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Analysis Role of Surgery in Management of Abdominal Tuberculosis

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ABSTRACT

Abdominal tuberculosis constitutes of 10% of extrapulmonary tuberculosis. Most common site is ileocecal region. Abdominal tuberculosis has diagnostic dilemma due to diverse and non specific clinical presentation. Analyse various clinical presentation and investigation modalities and clinical outcome in abdominal tuberculosis and To analyse role of surgery in managing abdominal tuberculosis. Retrospective study conducted from March-March 2014-2017 in MS Ramaiah hospital Bangalore. Thirty three patients with abdominal tuberculosis was included in the study. Clinical features with respect to demographic data, various clinical presentation and various investigations were recorded. The surgical indications and various surgeries performed were assessed. The clinical outcome in terms of morbidity and mortality were analysed. Intestinal tuberculosis followed by peritoneal tuberculosis is most common presentations. Most common symptoms were abdominal pain > abdominal distension. Overall patients were diagnosed by biopsy material from laparotomy/diagnostic laparoscopy were 48.48% and 33.33% from colonoscopic biopsy. All patients taken antitubercular drugs. Surgical intervention done in 48.48% patients in that 62.5% underwent laparotomy (60% laparotomy+adhesiolysis+biopsy, 30% laparotomy+hemicolectomy, 10% laparotomy+ resection of small bowel and anastomosis) and 37.5% underwent diagnostic laparoscopy and biopsy. Six percentage patient had ennterocutaneous fistula and 12.12% had wound infection. Extra vigilance in dealing with patients who present with unexplained abdominal conditions is the key to the diagnosis of abdominal tuberculosis. Early diagnosis, early antituberculous therapy and surgical treatment of the associated complications are essential for the survival of the patient. Abdominal tuberculosis, Mycobacterium tuberculosis, tuberculous peritonitis, intestinal tuberculosis.

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Key Words

Abdominal tuberculosis, mycobacterium tuberculosis, tuberculous peritonitis, intestinal tuberculosis

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INTRODUCTION

Abdominal tuberculosis (ATB) is defined as an infection in the gastrointestinal tract, peritoneum or intra-abdominal solid organs of Mycobacterium tuberculosis (M. tuberculosis). It constitutes about 12% of extra-pulmonary tuberculosis and 1-3% of all cases of tuberculosis (TB). ATB is relatively less common in India as compared with pulmonary tuberculosis, but it still remains a serious health threat. With the emergence of thehuman immunodeficiency virus (HIV) infection and the use of immunosuppressive therapy, its incidence has also been increasing in low-income and middle income societies. The diagnosis of abdominal TB is difficult to make due to the nonspecific presentation of symptoms and signs. In addition, it can mimic many diseases and conditions such as malignancy, bacterial infectious disease and inflammatory disease. Delayed diagnosis or misdiagnosis is directly related to poor outcome in patients who are not able to receive early treatment. The World HealthOrganization estimates that one-third of the world's population is infected with M. tuberculosis, with the highest prevalence of TB in Southeast Asia. Moreover the emergence of drug-resistant tuberculosis has become a cause for concern in many parts of the world including India. We analyzed clinical, laboratory and imaging studies and therapeutic outcomes of 33 adult patients with abdominal TB as reported to the RNTCP by our hospital.

MATERIALS AND METHODS

Patients admitted to M S RAMAIAH Hospital were evaluated from March-March 2014-2017. 33 patients were admitted to M S RAMAIAH Hospital Bangalore were diagnosed as abdominal TB. We retrospectively evaluated those 33 patients by reviewing their clinical information,therapeutic methods and outcomes from the database. Abdominal TB is defined as M. tuberculosis infections in the gastrointestinal tract, peritoneum, or intra-abdominal solid organs[1] positive culture of M. tuberculosis Diagnosis of abdominal TB was made based on clinical features of abdominal infection and at least one of the following criteria[1]. positive culture for M Tuberculosis from abdominal organ tissue or peritoneal fluid[2] positive acid-fast bacilli (AFB) stain from the tissue biopsies[3] histopathological demonstration of typically caseating granulomatous necrosis or[4] positive polymerase chain reaction (PCR) or gene expert for M. tuberculosis on abdominal organ tissue or peritoneal fluid. The clinical information, including age, sex, medical history, symptoms and signs, physical findings, laboratory and image findings (radiography and sonography), therapeutic methods and outcomes were reviewed and analyzed. All patients received antituberculous treatment.

RESULTS

In this study 33 patients (17 male and 16 female) diagnosed with abdominal tuberculosis Table 1. Their age ranges from 7 to 63 years with mean age of 34.84%. Most of the patients with abdominal tuberculosis were between 20-30 years (48.48%) Table 2. Most common presentation was abdominal pain constitutes around 69.7% of patients, 27.3% with abdominal distension. Fever was present in 33.3% and 30% of patients had associated weight loss. 81% of

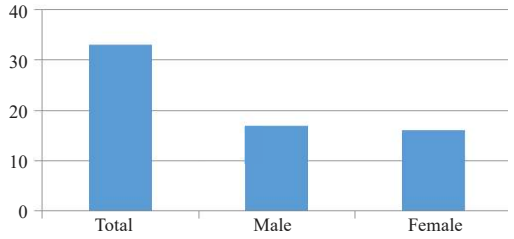

Fig. 1: Distribution male and female study subjects

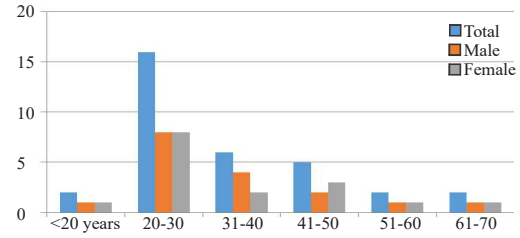

Fig. 2: Age wise distribution

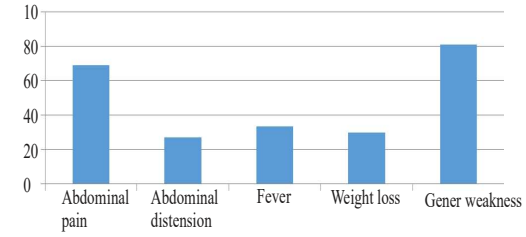

Fig. 3: Presentation of study subject

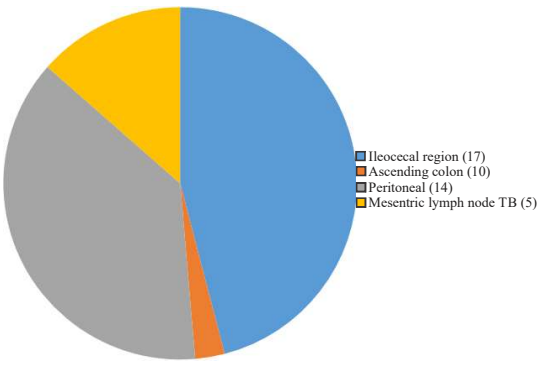

Fig. 4: Different diagnostic methods used

LAB	PERCENTAGE
HB< 12gm/dl	45.5%
ESR >30	78.8%
Lymphocytes > 70 In ascitic fluid	75%
Protein level in ascitic fluid > 3gm/dl	75%
Glucose levels <60mg/dl in ascitic fluid	75%
ADA In ascitic fluid > 40IU/L	75%

Table 1: Different diagnostic methods used.

patients were had generalised weakness Table 2. One patient admitted for laparoscopic steralisation and one more for umbilical hernia repair were diagnosed to have peritoneal tuberculosis. Among 33 patients 2 patients were known case of abdominal tuberculosis and 1 was having pulmonary tuberculosis.One patient presented with loose stools and treated outside as acute gastroentritis. Three patients presented lower abdominal pain and distension were evaluated in view of adnexal mass, CA 125 found to be high in 2 patients. Thirty percentage of patients were known case of diabetes mellitus and none were HIV positive. Abdominal sonography was done in 18 patients. Ascitis seen in 8 patients ileoceacal thickening seen in 11 patients. Abdominal computed tomography was done in 15 patients revealed ascitis in 6 patients and ileoceacal, omental and peritoneal thickening seen in 10 patients, loculated collection with peritoneal thickening seen in 2 patients, ascending colon thickening seen in 1 patient Table 4. Different diagnostic methods used in these 33 patients were diagnostic laparoscopy and biopsy, ascetic fluid culture and AFB staining, colonoscopy and biopsy, TB PCR, Gene expert.

Total number of patients underwent surgery are 16, among them 6 patients underwent diagnostic laparoscopy and biopsy and 10 underwent laparotomy. Among patients underwent laparotomy, 6 underwent, Laparotomy+adhesiolysis+peritoneal omentalbiopsy and 2 underwent Laparotomy+right hemicolectomy+ biopsy and 1 underwent, Laparotomy+right hemicolectomy +enterocutaneous fistula excision and 1 underwent Laparotomy+small intestinal resection+excision of enterocutaneous fistula.

DISCUSSION

Abdominal TB tends to affect a population in the third and fourth decades of life. Most of our patients (60%) were between 30-40 years. HIV and immuno compromised immune system are important predisposing factors for adult abdominal TB. The term “abdominal TB” emphasizes the involvement of any or multiple parts of the gastrointestinal system with the most frequently involved sites being the peritoneum and intestine. The involvement of the appendix and jejunum is uncommon while mention of TB of the ascending colon, oesophagus, stomach, duodenum, rectum and anus is distinctly rare in literature. In our current study, we also found that the ileoceacal region is the most common site of infection with more than half of the patients with abdominal TB having intestinal tuberculosis. On the other hand, gastrointestinal TB is a diagnostic challenge, particularly in the absence of evidence of pulmonary infection. It may mimic many other abdominal diseases such as other infectious processes, tumors and Crohn’s disease. In the absence of any positive laboratory and radiologic tests the diagnosis is often established by obtaining a surgical specimen. Lin et al emphasized that colonoscopy with biopsy is also a useful diagnostic tool for early diagnosis and in avoiding unnecessary morbidity and mortality associated with exploratory laparotomy in colonic TB. The colonoscopicappearance may include the following: ulcerated lesions, sessile firm polyps, masses and small diverticula, ranging from 3-5 mm in diameter. Infection of 1 or 2 patients with intestinal TB was located in the specific ileocecal area. The ileocecal valve is a common site of intestinal infection owing to the presence of rich lymphoid tissue. However the difficulty in differentiating segmental tuberculosis intestinal disease from Crohn’s disease is always a challenge. The similarities in both diseases are the colonic skip lesions, particularly the ileocecal involvement and granulomas on the histological features. Macroscopic distinction between the two is usually very difficult. Therefore, a critical review based on other evidence such as clinical, radiographic and pathologic information is usually mandatory in the diagnosis of the two diseases.

The clinical presentation of abdominal TB is usually non-specific and therefore, often results in diagnostic delay and hence the development of complications. There are many vague presentations that will challenge the diagnosis of this life threatening infectious disease. From our observation the most common clinical symptoms and signs in patients with abdominal TB were abdominal pain, abdominal distension, ascites and body weight loss. Fever was found in 35.7% of patients and peritoneal signs were only noted in 7.1%. Although abdominal CT and ultrasonography are useful in making the diagnosis of abdominal TB. Peritoneal carcinomatosis was initially suspected by abdominal CT in 4 patients. The AFB stains were performed on biopsy tissues and fluid from ascites 14 were positive showed positive results. TB-PCR was performed for patient 3 with a positive result. Gene Expert done in 1 patient was positive. Microbiological and/or histopathological confirmation may also establish the diagnosis.

Undiagnosed and untreated abdominal TB can result in a mortality rate of 50-60%. However, thisdisease is usually curable after proper treatment. Chang et alreported that the mortality rate of treated abdominal TB were 13.2% and 14.8% respectively. In

Table 2: Patients were had generalised weakness

Patients underwent surgical intervention	No of patients	Percentage
Total	33	100
Surgical intervention	16	48.48
Total patients with surgical intervention	16	100
Diagnostic laparoscopy and biopsy	6	37.5
Laparotomy	10	62.5
Total no of patients underwent laparotomy	10	100
Laparotomy+adhesiolysis+peritoneal/omental biopsy	6	60
Laparotomy+right hemicolectomy+biopsy	2	20
Laparotomy+right hemicolectomy+enterocutaneous fistula excision	1	10
Laparotomy+small intestinal resection+excision of enterocutaneous fistula	1	10

our study the overall mortality rate was 20% due to sepsis and septic shock. The high frequencyof the coexistence of pulmonary TB and abdominal TB may be related to lower socioeconomic circumstances. By contrast, Western studies show that less than half of the patients with abdominal TB coexisted with pulmonary TB. In this study, we found that only 2 patients (6%) had pulmonary TB.

The pathogenesis of abdominal TB in patients remains speculative. There are four different possible pathways for intra-abdominal M. tuberculosis infection: hematogenous spread from primary pulmonary TB, ingestion of infected milk products, ingestion ofinfected sputum from pulmonary TB and the direct invasion from an adjacent organ.After the ingestion of infected food or sputum, M. tuberculosis may spread via lymphatics from infected lymph nodes. Peritoneal TB is usually secondary to the hematogenous spread from a primary lung focus. In patients with chronic renal failure undergoing continuous ambulatory peritoneal dialysis, Lui and colleagues proposed that infection is acquired by direct contamination via the peritoneum. Latent TB may reactivate during peritoneal dialysis, resulting in clinical peritonitis.In rare cases the mycobacteriamay enter the peritoneal cavity from an infected bowel or fallopian tube.

The recommended treatment for abdominal TB is conventional anti-TB therapy for a minimum of 6 months. Surgical intervention may be required to establish the diagnosis if medical treatment fails or to treat complications of abdominal TB. In this study, all patients were successfully treated with antitubercular drugs. Consequently, prompt treatment after early diagnosis can improve the morbidity and mortality rate of abdominal TB. In conclusion, extreme vigilance in patients with unexplained abdominal conditions is the key to the successful diagnosis of abdominal TB. Early diagnosis, early antituberculous therapy and surgical treatment of the associated complications are essential for survival.

REFERENCES

1. Chen, W.S., S.Y. Leu, H. Hsu, J.K. Lin and T.C. Lin, 1992. Trend of large bowel tuberculosis and the relation with pulmonary tuberculosis. Dis. Colon Rectum, 35: 189-192.
2. Farer, L.S., A.M. Lowell and M.P. Meador, 1979. Extrapulmonary tuberculosis in the united states1. Am. J. Epidemiol., 109: 205-217.
3. Sheer, T.A. and W.J. Coyle, 2003. Gastrointestinal tuberculosis. Curr. Gastroenterol. Rep., 5: 273-278.
4. Chang, H.T., S. Leu, H. Hsu and W.Y. Lui, 1991. Abdominal tuberculosis: A retrospective analysis of 121 cases. Zhonghua Yi Xue Za Zhi (Taipei)., 47: 24-30.
5. ,M Chen, Y., P. ,Y Lee and R. ,P Pemg, 1995. Abdominal tuberculosis in Taiwan: A report from veterans' general hospital, taipei. Tubercle Lung Dis., 76: 35-38.
6. Barnes, P.F., 1993. Tuberculosis in the 1990s. Ann. Internal Med., 119: 400-140.
7. Maartens, G. and R.J. Wilkinson, 2007. Tuberculosis. Lancet., 370: 2030-2043.
8. Wagner, K.R. and W.R. Bishai, 2001. Issues in the treatment of Mycobacterium tuberculosis in patients with human immunodeficiency virus infection. AIDS, 15:
9. Jadvar, H., R.E. Mindelzun, E.W. Olcott and D.B. Levitt, 1997. Still the great mimicker: Abdominal tuberculosis. Am. J. Roentgenol., 168: 1455-1460.
10. Dolin, P.J., M.C. Raviglione and A. Kochi, 1994. Global tuberculosis incidence and mortality during 1990-2000 Bull. World. Health. Organ., 72: 213-220.
11. Hsueh, P.R., Y.C. Liu, J. So, C.Y. Liu, P.C. Yang and K.T. Luh, 2006. Mycobacterium tuberculosis in Taiwan. J. Infec., 52: 77-85.
12. Chiang, C.Y., D.A. Enarson, S.L. Yang, J. Suo and T.P. Lin, 2002. The impact of national health insurance on the notification of tuberculosis in Taiwan. Int. J. Tuberc. Lung. Dis., 6: 974-979.

13. Lazarus, A.A. and B. Thilagar, 2007. Abdominal tuberculosis. Disease-a-Month, 53: 32-38.
14. Rasheed, S., R. Zinicola, D. Watson, A. Bajwa and P.J. McDonald, 2007. Intra-abdominal and gastrointestinal tuberculosis. Colorectal Dis., 9: 773-783.
15. Uzunkoy, A., 2004. Diagnosis of abdominal tuberculosis: Experience from 11 cases and review of the literature. World J. Gastroenterol., 10: 3647-3649.
16. Yu, M.C., J. Suo, C. Huang, K.J. Bai, T.P. Lin and K.T. Luh, 1999. Annual risk of tuberculous infection in Taiwan, 1996-1998. J. Formos. Med. Assoc., 98: 496-499.
17. Das, P. and H.S. Shukla, 1976. Clinical diagnosis of abdominal tuberculosis. Br. J. Surg., 63: 941-946.
18. Kapoor, V.K. and L.K. Sharma, 1988. Abdominal tuberculosis. Br. J. Surg., 75: 2-3.
19. Bhansali, S.K., 1997. Abdominal tuberculosis. Experiences with 300 cases. Am. J. Gastroenterol., 67: 324-327.
20. Sharp, J.F. and M. Goldman, 1987. Abdominal tuberculosis in east birmingham: A 16 year study. Postgraduate Med. J., 63: 539-542.
21. Chu, C.M., S.M. Lin, S.M. Peng, C.S. Wu and Y.F. Liaw, 1994. The role of laparoscopy in the evaluation of ascites of unknown origin. Gastrointestinal Endoscopy, 40: 285-289.
22. Lin, C.J., C.S. Wu, P.C. Chen, Y.C. Kuo, K.Y. Chang, S.S. Wu, S.Y. Tung, 1996. Endoscopic diagnosis and clinical experience of colonic tuberculosis. Changgeng. Yi. Xue. Za. Zhi., 19: 298-304.
23. Addison., N.V., 1983. Abdominal tuberculosis: A disease revived. Ann. R. Coll. Surg. Engl., 65: 105-111.
24. Wells, A.D., J.M.A. Northover and E.R. Howard, 1986. Abdominal tuberculosis: Still a problem today. J. Royal Soc. Med., 79: 149-153.
25. Pereira, J.M., A.J. Madureira, A. Vieira and I. Ramos, 2005. Abdominal tuberculosis: Imaging features. Eur. J. Radiol., 55: 173-180.
26. Chow, K.M., V.C.Y. Chow, L.C.T. Hung, S.M. Wong and C.C. Szeto, 2002. Tuberculous peritonitis associated mortality is high among patients waiting for the results of mycobacterial cultures of ascitic fluid samples. Clin. Infect. Dis., 35: 409-413.
27. Kapoor, V.K., 1998. Abdominal tuberculosis. Postgraduate Med. J., 74: 459-467.
28. Schulze, K., H.A. Warner and D. Murray, 1977. Intestinal tuberculosis. Am. J. Med., 63: 735-745.
29. Horvath, K.D. and R.L. Whelan, 1998. Intestinal tuberculosis: Return of an old disease. Am. J. Gastroenterol., 93: 692-696.
30. Singh, M.M., A.N. Bhargava and K.P. Jain, 1969. Tuberculous peritonitis. New Engl. J. Med., 281: 1091-1094.
31. Mehta, J.B., A. Dutt, L. Harvill and K.M. Mathews, 1991. Epidemiology of extrapulmonary tuberculosis. Chest, 99: 1134-1138.
32. Lui, S.L., S. Tang, F.K. Li, B.Y. Choy, T.M. Chan, W.K. Lo and K.N. Lai, 2001. Tuberculosis infection in Chinese patients undergoing continuous ambulatory peritoneal dialysis. Am. J. Kidney Dis., 38: 1055-1060.
33. Chau, T.N., V.K.S. Leung, S. Wong, S.T. Law and W.H. Chan *et al*., 2007. Diagnostic challenges of tuberculosis peritonitis in patients with and without end-stage renal failure. Clin. Infect. Dis., 45:
34. Tang, L.C.H., H.K.M. Cho and V.C.W.W. Taam, 1984. Atypical presentation of female genital tract tuberculosis. Eur. J. Obstet. Gynecol. Reprod. Biol., 17: 355-363.