

Experience Of Spontaneous Small Bowel Perforations At The Mayo Hospital

K Javeed A F A Khan

Mayo Hospital, Lahore, Pakistan

Correspondence To: Dr. Khalid Javeed

Hospital record of 84 consecutive cases of spontaneous small bowel perforation managed by one surgical unit of Mayo hospital over a period of two years was examined. Fifty eight male and 26 female cases were dealt with. Age ranged from 15-70 years. Perforations were caused by enteric fever in 50% cases, tuberculosis 31%, adhesive bowel disease and non-specific in 9%. Eighty one percent cases had only one, 12% cases had two and 7% cases more than 2 perforations. Primary repair of perforation was done in 60% cases, resection and anastomosis in another 23% and in 13% cases the perforation was exteriorized. In 2% cases simple tube drainage of the coelomic cavity was done. Twenty One cases had postoperative complications out of these 5 patients expired.

Key words: peritonitis, small bowel perforation, typhoid perforation, tubercular peritonitis.

Spontaneous small bowel perforation (SSBP) is one of the commonest cause of peritonitis in Pakistan¹. Enteric fever and tuberculosis have been found to be the leading causes of this presentation.

Typhoid and paratyphoid fevers are endemic in this part of the world^{2,3}. The organisms responsible for typhoid and paratyphoid fevers are salmonella typhi and salmonella paratyphi A, B, and C respectively⁴. These organisms are primarily human pathogens and are difficult to control due to their resistance to commonly used antibiotics⁵. Salmonella can cause a wide spectrum of clinical illnesses like, enteric fever, gastroenteritis, bacteraemia with or without metastatic infection and the asymptomatic carrier state⁶. The highest risk of infection is present in pre-school and school going children and individuals working in various institutions⁷.

The incidence of tuberculosis has increased tremendously during the present decade and is expected to rise. It is estimated that during the present decade spanning from 1990 to 1999, 88 million new cases of tuberculosis will occur throughout the world, out of which 8 million will be attributed to HIV⁸. It has also been predicted that 30 million people will die of tuberculosis during this decade, including about 3 million deaths attributed to associated HIV infections⁹. This is true not only in developing countries but also for developed nations¹⁰. In developed countries true incidence is increasing mainly because of HIV infection¹¹. The severity of the problem can be judged by the mortality due to this disease which exceeds other causes of infections¹².

Of this world-wide increase in the incidence of tuberculosis the majority of cases have occurred in south east Asia i.e. from 3 million in 1990 to 3.49 million in 1995, and it is expected that in the year 2000, there will be 3.95 million new cases¹¹. In Pakistan more than 0.3 million new cases of tuberculosis are added each year¹³.

The study has been designed, to highlight the aetiology and incidence of small bowel perforation. Data collected included age, sex and seasonal distribution. The available literature was reviewed to recommend various measures including antibiotics and surgical procedures to reduce morbidity and mortality of this difficult problem.

Material & Methods

Medical records of all cases of SSBP dealt in the casualty and emergency department of Mayo hospital Lahore during 1995-96 were studied. The history of present illness, estimated time since onset of peritonitis was noted. The drug history with special reference to antituberculous therapy, chloramphenicol and other specific therapy was looked into. Any evidence of previous surgery was also noted. Urine output was recorded and the aims of resuscitation were rehydration of patient with acceptable urine output. Resuscitation time was found to be proportional to the chronicity of the disease.

The diagnosis of SSBP was based on clinical and radiological findings and was confirmed at operation and by Widal test. Specimen for histopathology such as intestinal tissue or lymph nodes in selective cases was taken at operation. Tripple antibiotic regimen comprising of aminoglycoside, ampicillin and metronidazole was started in all patients. Specific chemotherapy for underlying disease was offered later. In cases of typhoid the choice has been quinolones and third generation cephalosporins. H₂ receptors antagonists were also administered to avoid stress ulceration in high risk patients. All patients were explored through midline incision. Depending upon the degree of peritoneal contamination patients were divided into two groups. Group 1 patients had purulent exudate affecting only infracolic compartment while Group 2 cases had generalized faecal contamination.

Results

During the study period a total of 84 consecutive cases of SSBP were admitted. The patients age ranged from 15-70 years of age. Fifty eight patients were male, with male to female ratio of 2.2:1. The seasonal incidence has been high lighted in table 1.

Table 1: Seasonal variation of intestinal perforation

Seasons	Months	n=
Summer	May-Oct	53
Winter / Spring	Nov-Apr	31

Duration of the acute illness ranged from 5 to 23 days. The time interval between the onset of symptoms and peritonitis varied between 4-96 hours. Abdominal pain was the commonest presenting symptom (98%) followed by abdominal distension (87%), vomiting (76%), fever (68%), shock (35%), unconsciousness (7%). Abdominal signs of generalized peritonitis were demonstrable in 85% of cases. Obliteration of liver dullness on percussion was observed in 63% of the cases. Free gas under the diaphragm was seen on plain abdominal x-ray in 56% of the cases. Some cases were taken to the operation theater without radiological investigations because of obvious clinical signs. Persistent tachycardia was found to be very helpful in the diagnosis of perforation even before the onset of definitive abdominal signs of peritonitis.

Small bowel perforation was demonstrable in all the cases. However, the site and number of perforations was variable. Site of bowel perforations was terminal ileum in 79%, ileocaecal junction in 14% caecum alone in 4% and jejunum in 2 cases. In 81% cases single perforation was present whereas in 12% cases two perforations and in 7% cases more than 2 were present. In 66% patients the peritonitis was in mild to moderate range where as 33% patients had generalized peritonitis at the time of presentation. The different surgical procedures and their number is shown in table 2.

Table 2 No. of perforations and their respective treatment

No of perforation	Cases n=	Primary repair	R & A* n=	Exteriorization n=
1	68	47	15	-
2	10	04	03	07
>2	06	0	02	04

*Two cases were not explored and only the intra peritoneal drains were placed. *R&A=Resection and anastomosis*

Typhoid perforation was found to be the commonest cause followed by intestinal tuberculosis. The incidence of various diseases causing small bowel perforation is shown in table 3.

Table 3: Incidence of various diseases causing small bowel perforation

Disease	n=	%age
Typhoid perforation	42	50.0
Tuberculosis	26	31.0
Adhesive bowel disease	08	9.5
Non specific	08	9.5
Total:	84	100.0

Primary closure of the perforation was performed in 51 (60%) patients. Of these 38 (74%) were typhoid perforations 15% were non specific and 10% were found to be tuberculous. In 4 cases with multiple typhoid perforations, proximal diversion was done following the repair of perforations. Out of 26 tuberculous cases 20 (76%) were dealt with resection and anastomosis, one with loop ileostomy and 4 with end ileostomy. In two cases (one each of typhoid and tuberculosis) simple tube drainage of the peritoneal cavity was done under local anaesthesia as these patients were not fit for any definitive operation. Post operative course of the patients was uneventful in most of the cases. We had 5 mortalities out of which 4 cases died of uncontrolled sepsis and fifth died because of fecal fistula.

Table 4. Post operative complications

Wound sepsis	12
Prolonged ileus	08
Peristomal excoriation	04
Melaena	03
Intra-abdominal abscess	03
Fistula formation	01
Stomal ischaemia	01
Haematemesis	01
Total	33

Discussion

Perforation of the bowel is a potentially fatal complication¹. The leading cause is typhoid enteritis followed by abdominal tuberculosis. Perforation has been reported to occur in about 7-33% cases of enteric fever¹¹. Other reported causes of ileal perforation include endometriosis¹⁶, atheromatous embolism¹⁷, cytomegalus viral infection¹⁸ and non specific lesions.

The reported mortality of 40-55% in SSBP is high keeping in view the younger age of many of the patients¹⁹. The disease is definitely related to the summer seasons and a high prevalence is seen in rain affected areas, where water contamination is likely²⁰. Diagnosis of the typhoid is confirmed by following the Eggleston criteria²¹ which is, isolation of the organisms from blood, urine or stools, a positive Widal test and typical operative findings. It is also recommended that peritonitis should be dealt with on its

own merits and time should not be wasted for definite pre-operative diagnosis. Incision should be planned considering the possibility of stoma formation.

After diagnosis, the management protocol of typhoid still vary regarding the use of antibiotics and surgical repair of the intestinal perforation. Different studies have discussed the various surgical options thoroughly. Some recommend ileostomy in all the cases^{1,22}. Ileostomy has also been treatment of choice in some other studies including the one carried out at Sheikh Zayed hospital, Lahore²³. In the present study the preferred treatment in typhoid perforation was the primary closure (90 % cases). There was not a single failure with primary repair. Primary skin closure and drainage of peritoneal cavity are other controversies. Group 1 patients in this study had skin closed primarily without peritoneal drainage and in group 2 patients skin wounds were left open along with a pelvic drain.

In Pakistan the majority of cases of typhoid fever are due to salmonella typhi or salmonella para typhi A, while very few are due to S.paratyphi B or C, this is in contrast to the western studies where a majority of the cases of typhoid are due to S.paratyphi A,B or C²⁵. In one study all isolates of salmonella typhi were resistant to chloramphenicol, amoxycillin, and cotrimoxazole while these were sensitive to lorfloxacin, ofloxacin, cefexin, ceftazidime, cefotaxime, gentamicin and tobramycin²⁶. Third generation cephalosporin are very expensive and quinolones which are relatively cheaper are also very effective. It is recommended that the use of quinolones should be restricted for definite indications, so as to delay emergence of resistance. Treatment of choice for typhoid perforation is primary repair followed by thorough peritoneal toilet with normal saline. Quinolones in high doses should be used supplemented with metronidazole and H₂ receptor antagonists.

Intestinal tuberculosis was the other common disease faced in this study. The diagnostic confirmation was based on the histopathology report. All tubercular cases in this study were put on combination antitubercular chemotherapy for a span of 9-12 months. The diagnosis of tuberculosis in this study was retrospective as all the cases were opened for peritonitis. However, a great help can also be achieved by a good history taking and clinical examinations. Chronicity of the problem, repetition of the attacks and systemic markers of tuberculosis like weight loss, fever, and night sweats are all strongly suggestive of tuberculosis. Tubercular stricture perforation was the commonest finding in this series. Resection and anastomosis was the commonest surgical procedure in this group as it is the procedure of choice for intestinal stricture perforation cases²⁴. In cases of disseminated peritoneal soiling resulting in faecal peritonitis and surgically

compromised patients exteriorization of the perforation is a safer option as was done in 4 cases.

It is high time that priority is given to the control of these communicable diseases so that we can enter the 21st century as a healthy nation. The important challenge in front of our health planners should be to try to evolve strategies to stem this increasing incidence of the diseases. This can be achieved by creating awareness regarding the aetiological factors among the general public, providing focused education to doctors and paramedics. Early case diagnosis and effective chemotherapy can also be dreamed of.

References

1. Askari SA, Shah TA: Management Of Typhoid Perforation: Role Of Proximal Enterostomy *PJ Surg* 1990; 9:101-105.
2. Mandal BK: Salmonella Infectious Medicine *Int* 1991;19(5):499-503.
3. Anonymous Salmonella Infectious. *Acta Medica* 1991; 2(3):4
4. Butler T: Enteric Infectious, Typhoid Fever. In: Cecil Textbook Of Medicine, 19th Edition: 1642.
5. Adams Eb: Typhoid And Paratyphoid Infections. In: Oxford Textbook Of Medicine: P 183-189.
6. Hanan A: Changing Patterns Of Salmonella Typhi Isolates In Pakistan And Their Unchanged Response To Ofloxacin. *Int J Experimental Clinical Chemotherapy*. 1991. Vol 4,225-229.
7. Lewis Mj: Salmonella: Poisoning Enteric Fever. In: Greenwood D, Slack Reb, Peutherer Jf, Editors Medical Microbiology Edinburgh:Churchill Livingstone, 1991:305-15
8. Smego Rajr, Bhutta Za: Multiple Drug Resistant. *J Pak Med Assoc* 1981;37:202-5.
9. Jereb A, Et Al: Tuberculosis Morbidity In The Unites Stated: Final Data 1991. *Morbidity And Mortality Weekly Report*, 40(Ss-3):23-27(1991).
10. Narain Jp, Raviglione Mc, Koelin A: HIV Associated Tuberculosis In Developing Countries: Epidemiology And Strategies From Prevention. *Tubercle And Drug Disease* 1991;73:311-21.
11. Treatment Of Tuberculosis. Guidelines For National Programs: Who Geneva 1993.
12. Global T B. Incidence And Mortality During 1990-2000. P.T Dofin, M.C. Raviglione. A. Kochi. *Bulletin Of Who* 1994;77(20):213-20.
13. Styblo K: The Impact Of HIV Infection On The Global Epidemiology Of Tuberculosis. *Bulletin Of The International Union Against Tuberculosis And Lung Disease* 1991;66:27-32.
14. National Guidelines For Tuberculosis Control In Pakistan. Directorate Of Tuberculosis Control, Federal Ministry Of Health, Pakistan, March 1995.
15. Sanbillana M: Surgical Complications Of Typhoid Fever: Enteric Perforation. *World J Surg* 1991;15:170-5.
16. Allimant P, Bietiger M, Al Hawari I, Zeyer B: SSBP By Endometriosis. *J Chjr Paris* 1994 Jun-Jul;131(6-7):313-5.
17. Jinenez, Heffernan JA, Sanchey Ma, Burgos E: Small Bowel Perforation In Atherosclerosis. Embolism. *Dig Dis Sci* 1995 Mar;40(3):481-4.
18. Meza AD, Bin Sagheer Et Al: Ileal Perforation Due To Cytomegalus Virus Infection *J Natl Med Assoc* 1994 Feb;86(2):145-8.
19. Mock CN, Anaral J, Visser LE: Improvement In Survival From Typhoid Ileal Perforation. *Ann Surg* 1992;215:244-9.
20. Gibney EG: Typhoid Perforation *Bjs* 1989;76:887-9.
21. Eggleston Fc, Santrohi B: Typhoid Perforation: Choice Of Operation. *Bjs* 1981;68:341-2.
22. Ashraf M, Gulzar A: Role Of Ileostomy In Typhoid Perforation. *P J Surg* Vol.11-1,1996: P:33-34.

23. Khalid K, Durani KM: Typhoid Bowel Perforation. *PJ Surg* Vol.11,1996.P-136-139.
24. Peh Wgc, Ichoo Ftc: The Varied Clinico-Radiological Presentations Of Abdominal T.B. *Asian Med J*:1989;32(2):93-108.
25. Pujari Bd: Modified Surgical Procedures In Intestinal Tuberculosis. *Br J Surg*:1979;66-80.
26. Ishaq M, Farooqui Bf, Ashfaq Mk, Khan Ma: Therapeutic Implications Of Ofloxacin In The Treatment Of Typhoid Fever Caused By Resistant *Salmonella*. *Jpnal*. Aug 1990;253-5.
27. Manson Brtr And Bell: Typhoid Fever In Mansons Tropical Diseases. 19th Ed. Bailliere Tindall 1987;194-206.

Announcement

The 4th Asian-Oceanic International Congress Of Skull Base Surgery is scheduled to be held on November 8 - 10, 1997.

Islamabad - Pakistan

For further information:-

Prof. Iftikhar Ali Raja Congress President,
4 - Gulberg Complex, 2 - Gulberg Road,
Gulberg V, Lahore - 54660, Pakistan.
Tel: 92-42-575 440 Fax: 92-42-575 9271
Email: aliraja@aster.com.pk