



HEAD-TO-TOE SPECTRUM OF GASTROINTESTINAL AND HEPATIC TUBERCULOSIS: AN OBSERVATIONAL CASE SERIES FROM A TERTIARY CARE CENTER

Gastroenterology

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ABSTRACT

Background: Gastrointestinal and hepatic tuberculosis are uncommon forms of extra pulmonary TB, often mimicking malignancy or inflammatory bowel disease. Early recognition is vital in endemic regions. **Methods:** We conducted an observational case series of seven patients diagnosed with gastrointestinal or hepatic tuberculosis at our tertiary care center. Demographic, clinical, endoscopic, radio logical, and histopathological data were collected. **Results:** Seven cases were identified across diverse anatomical sites. Presentations included dysphagia due to tongue and post-cricoid tuberculosis, upper GI bleeding from duodenal ulcers, abdominal pain with transverse colon involvement, ileocecal and sigmoid disease presenting with pain and diarrhea, rectosigmoid tuberculosis manifesting with bleeding per rectum, rectal tuberculosis with hematochezia, and hepatic tuberculosis with fever and jaundice. Endoscopic biopsies and liver histology revealed granulomatous inflammation with necrosis in most cases, confirming tubercular etiology. All patients were initiated on anti-tubercular therapy. **Conclusion:** Tuberculosis can affect the gastrointestinal tract from oropharynx to rectum, as well as the liver. Awareness of its protean manifestations and maintaining high suspicion are essential to avoid misdiagnosis and unnecessary interventions in endemic settings.

KEYWORDS

Gastrointestinal Tuberculosis, Hepatic Tuberculosis, Case Series, Granulomatous Inflammation

INTRODUCTION

Tuberculosis (TB) remains one of the top ten causes of death globally and the leading cause from a single infectious agent, surpassing even HIV/AIDS according to the World Health Organization's Global TB Report 2023. India alone contributes nearly a quarter of the global burden, with an estimated 2.8 million new cases annually. Extrapulmonary TB (EPTB) accounts for 15–20% of all TB cases, with abdominal TB representing about 5%. The ileocecal junction is the most frequently affected site due to abundant lymphoid tissue, physiologic stasis, and relatively reduced digestive activity.

Gastrointestinal tuberculosis outside the ileocecal region is rare, with tongue, duodenal, and rectal involvement reported only sporadically in literature. Hepatic TB, though more common in disseminated disease, is infrequently seen as a primary manifestation. These unusual sites often mimic malignancies or inflammatory bowel disease, creating significant diagnostic challenges. Clinical suspicion, corroborated by imaging and histopathology, remains the cornerstone of diagnosis, though molecular tests like GeneXpert have improved diagnostic yield in recent years.

Our case series is distinctive because it documents a head-to-toe distribution of gastrointestinal and hepatic tuberculosis, ranging from the oral cavity to the liver, in a single tertiary care center. By presenting this spectrum, we aim to emphasize the need for clinicians to maintain vigilance even at uncommon anatomical sites, thereby preventing misdiagnosis and unnecessary interventions.

Tuberculosis (TB) continues to be a major global health problem, with India carrying one of the highest burdens worldwide. Extra pulmonary TB accounts for approximately 15–20% of cases, with abdominal TB representing about 5%. The ileocecal region is the most frequently affected site due to its abundant lymphoid tissue and physiologic stasis. However, TB can involve any part of the gastrointestinal tract, liver, and peritoneum. Involvement outside the ileocecal area is relatively rare and often poses a diagnostic dilemma. These atypical presentations may mimic malignancy, inflammatory bowel disease, or other granulomatous disorders, leading to delays in diagnosis.

Here, we present a head-to-toe spectrum of gastrointestinal and hepatic tuberculosis, highlighting diverse clinical manifestations, diagnostic approaches, and management strategies from our tertiary care center.

Case Series

Case 1: A 45-year-old male presented with progressive dysphagia and painful oral ulcer for one month. Endoscopy revealed a fungating growth at the tongue and post-cricoid region. Biopsy demonstrated epithelioid cells, giant cells, granulomas with necrosis, and sputum AFB was positive. Anti-tubercular therapy (ATT) was initiated.

Case 2: A 48-year-old female presented with epigastric pain and melena. Endoscopy showed multiple large duodenal ulcers (D2). Biopsy revealed granulomas with epithelioid cells rimmed by lymphocytes. She was started on ATT, with subsequent resolution of lesions.

Case 3: An 11-year-old female presented with abdominal pain and altered bowel habits. CT showed circumferential wall thickening in proximal ascending colon with mesenteric nodes. Colonoscopy revealed an ulcero-proliferative lesion in the transverse colon. Histopathology showed granulomatous inflammation with necrosis. ATT was initiated.

Case 4: A 14-year-old female with past TB contact presented with abdominal pain, loss of appetite, weight loss, loose stools, and evening rise of temperature. Colonoscopy demonstrated ulcero-proliferative lesions in the ileocecal region and sigmoid colon. Biopsies confirmed granulomatous inflammation. ATT was initiated.

Case 5: A 6-year-old male presented with bleeding per rectum. Colonoscopy revealed ulcerated rectosigmoid mucosa. Histopathology showed multiple non-necrotizing granulomas with giant cells and lymphoplasmacytic infiltrates. ATT was initiated.

Case 6: A 50-year-old female presented with hematochezia and weight loss. Colonoscopy demonstrated an ulcero-proliferative rectal lesion. Biopsy showed necrotizing and suppurative granulomas consistent with tuberculosis. ATT was initiated.

Case 7: A 42-year-old male presented with fever and jaundice for 3 months. CECT abdomen revealed granulomatous lesions in liver and spleen. Ascitic fluid was lymphocyte predominant. Liver biopsy showed confluent necrotising epithelioid granulomas in portal tracts and lobules, consistent with TB. ATT was initiated.

Table 1. Summary of Clinical Details of Seven Patients with Gastrointestinal and Hepatic Tuberculosis

Age/ Sex	Presenting Complaints	Site of Involvement	Investigations	Manage- ment
45M	Dysphagia, oral ulcer	Tongue + post-cricoid	Endoscopy + Biopsy (granulomatous, necrosis); AFB +	ATT
48F	Epigastric pain, melena	Duodenum (D2)	Endoscopy + Biopsy (granulomas, epithelioid cells)	ATT
11F	Abdominal pain, altered bowel habits	Transverse colon	CT + Colonoscopy + Biopsy (granulomatous necrosis)	ATT
14F	Pain, weight loss, diarrhea, fever	Ileocecal + sigmoid colon	USG + Colonoscopy + Biopsy (granulomatous)	ATT
6M	Bleeding per rectum	Rectosigmoid colon	Colonoscopy + Biopsy (non- necrotizing granulomas)	ATT
50F	Hematochezia, weight loss	Rectum	Colonoscopy + Biopsy (necrotizing, suppurative granulomas)	ATT
42M	Fever, jaundice	Liver	CECT + liver Biopsy (necrotizing granulomas)	ATT

DISCUSSION

The clinical spectrum of gastrointestinal tuberculosis is notoriously diverse. Our series underscores this diversity, with involvement of rare sites such as the tongue and duodenum, which together account for less than 1% of abdominal TB cases. Tongue TB is exceptionally rare, usually reported in patients with immunosuppression or poor oral hygiene. In our case, the patient had no major immunodeficiency, highlighting the importance of considering TB in any chronic non-healing oral lesion in endemic regions.

Duodenal TB is another uncommon entity, with fewer than 200 cases described worldwide. The clinical features often mimic peptic ulcer disease or malignancy. Endoscopy with biopsy remains the gold standard for diagnosis, though multiple biopsies may be needed given the patchy involvement of mucosa. In our patient, histopathology was diagnostic with epithelioid granulomas.

Colonic TB, while more common than duodenal or tongue TB, still poses challenges due to its resemblance to Crohn's disease and carcinoma. Our patients with transverse colon, ileocecal, sigmoid, and rectosigmoid involvement highlight this diagnostic dilemma. In fact, rectal TB is frequently mistaken for carcinoma due to its mass-forming nature, as was observed in our rectal case. Differentiating TB from Crohn's disease is particularly important in India, as both conditions are prevalent and treatment differs drastically.

Hepatic TB, seen in one of our cases, is often part of disseminated disease but can rarely present as isolated hepatic involvement. Radiologically, hepatic TB can mimic primary or metastatic liver tumors. Liver biopsy is therefore essential for confirmation. Our case underscores the importance of histopathology in distinguishing TB from other hepatic lesions.

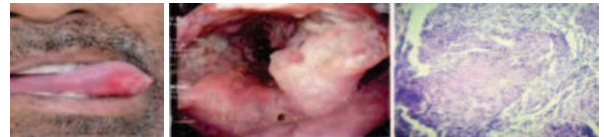
The discussion of differential diagnoses is also important. Crohn's disease, sarcoidosis, amoebiasis, and malignancies were all considered at some stage in our patients' evaluation. The presence of granulomas with caseous necrosis, supported by positive AFB or GeneXpert when available, helped confirm TB. However, it is important to recognize that not all granulomas are tubercular, and reliance on a combination of clinical, radiological, and pathological findings is key.

Treatment in all our patients was standard anti-tubercular therapy (ATT). Although we did not document long-term follow-up, prior studies have shown that most patients respond well to a 6–9-month regimen. Surgical intervention is reserved for complications such as obstruction, perforation, or massive bleeding. Our cases did not require surgery, underscoring the effectiveness of timely medical therapy.

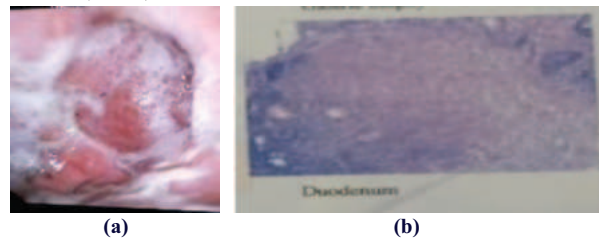
In conclusion, our series not only reinforces the protean manifestations of abdominal and hepatic TB but also demonstrates that high clinical suspicion, early use of endoscopy and imaging, and confirmatory histopathology remain the cornerstones of diagnosis. In resource-limited, high-prevalence settings, such vigilance can avert unnecessary morbidity and improve patient outcomes.

Gastrointestinal tuberculosis presents with protean manifestations, ranging from nonspecific abdominal pain to mass lesions indistinguishable from malignancy. In our series, patients presented with a spectrum of symptoms from dysphagia and bleeding per rectum to systemic features like fever and jaundice. The ileocecal region remains the most common site, but we highlight rare involvement such as the tongue, duodenum, rectum, and liver. Like previous reports (Kumar et al., 2019; Sharma & Bhatia, 2020), endoscopy and histopathology were crucial for diagnosis. Granulomatous inflammation with or without necrosis was the hallmark finding. Molecular techniques (e.g., GeneXpert, PCR) provide rapid confirmation but were not universally available in our cohort.

Differential diagnoses include Crohn's disease, sarcoidosis, and malignancies, particularly in colonic and rectal presentations. Our cases emphasize the need for a high index of suspicion in endemic regions to prevent unnecessary surgeries and ensure timely initiation of ATT. The hepatic case also underlines that disseminated TB should be suspected in patients with hepatic lesions and systemic symptoms.



(a) Endoscopic image showing fungating growth at tongue/post-cricoid region (Case 1).
(b) Histopathology showing epithelioid granulomas with necrosis (Case 1).



(a) Endoscopic image of multiple duodenal ulcers (Case 2).
(b) Histopathology showing granulomas with epithelioid cells (Case 2).



Figure 3a. Colonoscopy image showing ulcero-proliferative lesion in transverse colon (Case 3).

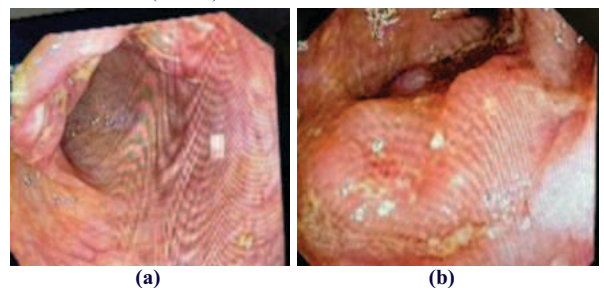


Figure 4a & 4b. Colonoscopy image showing ileocecal lesion (Case 4).

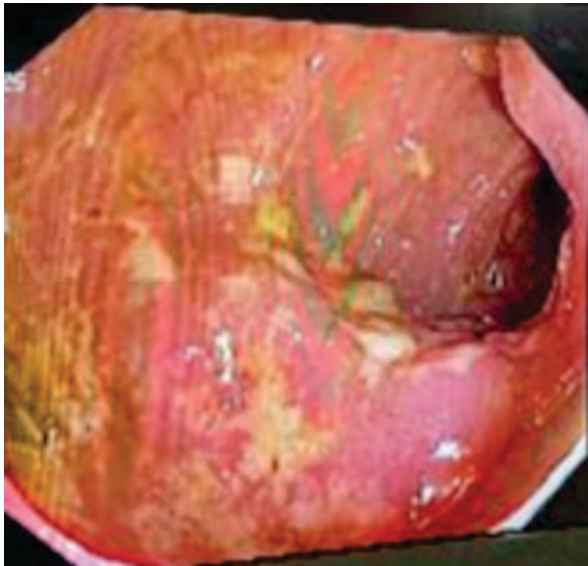


Figure 4c. Colonoscopy image showing sigmoid lesion (Case 4).

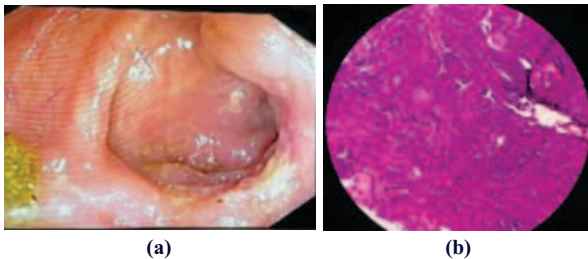


Figure 5a. Colonoscopy image of rectosigmoid mucosal ulceration (Case 5).

Figure 5b. Histopathology showing non-necrotizing granulomas with giant cells (Case 5).



Figure 6a. Colonoscopy image showing rectal ulcero-proliferative lesion (Case 6).

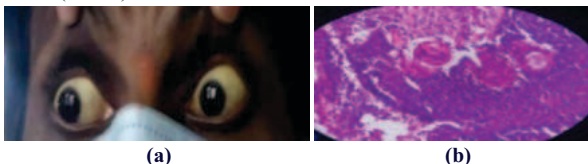


Figure 7a. Jaundice in patient with hepatic TB (Case 7).

Figure 7b. Liver biopsy photomicrograph showing necrotising epithelioid granulomas (Case 7).

CONCLUSION

Tuberculosis can involve any part of the gastrointestinal tract and liver. Unusual sites such as the tongue, duodenum, and rectum may mimic

other pathologies. In endemic countries, clinicians must maintain vigilance for atypical presentations. Endoscopy with biopsy remains the cornerstone of diagnosis, and prompt initiation of anti-tubercular therapy is critical to improving outcomes.

Ethics and Consent

Written informed consent for publication was obtained from all patients or their guardians. All identifying details have been anonymized to protect patient confidentiality. This case series was conducted in accordance with ethical principles.

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