Journal of Rawalpindi Medical College (JRMC); 2016;20(2):108-112

Original Article

Surgical Management of Acute Presentation and Outcome of Patients With Complicated Abdominal Tuberculosis

Sadia jaskani[1],Nadir Mehmood[1], Nazim M Khan[2], Hina Dilruba Khan[3], *Idrees M Anwar[4]*

1. Dept of Surgery, Benazir Bhutto Hospital and Rawalpindi Medical College, Rawalpindi;Department of Surgery, Rawal Institute of Health Sciences, Islamabad;3. Department of Medicine, Holy Family Hospital, Rawalpindi;4.Department of Surgery Holy Family Hospital and Rawalpindi Medical College, Rawalpindi.

Abstract

Background: To study the acute presentation, surgical management and outcome of patients with abdominal tuberculosis.

Method: All adult patients of either gender with clinical diagnosis of abdominal tuberculosis were included in this descriptive study. All admitted cases were assessed by history, physical examination and relevant investigations. Patients with signs of peritonitis were operated in emergency after resuscitation. Pre and postoperatively, all patients were treated with anti-tuberculous drugs.

Results: Out of 161 adult patients with abdominal tuberculosis, 40.4% patients were males and 59.6% females with a male to female ratio of 1: 1.47. The mean age was 35.9 years and majority (72.7%) belonged to poor families. 54.7% patients presented with features of peritonitis and 43.5% with acute and sub-acute intestinal obstruction. Majority(88.2%) required surgical intervention and most common preoperative finding was intestinal perforation peritonitis (50.3%). Ileostomy was the most frequently performed procedure (54.2%) and only 2.1% patients underwent primary anastomosis. Eighty nine(55.3%) patients were discharged and 72 (44.7%) expired.

Conclusion: Majority were young females, belonging to poor families. Most patients had primary abdominal tuberculosis and presented with complications like acute intestinal obstruction and intestinal perforation peritonitis, requiring emergency laparotomy. Gut exteriorization was the commonest surgical intervention. Primary anastomosis was not performed because of the poor nutritional status and diseased condition of the gut.A high mortality rate was encountered due to late presentation of the disease resulting in development of complications like perforation peritonitis.

Key Words: Abdominal tuberculosis, Intestinal obstruction,Peritonitis, Ileostomy.

Introduction

Tuberculosis (TB) is a WHO declared global emergency and an important communicable disease caused by Mycobacterium tuberculosis. Abdomen is the sixth most common extrapulmonary site affected by tuberculosis.It is associated with significant morbidity and mortality.[1,2] Disease burden is very high, almost one-third of the world population is infected with TB according to World Health Organization statistics.[3]The world wide incidence of tuberculosis is rising, with the greatest numbers occurring in Southeast Asia and the Western Pacific regions followed by India, China, Indonesia and Pakistan in this order.[4] TB is a major health concern in developing countries like Pakistan because of prevailing conditions which include ignorance, poverty, overcrowding, poor sanitation and malnutrition[5]. Even in developed countries, incidence of TB is on the rise because of influx of immigrants, increasing incidence of human immunodeficiency virus (HIV) infection, an ageing population, alcoholism, immunosuppression, immunosuppressive drugs, and the emergence of multidrug resistant strains of Mycobacterium tuberculosis (MDR-TB). [6]

Tuberculosis is a chronic granulomatous disease that is acquired by air-borne droplets transmission and usually affects the lungs. Abdomen is the sixth most common extrapulmonary site affected by tuberculosis.[7] The portal of entry into the abdomen include hematogenous spread, ingestion of infected sputum or infected milk and from adjacent organs.[8]In the abdomen, tuberculosis may affect the gastro-intestinal tract, peritoneum, lymph nodes, and solid viscera. Intestinal (enteric) tuberculosis exists as ulcerative, hypertrophic or stricturous form. While, peritoneal involvement (TB peritonitis) exists as ascitic,

loculated (encysted), plastic (fibrous) and purulent forms.[9] The diagnosis of abdominal tuberculosis (ATB) is difficult and often delayed as the clinical features are vague, diverse and no gold standard specific diagnostic test is available. Moreover, the disease is a great mimicker of other abdominal conditions, like inflammatory bowel disease, colonic malignancy, or other gastrointestinal infections.[9-12] Intestinal TB may be confused with enteric fever, Crohn's disease, amoebiasis, appendicitis, lymphoma, carcinoma, malabsorption syndrome, ischaemic structure, and diverticulitis. Miliary peritoneal tuberculosis must be differentiated from carcinomatosis peritonei. Ascites needs differentiation from cirrhosis and disseminated intra-abdominal malignancy.

Abdominal tuberculosis may present as chronic, acute, acute on- chronic, or it may be an incidental finding.[13] The common symptoms are fever, weight loss, night sweats and abdominal pain. The common signs are pallor, ascites, abdominal tenderness but evident only when disease is advanced.[14] Clinically it may present with complications like acute or sub-acute intestinal obstruction due to mass (tuberculoma) or stricture formation or gut perforation leading to peritonitis.[15]The treatment of abdominal tuberculosis is mainly conservative with anti-tuberculous therapy and surgical treatment is reserved for complications. Generally, surgical treatment followed by antituberculosis drug treatment give excellent results.[16]

Patients and Methods

This descriptive study was conducted at the Department of Surgery, Benazir Bhutto Hospital, Rawalpindi, between March 2012 and August 2103. All adult patients of either gender presenting with clinical diagnosis of abdominal tuberculosis were included in the study. The diagnostic criteria of abdominal tuberculosis were clinical suspicion, laboratory findings, per-operative findings and confirmed on histopathology. Chest X-ray, abdominal X- ray and abdominal ultrasonography were performed on all patients. However, CT scan abdomen was done, where required. Patients with signs of peritonitis were operated in emergency after resuscitation. Pre and postoperatively, all patients were treated with intravenous Ciprofloxacin till the return of bowel movements. Whether treated surgically or non-surgically, all patients were treated with anti tuberculosis therapy which included Isoniazid, Rifampicin, Pyrazinamide and Ethambutol.

Variables studied included socio-demographic (age, gender, marital status, socioeconomic status, level of education, clinical presentation, anemia, operative findings and surgical procedures performed. Management (surgical or non-surgical) and outcome (death or discharge) were other variables studied.

Results

A total of 161 adult patients with abdominal tuberculosis presented during the study period. Among them, 65 (40.4%) patients were males and 96 (59.6%) females. The mean age was 35.9 years with 98 (60.9%) patients aged below 30 years. Out of 161 patients, 81 (50.3%) were married. Majority of patients (72.7%) belonged to poor families, 27.3% from middle class and none from the upper class. Majority (80.7%) patients had education below matriculation (10 Grades). Most patients (80.7%) had primary abdominal TB. Associated Pulmonary TB was found in 19.3% patients only. 73.3% patients were anaemic with haemoglobin below 10 g/dl. Majority of patients (54.7%) presented with features of peritonitis (Table 1), other presentations were Subacute intestinal obstruction (26.7%),

Table 1:Abdominal tuberculosis- Clinical presentation (n=161)

Clinical Presentation	No(%)
Subacute intestinal Obstruction	43(26.7)
Acute intestinal obstruction	27(16.8)
Peritonitis	88(54.7)
Mass	3(1.9)

Table 2:Abdominal tuberculosis- Per-operative findings

Per-operative Findings	No(%)
Illeal perforation	43 (26.7)
Jejunal perforation	6(3.7)
Multiple perforations	10(6.2)
Single patent stricture	5(3.1)
Multiple strictures with impending perforations	12(7.5)
Strictures and perforation	8(5.0)
Fecal peritonitis	22(13.7)
Single non-negotiable stricture	6 (3.7)
Abdominal lymphadenopathy	4(2.5)
Adhesions, pus and tuberculomas	21(13.0)
Tuberculomas and bands	4 (2.5)
Appendicular mass	1(0.6)
Total Findings	142(88.2)
Non-operative	19(11.8)

Acute intestinal obstruction (16.8%) and mass abdomen (1.9%). Out of 161 patients, 142 (88.2%) underwent surgery. Per operative findings included

Journal of Rawalpindi Medical College (JRMC); 2016;20(2):108-112

mostly intestinal perforations 59 (36.6%), multiple adhesions and pus pockets 25 (15.5%) (Table 2). Among 161 patients (Table 3), 142 (88.2%) patients were treated operatively and the rest conservatively (Table 3;Figure 1-3). Patients presenting to the emergency department were either nutritionally compromised or they had a late presentation. Primary anastomosis of the gut was not favorable in most of the cases. Only 1.9% patients underwent primary anastomosis after gut perforation.Of these, 89 (55.3%) patients were discharged and 72 (44.7%) expired (Table 4).

Table 3:Abdominal tuberculosis-Operative procedures (n=161)

Procedure	No(%)
Illeostomy	77 (47.8)
Colostomy	1 (0.6)
Jejunostomy	18(11.2)
Illeocolostomy	22(13.7)
Primary anastomosis	3 (1.9)
Adhesiolysis and peritoneal lavage	21 (13.0)
Total Procedures	142 (88.2)
Non-operative	19 (11.8)

Table 4:Abdominal tuberculosis-Clinical outcome (n=161)

Outcome	No(%)	Percent
Discharged	89 (55.3)	55.3
Expired	72 (44.7)	44.7

Figure 1.Intestinal tuberculosis

Figure 2.Tuberculous mesenteric lymph node

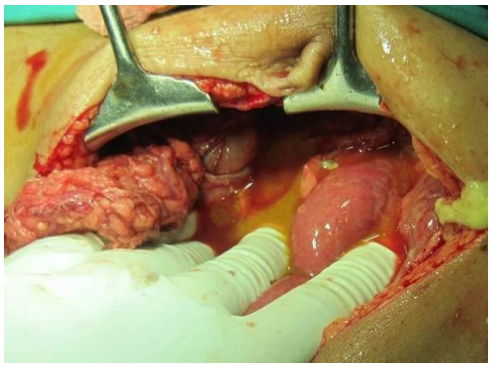

Figure 3. Peritonitis secondary to perforation of intestine

Discussion

Abdominal tuberculosis affects all parts of abdomen including intestine, peritoneum, lymph nodes and solid organs. Because of its non-specific nature, a wide variety of presentation and ability to mimic other abdominal diseases, a high index of suspicion is needed.[10,17,18]

On account of vague and varied presentation, the disease remains undiagnosed, misdiagnosed or delayed diagnosed till patient develops complications such as intestinal obstruction or perforation peritonitis. Diagnosis of intestinal tuberculosis remains a challenge; even in highly endemic areas .The accuracy of clinical acumen is only 50%.[19] No reliable investigation, except histopathology, can diagnose this disease.[20] In our study of 161 patients, 65 (40.4%) patients were males and 96 (59.6%) females, with a male to female ratio of 1: 1.47. This study generated the same gender result as previously reported by Abro et al[20] and also strengthened by other studies.[20-22] Some authors suggested that the disease is commoner in males in the western countries while females predominate in developing countries.[23]

Abdominal tuberculosis predominantly involves the younger age population as evident by the mean age of our patients which was 35.9 years with third decade being the most commonly affected. This correlates well with other national and international studies[20,22,24-26].

Jaydeeb G et al argued that females between 20-40 years are most commonly affected because the child bearing period and multiple pregnancies undermine their health to induce or activate the lesion.[27] However, marital status had no impact on the disease as almost half (50.3%) of our patient population was married and half unmarried. Poverty appears to have a strong association with abdominal TB as majority of our patients (72.7%) belonged to poor families and none from the upper class. [24]

Majority of our patients (80.7%) had primary abdominal tuberculosis. Only 19.3% patients had associated pulmonary tuberculosis which is in line with earlier studies.[13,22,26,28,29]Most patients (54.7%) presented in emergency department with features of peritonitis followed by acute and sub-acute intestinal obstruction (43.5%). On exploratory laparotomy, most common (50.3%) finding was intestinal perforation and peritonitis. Higher frequency of intestinal perforation is reported by some authors.[25,30,31]In the present study, 88.2% patients required surgical intervention which is further endorsed by results of 83% by Sadiq et al and 95% by Shabana et al, but is at variance with findings of R Sheikh et all (61%) and Sircar et al (21%). [29-32]

Ileostomy was the most frequently performed procedure (54.2%) as primary anastomosis of the gut was not favorable in most of our cases. However, various authors reported different most frequently performed procedures. Baloch NA et al[22] undertook stricturoplasty in 47.6% patients, Khan IA et al reported adhenolysis/node biopsy in 26.41% patients and Malik KA et al performed right hemicolectomy in 48.60% patients. [22,34,35] Since the disease has so many various presentations on laparotomy, it is difficult to suggest a single procedure which could encompass all stages and presentations of the disease. Given the diverse morphology of the disease, no surgical procedures can be regarded as standard.[36] The choice of surgical procedure, therefore, may vary depending on the site and the extent of disease, nutritional and general condition of the patient, expertise available, local protocols and surgeon's preference. Mortality rate (44.7%) was significantly high in our series.It is comparable with other studies . [13,22,25,35] High mortality rate in the present study was partly explained by high percentage of acute presentation of our patients in emergency department and high number of surgical interventions (88.2%) that were required for their management. Laparotomy was associated with significant morbidity and high mortality rate (38.8%) in one cohort.[28] In view of the high mortality and morbidity rates associated with laparotomy for abdominal TB, emergency surgery should be reserved for patients with convincing radiological or clinical evidence of perforation.[28] Since most of our patients presented with peritonitis, this warranted early laparotomy. Despite, choosing the safest option of Ileostomy (54.2%), our mortality rate remained very high. Other factors responsible for high mortality were late presentation and advanced stage of disease especially with complications like intestinal obstruction or perforation. Poverty, illiteracy, unawareness, unavailability of qualified healthcare professionals, healthcare facilities and lack of transport and proper referral system in resource poor country like Pakistan are other reasons for late presentation, thereby culminating into high mortality rate.[37] Finally, poor nutritional status resulted in poor sustenance to the surgical insult after laparotomy in most of our patients.

Conclusion

1.Majority of patients of abdominal tuberculosis were young females belonging to poor social class.

2. Most patients had primary abdominal tuberculosis and presented with complications like acute intestinal obstruction and intestinal perforation peritonitis, requiring emergency laparotomy.

3. In majority of the cases gut was exteriorized and primary anastomosis was not performed because of the poor nutritional status and diseased condition of the gut.

4. High mortality rate was encountered due to late presentation of the disease resulting in development of complications like perforation peritonitis and poor general nutritional condition of the patients.

References

1. Kumar S, Pandey HI, Saggu P. Abdominal Tuberculosis. In: Taylor I, Johnson CD,editors. Recent advances in surgery. 28 ed. London: Royal Society of Medicine Press; 2008; 47-58.
2. WHO. Global tuberculosis control 2012. [Internet]: World Health Organization. (Online) Available from URL:http://www.who.int/tb/publications/global_report/en/index.html.
3. Lonnroth K and Raviglion M: Global epidemiology of tuberculosis: Prospects for control. Semin Respir Crit Care Med 2008, 29:481-84.
4. Mehmood N, Najam S, Yunus M. Analysis of presentation of cutaneous tuberculosis in surgical department. JIIMC 2008;1(1): 23-30.
5. Butt T, Karamat KA, Ahmad RN, Mahmood A: Advances in diagnosis of tuberculosis. Pak J Pathol. 2001, 12:1–3.
6. Tan K-K, Chen K, Sim R: The spectrum of abdominal tuberculosis in a developed country. J Gastrointest Surg 2009, 13:142–47.
7. Kapoor VK. Abdominal tuberculosis: The Indian contribution. Indian J Gastroenterol 1998;17:141-17.
8. Horvath KD, Whelan RL. Intestinal tuberculosis: Return of an old disease.Am J Gastroenterol 1998;93:692-96.
9. Shaikh MS, Dholia KR, Jalbani MA: Prevalence of intestinal tuberculosis in cases of acute abdomen. Pakistan J Surg 2007, 23:52–56.
10. Debi U, Ravisankar V, Prasad KK. Abdominal tuberculosis of the gastrointestinal tract:Revisited. World J Gastroenterol 2014 ; 20(40): 14831-40.
11. Pattanayak S, Behuria S. Is abdominal tuberculosis a surgical problem? Ann R Coll Surg Engl 2015;97:414-19.
12. Khan MR, Khan IR, Pal KNM: Diagnostic issues in Abdominal Tuberculosis. J Pak Med Assoc 2001, 51:138–40.

13. Rajpoot MJ, Memon AS, Rani S. Clinicopathological profile and surgical management outcomes in patients suffering from intestinal tuberculosis. J Liaqaut Uni Med Health Sci 2005, 4:113–18.
14. Amouri A, Boudabbous M, Mnif L. Current profile of peritoneal tuberculosis. Rev Med Interne 2009;30:215-20.
15. Gondal KM and Khan AFA. Changing pattern of Abdominal Tuberculosis. Pak J Surg 1995, 11:109–13.
16. Mukhopadhyay A, Dey R, Bhattacharya U. Abdominal tuberculosis with an acute abdomen: our clinical experience. J Clin Diagn Res 2014;8:NC07-9.
17. Badaoui E, Berney T, Kalser L. Surgical Presentation of abdominal tuberculosis: a protean disease, Hapatogastroenterology 2000; 47: 751-55
18. Yunaev M, Ling A, Abbas S, Suen M, Pleass H. Abdominal tuberculosis: an easily forgotten diagnosis. ANZ J Surg 2011:81:559–60.
19. Sheer TA, Coyle WJ. Gastrointestinal tuberculosis. Curr Gastroenterol Rep 2003;5:273–78.
20. Abro A, Siddiqui FG, Akhtar S, Memon AS. Spectrum of clinical presentation and surgical management of intestinal tuberculosis at tertiary care hospital. J Ayub Med Coll Abbottabad 2010;22(3):96-99.
21. Chandir S, Hussain H, Salahuddin N, Amir M, Ali F, Lotia I: Extrapulmonary tuberculosis.J Pak Med Assoc 2010, 60:105–109.
22. Baloch NA, Baloch MA, Baloch FA: A study of 86 cases of abdominal tuberculosis. J Surg Pak 2008, 13:30–32.
23. Homan WP, Grofe WR, Dineem P. A 44-year experience with tuberculous enterocolitis. World J Surg 1977, 2:45–50.
24. Saaiq M, Shah SA, Zubair M. Abdominal Tuberculosis: Epidemiologic profile and management experience of 233 cases. J Pak Med Assoc Jul 2012;62(7):704-07.
25. Islam J, Clark DL, Thomson SR. Lessons from emergency laparotomy for abdominal tuberculosis in the HIV/AIDS era. S Afr J Surg. 2014 Feb;52(1):10-12.
26. Arif AU, Shah LA, Ullah A, Sadiq MuD. The frequency and management of intestinal tuberculosis; a hospital based study. J Postgrad Med Instit 2008; 22.
27. Jaydeep G, Naik N, Parmar H. The surgical treatment of abdominal tuberculosis- study of 50 cases. IJSR; January 2016:5:1:527-28.
28. Chalya PL, Mchembe MD, Mshana SE. Clinicopathological profile and surgical treatment of abdominal tuberculosis: a single centre experience in north western Tanzania.BMC Infectious Diseases 2013, 13:270-73.
29. Sheikh R, Ayub M, Malik KA. Abdomial tuberculosis-profile of 26 cases. Pak J Surg 2008 24(4): 217-19.
30. Jamal S, Mashal Z, Ahmed I. Prsentation and outcome of abdominal tuberculosis in tertiary care unit. Ann. Pak. Inst. Med. Sci. 2011; 7(1): 33-36.
31. Dasgupta A, Singh N, Bhatia A. Abdominal Tuberculosis: A Histopathological Study with Special Reference to Intestinal Perforation and Mesenteric Vasculopathy. Journal of Laboratory Physicians 2009;1(2):56-61.
32. Sadiq F, Khurshid N, Nawaz F. Abdominal Tuberculosis - a continuing challenge to the surgeon. PJMHS 2012;6(4):898-900 ·
33. Sircar S, Tanija VA, Kansra V. Epidemiology and clinical presentation of abdominal tuberculosis. A retrospective study. J Indian Med Assoc 1996;94:342–44.
34. Khan IA, Khattak IU, Asif S, Nasir M. Abdominal tuberculosis an experience at Ayub Teaching Hospital Abbottabad. J Ayub Med Coll Abbottabad 2008, 20:115–18.
35. Malik KA and Waheed I. Frequency of intestinal tuberculosis in cases of intestinal obstruction. JLUMHS 2006; 5: 119-21.
36. Sabooni K, Khosravi MH, Pirmohammad H. Tuberculosis peritonitis with features of acute abdomen in HIV infection. Int. J. Mycobacteriol. 2015:02:04:151–53.
37. Sattar Z, Iqbal M , Gondal KM. The frequency of peritoneal tuberculosis using diagnostic laparoscopy in clinically suspected cases. Annals of PIMS 2014:20:2:176-81.