaths within 1-4 days after operation. Out of these 11 patients, 8 died due to septicemia, uremia and renal failure, two died due to development of severe bronchopneumonia and one due to cardiac arrest. Resection and end to end anastomosis was carried out in 7(12.8%) patients with 2(28.57%) deaths, due to post operative upper gastrointestinal bleeding, septicaemia and renal failure. Limited right hemicolectomy was performed in one patient having perforation very close to ileocaecal valve along with presence of severe oedma and gangrenous patches both on caecal wall and around the perforation with survival (Table 5).

DISCUSSION

Typhoid fever is a febrile illness of prolonged duration, marked by hectic fever, delirium enlargement of spleen, abdominal pain and various systemic manifestations¹. Males are more commonly affected than female with a ratio of 3:1^{9,10}. In our study the ratio was 4.7:1. It is most commonly seen in young adults during the second and third decade of life^{9,11} as seen in this study also.

As reported by many workers typhoid fever is more common in areas where contaminated water supply, inadequate waste disposal and inadequate medical care. Perforation of a typhoid ulcer is occasionally the first sign of the disease¹². The ulcer is parallel to the long axis of the gut and is usually situated in the lower ileum. Majority of the patients (32) in this study developed ileal perforation in the second week of illness.

All the patients with typhoid fever who were admitted, reported after they had perforated. Majority of them presented late (after 48 hours) in poor general condition. This was found to be the most important factor influencing the outcome of surgical procedure as also emphasized by a number of authors^{5,9,13,14}.

Anaemia, leucocytosis and leucopenia has been reported to be associated with typhoid fever^{1,15}. The presence of sepsis and severe peritonitis tends to modify this picture^{9,16}. In literature Widal test is reported positive in 33% to 100% of cases¹⁷. In our series it was present in 36 patients (63.15%).

In radiological examination pneumo-peritoneum was revealed in 41 patients (71.92%) and multiple air fluid levels in 49 (85.96%) whereas it was reported 62.2% in literature¹⁸.

Solitary perforation was present in 47(82.45%) cases. Most of the reported series also show single perforation in 80% of cases¹⁷. All perforations were present on the antimesenteric border of terminal ileum mostly within 10-30 cms from ileocaecal valve as stated in literature¹⁷.

Wedge section is recommended by many workers as having an advantage of less chances of leakage^{19,20}. In our study this procedure was done in 40 patients (70.17%) with incidence of faecal fistula in 3(7.5%). Resection and end to end anastomosis is recommended when two or more perforations are seen near

Table 6. Comparison of Mortality in Different Series

Author	Year	Cases	Mortality	
			No.	%
Prasad et al ²¹	1975	15	3	20.0
Archampong ²²	1976	283	66	23.3
Purohit et al ¹⁰	1978	41	6	14.6
Sultan & Waheed ²³	1989	24	1	4.2
Durrani KM ⁶	1995	41	4	9.8
Nizam. & Hussain ²⁴	1997	40	6	15.0
Present study	1997	57	19	33.3

to each other along with an unhealthy and friable gut segment^{17,18}.

In our study out of 7 cases one (14.28) developed faecal fistula, one (14.28%) developed post operative residual abscess and two (28.57) died. Ileostomy is recommended in patients who are severely ill, with poor general conditions^{17,20} and right hemicolectomy in cases where the site of perforation is very close to ileocaecal valve, with gangrenous patch on the caecal wall. The overall mortality observed in our study was 33.33% (19 patients) which is higher than other series (Table 6), most probably due to late arrival at hospital.

CONCLUSION

Typhoid ileal perforation is very common in our society with a high incidence of mortality and morbidity. Prevention of the disease and a lowering of its mortality rate will depend upon the availability of a mass literacy education programme, pure chlorinated water, improved sanitation, better medical care, immunization programmes and early diagnosis.

REFERENCES

1. Mock CN, Amara J, Visser LE. Improvement in the survival from typhoid ileal perforation - result of 221 operated cases. *Ann Surg* 1992; 215(3) : 244-9.
2. Birkhead GT, et al. Typhoid fever at a resort hotel in New York. *J Inf Dis* 1993; 167 (5) : 1228-32.
3. Gorbac H, Sherwood L. Typhoid fever and Salmonellosis. In : Cecil's Textbook of Medicine, 17th ed. 1985. p.1587.
4. Vogel H, et al. Intestinal perforation in juvenile abdominal typhoid. *Roentgen* 1993; 36(3) : 75-8.
5. Von-Der-Werf TS, Camerol FS. Typhoid perforation of

- the ileum - a review of 59 cases. *Trop J Med* 1990; 42(4) : 330-6.
6. Durrani KM. Typhoid bowel perforation; lessons learnt at Sheikh Zaid Hospital, Lahore. *Pak J Surg* 1995; 11 : 136-40.
 7. Weatherall DJ. *Oxford Textbook of Medicine*, 2nd ed. London : Oxford University Press; 1986. p.218.
 8. Khan AS, Rukhsana, Rana. SA. Typhoid Perforation; results of surgical treatment. *JPMA* 1982; 32(2) : 46-7.
 9. Nguyen VS. Typhoid perforation in the tropics - a prospective study of 83 cases. *J Chir Paris* 1994; 131(2) : 90-95.
 10. Purohit PG. Surgical treatment of typhoid perforation : experience of 1976 Sangli epidemic. *Ind J Surg* 1978; 40 : 227-38.
 11. Bobin AN, Klockhov NV, Bogmolova NA. Complications and the proximate cause of death in typhoid. *Voen Med Zh* 1993; (1) : 4s9-52.
 12. Mortensen N. The small and large intestines. In : *Short Practice of Surgery*, 22ed. London; Chapman Hall; 1995. p.788.
 13. Gupta V, et al. Perforated typhoid enteric in children. *Postgr M J* 1994; 70(819) : 19-22.
 14. Sitaram V, Moser BV, Fenn AS. Typhoid enteric perforation. *Ann R Coll Surg Eng* 1990; 72(6) : 347-9.
 15. Paredes C, Cruz J, Diaz Plasencia J, et al. Prognostic factors in typhoid perforation. *Rev Gastroenterol Paris* 1993; 13(1) : 13-9.
 16. Rashid M, Gardezi SGR, Mashdi SA. Wedge resection and anastomosis versus tube ileostomy for typhoid perforation. *Pak J Surg* 1993; 9 : 144-7.
 17. Iqbal M, Rassol I, et al. Surgical treatment of typhoid ileal perforation. *JPMA* 1988; 38(12) : 316-9.
 18. Rathore AH, Khan IA, Sagheer W. Prognostic indices of typhoid perforation. *Am Trop Med Parasitology* 1987; 81(3) : 283-9.
 19. Akhtar AT. Primary closure compared with ileostomy in case of typhoid perforation. *JPMA* 1993; Sept.
 20. Naseer T. Complications and management of typhoid fever. *Specialist* 1994; Aug.
 21. Prasad P, Chaudhary DK, Prakash OM. Typhoid perforation treated by closure and proximal side to ileotransverse anastomosis. *J Ind Med Assoc* 1975; 85 : 197-9.
 22. Archampong EQ. Tropical diseases of the bowel. *World J Surg* 1985; 9 : 887-96.
 23. Sultan N, Waheed I. Perforation of ileum - experience of 24 cases. *Pak J Surg* 1989; 5 : 33-4.
 24. Nizamuddin S, Hussain A. Ileal typhoid perforation. *Pak J Surg* 1997; 13 : 57.