

Experience with Non Traumatic Small Bowel Perforations

KHALID JAVEED KHAN, SHABBIR CHOCHAN, KHALID IRSHAD, MUHAMMAD ANWAR

ABSTRACT

Hospital record of two hundred consecutive cases of non traumatic or spontaneous small bowel perforations managed during my presence in different surgical units over a period of five years was examined. One hundred and forty eight male and fifty two female patients were evaluated. Age ranged from fifteen to seventy six years. Perforations were mainly caused by tuberculosis, typhoid, adhesive bowel diseases, inflammatory bowel diseases, malignancies and non specific reasons. Eighty one percent cases had only one perforation, twelve percent cases had two perforations, seven percent cases had more than two perforations. Primary repair of perforation was done in sixty percent cases, resection and anastomosis in another 23% cases and in another thirteen percent cases the perforation was exteriorized. In another group of two percent cases simple tube drainage of the coelomic cavity was done. The complications were noted in forty eight cases and out of these seventeen patients did not survive the complications.

Key words: small bowel perforations, non traumatic enteric perforations, typhoid perforations, tuberculosis peritonitis

INTRODUCTION

Non traumatic small bowel perforations is one of the commonest cause of peritonitis in this part of the world¹. Tuberculosis and enteric fever have been found to be the leading causes of this presentation.

Typhoid and paratyphoid are endemic in this part of the world^{2,3}. The organisms responsible for typhoid and paratyphoid fever are salmonella typhi and salmonella paratyphi A, B, and C⁴. 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 illness like, enteric fever, gastroenteritis, bacteraemia, with or without metastatic infection and the asymptomatic carrier stage⁶. 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 in the present decade, and is expected to rise further in the future years if conditions are not improved. It is estimated that during the last decade spanning over 90s, eighty million new cases of tuberculosis occurred in the world. Out of all these eight millions are attributed to the immunosuppression caused by HIV infections⁸. It has also been predicted that about thirty million patients of tuberculosis will die during this decade, including about three million deaths attributed to HIV associated infections⁹. These figures not only cover the developing countries but also the developed

nations¹⁰. In developed countries true incidence is increasing mainly because of HIV infections¹¹. 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 Asian belt of the sub continent i.e. from three million in 1990 to three and a half million in 1995. The figure rose to almost double this number with almost equal number of newly registered cases by 2000¹¹. In Pakistan more than 0.3 million new cases are added each year¹³.

The study has been designed to highlight the etiology and incidence of small bowel perforations. 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 wide spreading problem.

MATERIAL AND METHODS

Medical records of all patients presenting with non traumatic small bowel perforations were evaluated. All the patients presenting in the emergency department of Sir Ganga Ram hospital during the working hours of one of the three surgical units were evaluated. Data was also evaluated of the past experience at Mayo Hospital experience.

The history of present illness, estimated time since onset of peritonitis was also noted. The drug history with special reference to anti tuberculous therapy and analgesics was also noted. History

Department of Surgery, Fatima Jinnah Medical College/Sir Ganga Ram Hospital, Lahore

Correspondence to Dr Khalid Javeed Khan, Associate Professor of Surgery

evidence of typhoid and therapy for the enteric fever was also noted. Any evidence of some surgery in the past was also recorded. Record of fluid intake and out put was looked for and rehydration volumes were also noted. Resuscitation time was found to be proportional to the chronicity of the disease.

The diagnosis of perforation/peritonitis was based on clinical and radiological findings and was confirmed on operation. Specimen for histopathology such as intestinal tissue or mesenteric lymph nodes in selective cases were taken at the time of operation. Triple antibiotic regimen such as cephalosporins, aminoglycosides and metronidazole were tried in more chronic perforations, however in most of the cases third generation cephalosporins were found to be adequate. In cases of enteric fever quinolones were used as drug of choice. Specific chemotherapy for underlying disease was offered later. Proton pump inhibitors were also used to keep the patients safe from the stressful effects of their disease. All patients were explored through midline incisions. Depending upon the degree of peritoneal contamination patients were divided in to two groups. Group one patients had purulent exudate affecting only infracolic compartment while group two cases had generalized faecal contamination.

RESULTS

During the study period a total of two hundred cases were included in the study. Age ranged from fifteen to seventy six years. There were one hundred and forty eight males(74%), and fifty two females(26%). The seasonal incidence is highlighted in table 1.

Table 1: seasonal variation of intestinal perforations

Season	Months	=n	%age
Summer	May – Oct	126	63
Winter / Spring	Nov – Apr	74	37

Duration of the acute illness ranged from 5 hours to 27 days. The time interval between the onset of symptoms and peritonitis varied between 5-88 hours. Abdominal pain was the commonest presenting symptom(94%), followed by abdominal distension (73%), vomiting (43%), fever (87%), shock (37%), unconsciousness in (03%). Abdominal features of peritonitis were demonstrable in (67%) cases. Obliteration of the liver dullness on percussion was seen in (63%) cases. Free gas under the diaphragm was seen on plain abdominal radiographs was noticed in (58%) of the patients included in the study. Some patients were taken to the operation room without radiological investigations, because of

obvious clinical signs. Persistent tachycardia was found to be helpful in the diagnosis of perforation even before the onset of definitive abdominal signs of peritonitis.

Small bowel perforation was demonstrable in all cases. However the sites and number of perforations were variable. Site of small bowel involvement terminal Ileum in (79%). Ileocaecal junction in (14%). Caecum alone in four cases and isolated Jejunum was involved in two cases how ever in another thirteen cases jejunum was involved along with Ileum. In (81%) cases single perforation was noted where as in (12%) of the patients two perforations and in another seven percent of the cases more than two perforations were noted. In 66% cases the peritonitis was in mild to moderate range where as 33% patients had generalized peritonitis at the time of presentation. Different surgical procedures and their number is shown in table 2.

Table 2: No of perforations and their respective management.

No of perforation	Cases No	Primary repair	Resection/astomosis	Exteriorization
1	16	88	46	26
2	24	03	13	08
>2	14	00	06	08

Two cases were not explored and intraperitoneal drains were placed.

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

Table 3: incidence of various diseases causing small bowel perforations

Diseases	=n	%age
Typhoid perforation	87	44
Tuberculosis	75	37
Adhesive bowel disease	23	12
Non specific	13	07
Total	198	100

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 kind of definitive surgical intervention. Most of the patients had an eventful recovery , however the series had a morbidity of 27% and a mortality of 8%. The death in all cases was due to uncontrolled sepsis either due to delayed presentation or co morbid conditions. In four cases fistula formation lead to prolonged stay and complications lead to death. The list of complications is summarized in table 4.

Table 4: post operative complications.

Wound sepsis	24
Prolonged ileus	12
Peristomal excoriation	09
Melaena	13
Intra abdominal abscess	14
Fistula formation	04
Stomal ischemia	01
Haematemesis	13
Total	90

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 fever¹⁵. Other reported causes of ileal perforation include endometriosis¹⁶, atheromatous embolism¹⁷, cytomegalus viral infection¹⁸ and non specific lesions.

The reported mortality of 40-55% in small bowel perforation is high keeping in view the younger age of many of the patients¹⁹. The disease is definitely related to the summer season and a high prevalence is seen in rain affected area, where water contamination is likely²⁰. Diagnosis of the typhoid is confirmed by following the Eggleston criteria²¹, which is isolation of the organism from blood, urine or stools, a positive Widal's 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 diagnostic exercises. 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 different surgical options and interestingly there is a study recommending ileostomy in all cases^{1,22}. Ileostomy has also been treatment of choice in some other studies including the one conducted at Sheikh Zaid Hospital Lahore²³. In the present study the preferred treatment in typhoid perforation was primary closure. There was failure in only two cases. Primary skin closure and drainage of the peritoneal are other controversies. Group one patients in this study had skin closed without peritoneal drainage and in group two patients skin wounds were left open and pelvic drain was placed.

In Pakistan the majority of the cases of typhoid fever are due to salmonella typhoid or salmonella paratyphoid A, while very few are due to S.paratyphoi B or C, this is in contrast to the western studies where a majority of the cases of typhoid are due to S.paratyphoi A,B or C²⁵. In one study all isolates of

salmonella typhoid were resistant to chloramphenicol, amoxicillin, and co-trimoxazole, while these were sensitive to quinilones and third generations of cephalosporins. Added advantage was also taken from aminoglycosides. It is recommended that the use of quinilones should be restricted for definite indications, so as to delay emergence of resistant strains. 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 proton pump inhibitors.

Intestinal tuberculosis was the other common disease noted in this study. The diagnostic confirmation was based on the histopathology report. All tuberculous cases in this study were put on combination anti tuberculous chemotherapy for a period of 9-12 months. The diagnosis of tuberculosis in this study was retrospective as all the cases were opened for peritonitis. Tuberculous 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 fecal peritonitis and surgically compromised patients exteriorization of the perforation is a safe option.

It is high time that priority is given to the control of these communicable diseases so that we can enter the future times as a healthy nation. The important challenge in front of our health planner s 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 counted on.

REFERENCES

1. Askari S A, Shah T A: management of typhoid perforation; role of proximal enterostomy. *PJ surg* 1990; 9; 101-5
2. Mandal B K, salmonella infections. *Medicine int* 1991; 19(5)4993.
3. Anonymous salmonella infections. *Acta medica* 1991; (2)3-4
4. Butler T, enteric infections . typhoid fever . in Cecil textbook medicine 19th edition;1642
5. Adams E B, typhoid and paratyphoid infections in oxford text book of medicine P 183-9
6. Hannan A, changing patterns of salmonella typhi isolates in Pakistan and their unchanged response to ofloxacin. *Int J experimental clinical chemotherapy* 1995; vol 4 , 225-9
7. Lewis M J, salmonella poisoning enteric fever in Greenwood D, Slack R B, Peutherer J F, editors

- medical microbiology Edinburgh: Churchill livingstone. 1995; 305-15
8. Smego Rajr, Bhutta Z A, multiple drug resistance. J Pak med assoc 1981; 37: 202-5
 9. Jereb A, tuberculosis morbidity in United States data 2008: morbidity and mortality weekly report 40(Ss-3)23-27
 10. Narain J P, Raviglione M C, Koclin A, HIV associated tuberculosis in developed countries: epidemiology and strategies from prevention. Tubercle and drug diseases 2007; 73: 311-21
 11. Treatment of tuberculosis guidelines for national programs WHO Geneva 2008
 12. Global T.B. incidence and mortality during 1990-2000. P J Dolin, M C Raviglione. A Koch bulletin of WHO 2001: 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 diseases: 1998; (66) 27-32
 14. National guidelines for tuberculosis control in Pakistan directorate of tuberculosis control. Federal ministry of health Pakistan March 1999.
 15. Sanbillana M, surgical complications of typhoid fever, enteric perforation: world j surg 1995;(15) 170-5
 16. Allimant P, Bieteger M, Al hawari, Zeyer B, small bowel perforation in endometriosis. J chir Paris 1998 Jun-Jul; 131: (6-7) 313-5
 17. Jinenez, Hefferman J A, Sanchey M A, Burgos E, small bowel perforation in atherosclerosis, embolism: Dig Dis Sci 1995 Mar;40(3) 481-4
 18. Meza A D, Bin sagheer et al Ileal perforation due to cytomegalus virus infection: J national med assoc 1998 Feb;86(2) 145-8
 19. Mock C N, Anaral J, Visser L E, improvement in survival from Ileal typhoid perforations. Ann surg 1992: 215; 244-9
 20. Gibney E G, typhoid perforation: Bjs 1998; 76; 887-9
 21. Eggleston F C, Santoshi B, typhoid perforation, choice of operation. BJS,1998: 68; 341-2
 22. Ashraf M, Gulzar A, Role of ileostomy in typhoid perforation. P J surg vol 11-1, 1996:33-4
 23. Khalid K, Durrani K M, typhoid bowel perforation. P J Surg Vol 11-1, 1998: 136-9
 24. Peh WGC, Ichoo TIC, the varied clinic radiological presentations of abdominal T.B. Asian Med J 2005:32 (2) 93-108
 25. Pujari BD, modified surgical procedures in intestinal tuberculosis. Br J surg 1999 66-80
 26. Ishaq M, Farooqui BJ, Ashfaq MK, Khan MA, therapeutic implications of quinolones in the treatment of typhoid fever caused by resistant strains of salmonella. Jpma. Aug 1990: 253-5
 27. Manson BR, typhoid fever in Manson tropical diseases, 19th edition baillire Tindall 1987: 194-206