

Incidence of Intestinal Tuberculosis in Patients Presenting in Emergency with Intestinal Perforation- A Review of 1000 Patients

Muhammad Afzal Sajid¹, Muhammad Naveed Shahzad², Muhammad Ayub¹ and Muhammad Hamid Chaudhary¹

ABSTRACT

Objective: The present study was undertaken to document the presentation of intestinal tuberculosis in patients with intestinal perforation that present to the emergency department of Nishtar Hospital Multan.

Study Design: Observational / Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at Nishtar Hospital, Multan. from 2007-2015

Materials and Methods: A proforma was filled which was approved by hospital ethical committee. 1000 patients who were admitted in A & E department Nishtar Hospital, Multan with intestinal perforation were included in this study. Histopathology specimen were sent. Results were labeled as either presence or absence of intestinal tuberculosis.

Results: 1000 patients, complying with the inclusion criteria were included in the study. The mean age of the patients was 45 ± 5 years. 289 (28.9%) were in the age group of 20-30 years of age. 312 (31.2%) were in the age group 31-40 years. 243 (24.3%) were in age group (24.3%). 156 (15.6%) were from age group 51-60.

Regarding age, majority of the patients 532 (53.2%) were females, and 468 (46.8%) were males. Duration of symptoms ranged from 1 day to >3 days. 312 (31.2%) had symptoms for 1-2 days. 432 (43.2%) had symptoms for 2-3 days and 256 patients had symptoms for more than 3 days. All had histological evaluation.

Conclusion: 23% patients were found to have tuberculosis

Keywords: Intestinal Tuberculosis, Intestinal Perforation

Citation of article: Sajid MA, Shahzad MN, Ayub M, Chaudhary MH. Incidence of Intestinal tuberculosis in Patients Presenting in Emergency with Intestinal Perforation- A Review of 1000 Patients. Med Forum 2016;27(4):24-27.

INTRODUCTION

Tuberculosis (TB) is a chronic granulomatous disease which is caused by *Mycobacterium tuberculosis*. The typical site of infection is the lung, but it may involve other sites. Abdominal tuberculosis is the sixth most common form of extra-pulmonary tuberculosis after lymphatic, genitourinary, bone and joint, miliary, and meningeal tuberculosis respectively.⁽¹⁻³⁾ Tuberculous bacteria spreads to the gastrointestinal tract via blood, ingestion of infected sputum, or via direct spread from adjacent organs.⁽⁴⁻⁶⁾ There are three gross morphological forms of tuberculous enteritis: Ulcerative, hypertrophic, and ulcerohypertrophic.⁽⁷⁾ The ulcerative type, which commonly affects the ileum and jejunum, is characterized by a single or multiple trans-

verse ulcers, the healing of which leads to stricture formation, and may perforate, bleed, or form fistulas. The hypertrophic and ulcerohypertrophic types commonly affect the ileocecum and cause obstruction.⁽⁸⁾

It usually runs a sluggish course and presents late with complications especially acute or sub-acute intestinal obstruction due to mass (tuberculoma) or stricture formation in small gut and ileocaecal region or gut perforation leading to peritonitis^(9, 10). In spite of advances in medical imaging, the early diagnosis of abdominal tuberculosis is still a problem and patients usually present when complications had occurred.⁽⁷⁾

Perforation is a grave consequence of abdominal TB, and has high morbidity and mortality rate.⁽¹¹⁻¹³⁾ The low incidence of tuberculous perforation is due to reactive fibrosis of the peritoneum.⁽¹⁴⁻¹⁶⁾ However, in recent years, intestinal perforation, which was relatively rare in the past, has been reported more frequently. The cause of this remains unknown.

Globally, there is emergent alertness about the substantial morbidity and mortality associated with abdominal tuberculosis. As far as Pakistan is concerned, we need mass awareness and distribution of knowledge about the

¹. Department of Surgery / Plastic Surgery², Nishtar Medical College / Hospital, Multan

Correspondence: Dr. Muhammad Afzal Sajid,
Emergency Surgeon, Nishtar Medical College /
Hospital Multan

Contact No.: 0301-7938630

E-mail: drafzalsajid@gmail.com

Received: February 03, 2016;

Accepted: March 10, 2016

medical and socioeconomic consequences of this common but dreadful public health issue. The present study was undertaken to document the presentation of intestinal tuberculosis in patients with intestinal perforation that present to the emergency department of Nishtar Hospital Multan.

MATERIALS AND METHODS

A observational / descriptive / cross sectional study of 1000 patients were conducted in accident and emergency department Nishtar Hospital Multan. Patients records were analyzed from January 2007 to December 2015. All the patients of age 20 -60 years of age presenting with generalized abdominal pain, tenderness on palpation and gas under right dome of diaphragm on x-ray chest were included in this studied. Patients with ASA grade III and IV, INR > 1.5, history of abdominal trauma, known case of peptic ulcer, history of abdominal radiotherapy and mesenteric ischemia were excluded from the study. Informed consent was taken from each patient. Perforation of intestine on exploratory laparotomy was labeled. Histopathology specimen were sent. Gross findings recorded were length of the intestine, number of strictures, perforations, and ulcerations, circumference of the stricture compared to the circumference of the intervening normal intestine, relationship of the perforation to the stricture, form of lesion (ulcerative, proliferative, or ulceroproliferative), draining lymph nodes, serosal tubercles, and mesenteric vasculature. Microscopic features recorded were granulomatous inflammation without necrosis, granulomatous inflammation with necrosis, and necrosis with acid fast bacilli positivity (AFB positivity), in sections from the intestine, lymph nodes, and mesenteric vasculature. Sections were stained by Hematoxylin and Eosin (H and E) and Ziehl-Neelsen (ZN) stain for acid fast bacilli. A known positive control section was used to ensure that correct differentiation had been achieved. Results were labeled as either presence or absence of intestinal tuberculosis. Data was analyzed using SPSS 17. Descriptive statistics were applied to calculate mean and standard deviation for age and duration of symptoms of disease. Frequencies and percentages were calculated for gender and presence or absence of intestinal tuberculosis.

RESULTS

1000 patients, complying with the inclusion criteria were included in the study. The mean age of the patients was 45 ± 5 years. 289 (28.9%) were in the age group of 20-30 years of age. 312 (31.2%) were in the age group 31-40 years. 243 (24.3%) were in age group 41-50 years. 156 (15.6%) were from age group 51-60. Regarding age, majority of the patients 532 (53.2%) were females, and 468 (46.8%) were males. Duration of symptoms ranged from 1 day to >3 days. 312 (31.2%)

had symptoms for 1-2 days. 432 (43.2%) had symptoms for 2-3 days and 256 patients had symptoms for more than 3 days. Data analyzed is shown in table 1.

Table No.1: Data analyzed

Age groups	Count	Percentage
20-30 years	289	28.9 %
31-40 years	312	31.2%
41-50 years	243	24.3
51-60 years	156	15.6
Total	1000	100%

Sex	Count	Percentage
Male	468	46.8%
Female	532	53.2%

Duration of symptoms:

Duration	Count	Percentage
1-2 days	312	31.2%
2-3 days	432	43.2%
>3 days	256	25.6%
	1000	100%

Presence of intestinal tuberculosis

Presence of tuberculosis	Count	Percentage
Yes	233	23.3%
No	767	76.7 %

DISCUSSION

Tuberculosis has re-emerged as a devastating disease during the last decade with a high morbidity and mortality. Pakistan is among those five nations that account for more than 50% of tuberculous cases worldwide. The disease is considered to be the fourth major cause of all deaths in Pakistan⁽⁷⁾, and the second commonest cause of intestinal perforation.⁽¹⁷⁾

Intestinal Tuberculosis can affect any age group but is more common in adolescence. The ages of the patients in this study ranged from very young to very old, majority were in between 20 to 40 years, which is consistent with other studies also^(9, 18-20). This study shows a slight female predominance (53.2%). This result is in accordance with other similar series which report slight female predominance.⁽²¹⁻²³⁾

Tuberculosis accounts for 5-9 per cent of all small intestinal perforations in sub-continent, and is the second commonest cause after typhoid fever^(24, 25). Evidence of tuberculosis on chest X-ray and a history of subacute intestinal obstruction are important clues. Pneumoperitoneum may be detected on radiographs in only half of the cases. Tubercular perforations are usually single and proximal to a stricture⁽²⁶⁾. Acute tubercular peritonitis without intestinal perforation is

usually an acute presentation of peritoneal disease but may be due to ruptured caseating lymph nodes.⁽³⁾ A study conducted by Arunima Mukhopadhyay et al,⁽²⁷⁾ found out that the commonest mode of acute presentation, out of 70 cases of intestinal tuberculosis, was intestinal obstruction (47%) followed by perforative peritonitis (31%), acute appendicitis (10%) and others (12%)⁽²⁷⁾. These results are consistent with our results. We found out that 23.3% of patients presenting with intestinal perforation had intestinal tb on histopathology.

In a study of 86 cases of intestinal Tuberculosis, conducted by Baloch et al⁽²⁸⁾. They found out that Seventeen (19.8%) patients of intestinal tuberculosis presented with peritonitis due to visceral perforations. These results are consistent with our study.

Early acknowledgement of the condition is key to minimizing morbidity and mortality. However, the identification of features in immunocompromised patients with tuberculosis can be anticipated to be even more perplexing than in immunocompetent patients. Untreated and undiagnosed intestinal tuberculosis carries a mortality rate of as high as 60%⁽²⁹⁾, whereas treated abdominal tuberculosis carries a mortality rate of about 15%⁽³⁰⁾. In particular, intestinal tuberculosis can lead to perforation, which carries a mortality rate of 30%⁽³¹⁾.

Thus it is imperative to do early diagnosis and prompt treatment of perforated intestinal tuberculosis so that mortality and morbidity can be reduced.

CONCLUSION

Abdominal tuberculosis is defined as infection of the peritoneum, hollow or solid abdominal organs with *Mycobacterium tuberculosis*. The peritoneum and the ileocaecal region are the most likely sites of infection and are involved in the majority of the cases by hematogenous spread or through swallowing of infected sputum from primary pulmonary tuberculosis. Pulmonary tuberculosis is apparent in less than half of the patients. Patients usually present with abdominal pain, is usually made through a combination of radiologic, endoscopic, microbiologic, histologic and molecular techniques. Antimicrobial treatment is the same as for pulmonary tuberculosis. Surgery is occasionally required. 23% patients were found to have tuberculosis of intestine it is remarkably similar to data in third world country.

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Marshall JB. Tuberculosis of the gastrointestinal tract and peritoneum. *Am J Gastroenterol* 1993; 88(7):989-99.
2. Aston NO. Abdominal tuberculosis. *World J Surg* 1997;21(5):492-9.
3. Kapoor V. Abdominal tuberculosis: the Indian contribution. *Ind J Gastroenterol* 1998;17:141-7.
4. Kapoor VK. Abdominal tuberculosis. *Postgraduate Med J* 1998;74(874):459-67.
5. Das P, Shukla H. Clinical diagnosis of abdominal tuberculosis. *Bri J Surg* 1976;63(12):941-6.
6. Bhansali S. Abdominal tuberculosis. Experiences with 300 cases. *Am J Gastroenterol* 1977;67(4): 324-37.
7. Shaikh MS, Dholia KR, Jalbani MA, Shaikh SA. Prevalence of intestinal tuberculosis in cases of acute abdomen. *Pak J Surg* 2007;23:52-6.
8. Engin G, Balk E. Imaging findings of intestinal tuberculosis. *J Computer Assisted Tomography* 2005;29(1):37-41.
9. Manzoor A, Muhammad A. Pattern of mechanical intestinal obstruction in adults. *J Col Physicians Surg* 1999;9:441-3.
10. Gondal K, Khan A. Changing pattern of abdominal tuberculosis. *Pak J surg* 1995;11(2):109-12.
11. Talwar S, Talwar R, Prasad P. Tuberculous perforations of the small intestine. *Int Clin Practice* 1998;53(7):514-8.
12. Seabra J, Coelho H, Barros H, Alaves O, Gonçalves V, Rocha-Marques A. Acute Tuberculous Perforation of the Small Bowel During Antituberculosis Therapy. *J Clinical gastroenterology*. 1993;16(4):320-2.
13. Wig J, Malik A, Chaudhary A, Gupta N. Free perforation of tuberculous ulcers of the small bowel. 1985.
14. Chitkara N, Garg P, Tehlan R, Dheer V. Multiple ileal perforations. *Postgraduate Med J* 1997;73 (865):757.
15. Dhar A, Bagga D, Taneja SB. Perforated tubercular enteritis of childhood: a ten year study. *Ind J Pediatrics* 1990;57(5):713-6.
16. Chaudhary S. The perforation of tuberculous lesion of the intestine is extremely rare. *J Ind Med Assoc* 1997;95(2):59, 63.
17. Khan M, Shah SA, Ali N. Pattern of dynamic intestinal obstruction in adults. *J Postgraduate Med Institute (Peshawar-Pakistan)* 2014;19(2).
18. Ihekweba F. Abdominal tuberculosis: a study of 881 cases. *J Royal Coll Surgeons Edinburgh* 1993; 38(5):293-5.
19. Iqbal T, Khan A, Iqbal A, Tahir F. Obstruction due to intestinal tuberculosis strictureplasty versus resection anastomosis. *Pak J Surg* 2008;24(3): 177-81.
20. Wadhwa N, Agarwal S, Mishra K. Reappraisal of abdominal tuberculosis. *J Ind Med Assoc* 2004; 102(1):31-2.
21. Moatter T, Mirza S, Siddiqui MS, Soomro IN. Detection of *Mycobacterium tuberculosis* in

- paraffin embedded intestinal tissue specimens by polymerase chain reaction: characterization of IS6110 element negative strains. *J Pak Med Assoc* 1998;48:174-8.
22. Naz F, Chaudhry Z, Haq A, Ahad A, Chaudhry Z, Waseem A. Abdominal tuberculosis: a review of 25 cases. *Ann King Edward Med Coll* 1999; 5(2):180-3.
23. Sultan M. Incidence of Intestinal Tuberculosis in patients presenting as acute emergency with signs of obstructions/peritonitis: Dissertation for College of Physicians & Surgeons Pakistan; 2005.
24. Dorairajan L, Gupta S, Deo S, Chumber S, Sharma L. Peritonitis in India- a decade's experience. *Tropical gastroenterology: official J Digestive Diseases Foundation* 1994;16(1):33-8.
25. Kapoor VK, Kriplani AK, Chattopadhyay TK. Tuberculous perforations of the small intestine. *Ind J Tub* 1986.
26. Niaz K, Ashraf M. Intestinal tuberculosis; Diagnostic Dilemma. *Prof Med J* 2010;17(4).
27. Mukhopadhyay A. Abdominal Tuberculosis with an Acute Abdomen: Our Clinical Experience. *J Clin and Diagnostic Res* 2014.
28. Baloch NA, Baloch MA, Baloch FA. A study of 86 cases of abdominal tuberculosis. *J Surg Pak (Int)* 2008;13(1):30-2.
29. Chow KM, Chow VCY, Hung LCT, Wong SM, Szeto CC. Tuberculous peritonitis-associated mortality is high among patients waiting for the results of mycobacterial cultures of ascitic fluid samples. *Clinical infectious diseases*. 2002;35(4): 409-13.
30. Chen YM, Lee PY, Peng RP. Abdominal tuberculosis in Taiwan: a report from Veterans' General Hospital, Taipei. *Tubercle and Lung disease* 1995;76(1):35-8.
31. Lee MJ, Cresswell FV, John L, Davidson RN. Diagnosis and treatment strategies of tuberculous intestinal perforations: a case series. *Eur J Gastroenterol & Hepatol* 2012;24(5):594-9.