Original Article

Clinical, Colonoscopic and Histological profile of Abdominal Tuberculosis in BPKIHS, Nepal

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Abstract

Background: The diagnosis of abdominal tuberculosis is often challenging due to diverse and nonspecific clinical presentations. Abdominal Tuberculosis is not uncommon in developing countries like Nepal. The delay in diagnosis and treatment can lead to poor outcome in patients. Thus, this study aimed to evaluate the clinical, colonoscopic, and histopathological features of this condition in Nepal.

Methods: This was a prospective observational study in which 44 patients with abdominal TB were analyzed for clinical, colonoscopic and histological profiles from June 2023 to May 2024. All diagnosed patients received Anti-tuberculosis Therapy (ATT) and were followed up at 2 and 6 months of ATT.

Results: Among 44 patients 17 (38.63%) were male and 27 (61.36%) were female with mean of 39 years. The most common symptoms were anorexia (93.18%), abdominal pain (88.63%), weight loss (81.81%), abdominal distension (38.63%), diarrhoea (34.09%), fever 22.72% and vomiting (22.72%). Mantoux test was positive in 16 (36.36%) patients and 33 (75%) patients had elevated ESR. The sites involved were ileal in (70.45%), ileo-cecal (27.72%), peritoneal (20.45%), lymph nodal (18.18%) and colonic in (13.63%). TB PCR was positive in 6.81%. All patients had Lymphoid, histiocyte and plasma cell infiltration in histopathological examination. Caseating granuloma was seen in (11.36%). 41 out of 44 (93.18%) patients improved with Anti Tuberculosis Therapy (ATT).

Conclusions: The common symptoms of abdominal TB were anorexia, abdominal pain, weight loss, abdominal distension, chronic diarrhea and fever. Clinical features, imaging findings, ascitic ADA level along with histopathological reports should be considered for clinical diagnosis of abdominal TB. A therapeutic trial of ATT is indicated so that abdominal TB can be treated early in the course of disease.

Introduction

Tuberculosis is a common disease affecting 10 million people, accounting for 1.5 million deaths with highest incidence and prevalence in Southeast Asia and African countries.[1] Pulmonary disease is the most common form of TB. However, studies from India have reported abdominal tuberculosis to account from 0.8% to 1.3% of hospital admissions in gastroenterology department.[2] Diagnosis of abdominal tuberculosis is challenging attributed to diverse, vague clinical features and the tests routinely performed for diagnosis either has low sensitivity or have a supportive role. Diagnostic delay leading to increased morbidity and mortality is an issue while mimickers like Crohn's Disease, once thought to be disease of west is increasing in developing countries creating diagnostic dilemma for gastroenterologists.[3] Thus understanding the clinical characteristics holds paramount importance. Hence this study was conducted with the aim of assessing clinical, radiologic, colonoscopic and histologic features of abdominal tuberculosis.

Abdominal tuberculosis is divided into four categories based on organ involvement.

Intestinal tuberculosis as per modified Paustian's criteria[4] (a) and one or more of (b) and (c) must be fulfilled). (a) Endoscopic apparent intestinal tuberculosis: transverse ulcers, pseudopolyps, involvement of fewer than four intestinal segments, patulous ileo-caecal valve, (b) Histological evidence of tubercles/granuloma with caseation necrosis in intestinal biopsies, (c) Clinical response to anti tubercular treatment trial (ATT)

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Peritoneal Tuberculosis: Clinical ascites or radiological evidence of ascites or omental thickening with diagnostic paracentesis revealing low serum ascites albumin gradient (SAAG), high protein ascites with high adenosine deaminase (ADA) level of greater than 32 U/L , Ziehl Neelson (ZN) stain for acid fast bacilli and cytological analysis of fluid.

Tubercular lymphadenopathy: Radiological evidence of abdominal lymph node enlargement or feature suggestive of necrosis. Tuberculosis of solid viscera Based on diagnostic results abdominal tuberculosis has two categories i.e. confirmed diagnosis and clinically diagnosed.

Abdominal tuberculosis is confirmed if (a) or (b) is present. (a) Microbiological evidence of AFB in tissue or fluid or positive culture of the same specimen, (b) presence of caseous necrosis in tissue specimen.

Abdominal tuberculosis is clinically diagnosed with compatible clinical and radiological evidence plus (a) or (b) or (c). (a) histologic evidence of granuloma and/or chronic inflammatory infiltrate, (b) peritoneal fluid shows high ADA values (>32 U/L), (c) exclusion of other differential diagnosis by tissue biopsy and/or cytological analysis of fluid and demonstration of objective response to therapy in the form of mucosal healing or ascites reduction/resolution.[5,6,7]

Methods

This is a prospective observational study conducted in the Department of Gastroenterology and hepatology B.P. Koirala Institute of Health Sciences, Dharan, Nepal. A total of 44 patients, presenting with clinical features suggestive of abdominal TB between June 2023 to May 2024 were included in the study. Ethical Clearance was obtained from Institutional Review Committee, Ref. No. 682/079/080-IRC. Epidemiological data, complete medical history and physical examination, investigations as per the clinical scenario were recorded. Mantoux test, ESR, Chest X-Ray and HIV serology was performed in all patients. Ultrasonography examination of abdomen and contrast enhanced CT scan abdomen was done based on clinical scenario. Colonoscopy and mucosal biopsy if abnormal were performed in all patients.

UGI endoscopy was done if clinically indicated.

Category 1 ATT, comprising of weight-based Isoniazid, Rifampicin, Pyrazinamide and Ethambutol for 2 months followed by Isoniazid and Rifampicin, was provided from DOTS (Directly Observed Treatment Short course) clinic. Follow-up every 2 weeks for first month then monthly for 5 months was done during which time general sensation of well-being, improvement in appetite, weight gain, signs and symptoms pertaining to drug toxicity and liver function test was assessed. ESR was repeated at 1 month in all patients. Colonoscopy was repeated at 2 months after patient's consent for intestinal TB. Colonoscopy was repeated at 6 months if mucosal response wasn't seen at 2 months. Ultrasound abdomen was done at 2 months for ascites and lymphadenopathy. The clinical outcomes such as complete cure; serious adverse events to anti tubercular drugs such as hepatitis; alternative diagnosis; requirement for surgery; development of drug-resistant tuberculosis (MDR) and death was observed in each patient.

Results

Patient ranged from 17-71 years with a mean of 39 years, 17 (38.63 %) were male and 27 (61.36%) were female. Duration of illness ranged from 1 to 8 months. Most common symptoms were anorexia (93.18%), abdominal pain (88.63%) and weight loss (81.81%). Other symptoms in decreasing frequency were abdominal distension and ascites (38.63%), diarrhoea (34.09%), fever and vomiting (22.72%). Other signs and symptoms are detailed with decreasing frequency in Table 1.

Table 1. Symptoms and signs with their frequency (n=44)

Symptoms and signs	Number of patients	Percentage (%)
Onset in 1-2 months	37	84.09
4-6 months	5	11.36
6-8 months	2	4.54
Anorexia	41	93.18
Abdominal pain	39	88.63
Weight loss	36	81.81
Abdominal distension	17	38.63
Diarrhoea	15	34.09
Fever	10	22.72
Vomiting	10	22.72
Hepatomegaly	10	22.72
Lymphadenopathy	6	13.63
Splenomegaly	3	6.81
Doughy abdomen	3	6.81
Constipation	2	4.54
Jaundice	2	4.54
Abdominal lump	1	2.27
Dysphagia	1	2.27

Two patients had chronic liver disease, ethanol related and one had diabetes mellitus, hypertension and history of CVA. Mantoux test was positive in 16 patients (36.36%). 33 (75%) patients had elevated ESR which normalised in all except 4 in whom ESR decreased but didn't normalise. Terminal ileal involvement was in 31 (70.45%). Terminal ileal ulcer and IC valve ulcer was present in 22.72%. Terminal ileitis was in 20.45%. Isolated terminal ileal ulcer was present in 11.36% and terminal ileal ulcer with IC valve ulcer was present in 11.36%. IC valve ulcer was present in 6.81%. Terminal ileal ulcer with patulous IC valve was present in 4.54%. Colonic mass with pseudo polyp was reported in 1 patient. Table 2.

Table 2. Colonoscopic findings

Colonoscopy	Frequency (n=44)	Percentage
Terminal ileal ulcer and IC valve ulcer	10	22.72
Terminal ileitis	9	20.45
Normal mucosal study	9	20.45
Terminal ileal ulcer	5	11.36
Terminal ileal ulcer and colonic ulcer	5	11.36
IC valve ulcer	3	6.81
Terminal ileal ulcer with patulous IC valve	2	4.54
Colonic Mass with pseudo polyps	1	2.27

Figure 1. IC valve with erosions and ulcer

Figure 2. Terminal ileum with ulcers and superficial exudates

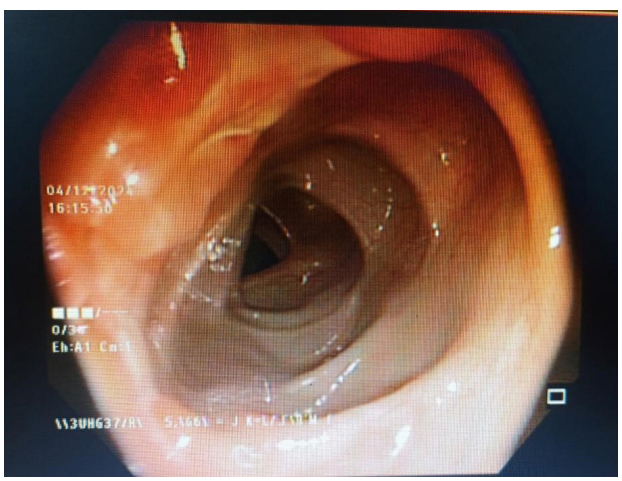

Figure 3. Colonic ulcer with superficial exudates

Colonoscopy was normal in nine patients. One patient underwent upper GI endoscopy for dysphagia in whom esophageal traction diverticula with surface ulceration was noted at mid esophagus and chest CT showed cavitary lesion. Granuloma with caseation necrosis was found in 5 patients (11.36%). Common finding was chronic inflammatory infiltrate in lamina propria. TB-PCR was positive in 3 patients (6.81%).

Radiological findings were intestinal wall thickening 19(43.18%), abdominal lymphadenopathy 8(18.18%), matted small bowel loops and thickened omentum was reported in two patients each.

Of 15 (34.09%) patients with ascites all have low SAAG ascites except two with lymphocytic predominance and ADA was diagnostic in 9 (20.45%). Intestinal tuberculosis (ITB) was seen in 25 (56.81%), ITB associated with abdominal lymphadenopathy 8 (18.18%), ITB with tubercular ascites in 3 (6.81%), ITB with tubercular ascites and abdominal lymphadenopathy in 2(4.54%). Isolated tubercular ascites was found in 9 (20.45%). Extraintestinal tuberculosis was diagnosed in one patient.

The histopathological examination of the biopsy taken during colonoscopy was sent for HPE. It showed Lymphoid, histiocyte and plasma cell infiltration in all patients. Caseating granuloma was noted in 11.36%, Cryptitis and crypt abscess was seen in 11.36% and non-caseating granuloma was seen in 9.09%. Table 3.

Table 3. Histopathological findings

Histology	Frequency (n=44)	Percentage
Lymphoid, histiocyte and plasma cell infiltration	44	100
Caseating granuloma	5	11.36
Cryptitis and crypt abscess	5	11.36
Non- caseating granuloma	4	9.09

Anti Tuberculosis Treatment (ATT) was started from DOTS in all except two patients with chronic liver disease in whom modified ATT was started. Cholestatic pattern of liver injury occurred in 2 patients. Rifampicin was thought of a culprit and all ATT with-holded. One after other starting from ethambutol, then isoniazid followed by pyrazinamide (for 2 months) and levofloxacin was added once bilirubin and ALP were normalised and was continued for 12 months. Three patients didn't improve with ATT but improved after addition of steroids and subsequent diagnosis of crohn's disease was made. 41 (93.18%) had clinical improvement. 8 out of 33 patients (24.24%) consented for follow-up colonoscopy at 2 months. Repeat ultrasound abdomen showed resolution of ascites in all patients with tubercular peritonitis.

Discussion

Abdominal tuberculosis has a variable and non-specific presentation. Anorexia, abdominal pain and weight loss are the most common symptom present in this study. Mukewar et al[8] reported similar predominant symptoms in more than 80% of patients. Tuberculosis is traditionally known as wasting and general wasting is seen in pulmonary tuberculosis with reported frequency of 45%.[9] 81% patients reported weight loss in present study. As described by Tandon RK et al[10] greater weight loss in intestinal tuberculosis not only reflects general wasting but the malabsorption of nutrients and decrease in intestinal transit time.

Majority of our patients had elevated ESR. ESR is an acute phase reactant that increases with inflammation and correlates with disease activity but is non-specific and is increased in number of other conditions including crohn's disease a mimicker of abdominal tuberculosis. However in appropriate clinical scenarios ESR can be a marker of tuberculosis.[11] Mantoux test provides the degree of hypersensitivity to tuberculin and skin induration of greater than 15 mm is likely the result of tuberculosis.[12] As in this study, transverse ulcers, terminal ileal nodularity and hypertrophic lesions are characteristic endoscopic features of intestinal tuberculosis with ileocaecal involvement.[13,14] Ileocecal region is the most

common site of gastrointestinal tuberculosis accounting for 64% of cases.[15] Granuloma detection rate varies in studies ranging from 10-80 percent.[16] 82 percent of patients had weight loss and patient with different immune statuses plays role in the development of granuloma.[17] Majority of patients were diagnosed with in 1-2 months of onset of symptoms and early intestinal tuberculosis may show diffuse lymphoid infiltration before granulomas fully form.[18] Weight loss with suspected declined immunity and early biopsy might have accounted for granuloma detection of 11% in this study. Abdominal tuberculosis was confirmed in 11% in this study. Response to ATT has been used to diagnose abdominal tuberculosis. HS Mandavdhare et al.[19] reported 21% patients with confirmed diagnosis of abdominal tuberculosis. Lakatos PL. in his study emphasizes the importance of treating the endemic and common disease of developing world despite the challenges of rising incidence of inflammatory bowel disease (CD).[20] Diagnosing abdominal tuberculosis in itself is a challenge when the confirmation of diagnosis is less and rests on response to treatment that has serious side effects. However, combination of clinical, endoscopic, histologic and radiologic features results in correct diagnosis in 80%.[21]

Conclusion

Abdominal tuberculosis is one of the common extrapulmonary tubercular infections. The common symptoms of abdominal TB were anorexia, abdominal pain, weight loss, abdominal distension, chronic diarrhea and fever. The diagnosis of GI tuberculosis is often delayed. HPE may not always be positive. Strong clinical suspicion, ADA value, imaging findings and histopathological findings must be considered for therapeutic trial of ATT in all the patients suspected of having abdominal TB in endemic countries like ours. Treatment of abdominal tuberculosis is no way different from that of other conventional Anti tubercular therapy.

Conflict of Interest: None.

Acknowledgement: None

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