TB or Not To Be: A Case of Atypical Gastrointestinal Tuberculosis Mimicking Crohn's Disease: A Case Report

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Background. Gastrointestinal tuberculosis (GI TB) is a rare form of extrapulmonary TB that often mimics Crohn's disease (CD) due to overlapping clinical, endoscopic, and histopathologic features. We present a case of GI TB that initially manifested as a perianal fistula, an atypical presentation for TB but commonly seen in CD. Familiarity with this presentation is essential to ensure timely diagnosis and appropriate management, particularly in TB endemic regions.

Case Summary. A 38-year-old Filipino man presented with a 4-year history of chronic perianal fistula and recurrent rectal pain, initially diagnosed as CD based on findings from three colonoscopies and biopsies showing non-caseating granulomas. MTB GeneXpert and mycobacterial cultures were consistently negative. He was treated with antibiotics, corticosteroids, and biologic therapy, but showed no clinical improvement. One month later, he returned with persistent symptoms and sudden onset jaundice, accompanied by marked elevation of liver enzymes. Imaging revealed hepatosplenomegaly, hepatic nodules, and lymphadenopathy. A fourth colonoscopy with biopsy demonstrated caseating granulomas and Langhans giant cells, confirming tuberculous ileitis. Anti-tuberculosis therapy was initiated, resulting in significant clinical and biochemical improvement, including normalization of liver enzymes and closure of the perianal fistulas.

Conclusion. This case highlights the diagnostic challenge of distinguishing GI TB from Crohn's disease in TB endemic regions. A high index of suspicion for TB must be maintained before initiating biologic therapy. Histopathologic confirmation and careful clinical correlation are essential for accurate diagnosis and appropriate treatment.

Keywords. Gastrointestinal tuberculosis, Crohn's disease, perianal fistula, caseating granuloma, case report

Introduction

Gastrointestinal tuberculosis (GI TB) accounts for only 1–3% of all tuberculosis cases and is often underrecognized as a cause of anal fistulas, especially in TB-endemic regions. Globally, TB is responsible for less than 5% of anal fistula cases, its prevalence rises significantly in countries such as India, Brazil, and Pakistan, where it may account for 15% to 60% of cases. [1] In the Philippines, there are no available data reporting perianal fistula as a presentation of tuberculosis, possibly due to under recognition or underreporting.

On the other hand, the majority of anal fistulas worldwide arise from cryptoglandular infections (70–90%), followed by Crohn's disease (10–30%). [2] The clinical overlap between TB and inflammatory bowel disease (IBD), particularly Crohn's disease, poses a significant diagnostic challenge. Misidentifying GI TB as IBD can lead to inappropriate treatment, including the use of immunosuppressive therapies such as biologics, which may exacerbate undiagnosed TB and result in severe, disseminated infections. Therefore, distinguishing between these entities is crucial for initiating the correct therapy and preventing complications.

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Case Presentation

A 38-year-old Filipino male with no prior history/exposure of tuberculosis initially presented with chronic perianal fistula and recurrent rectal pain, and later developed yellow discoloration of the eyes. The patient had no significant past medical, psychosocial, or genetic history relevant to the present condition. His family history was unremarkable, with no known cases of tuberculosis or other chronic infectious diseases. Four years prior, he noted a 1 × 1 cm non-tender, firm, perianal nodule at the anal verge and associated with intermittent purulent discharge. It remained unchanged over the years, with no systemic symptoms and no prior medical consultation or treatment.

Two years prior, he developed progressive perianal pain (6–7/10) during defecation and noted multiple perianal ulcers. Colonoscopy revealed terminal ileal ulcers and

hyperemia in the ascending colon, details shown in Figure 1. Histopathology showed non-caseating granulomas; MTB GeneXpert and cultures were negative. Chest radiograph was unremarkable. Diagnosed with Crohn's disease with perianal involvement, he was started on ciprofloxacin, prednisone (tapered), and azathioprine.

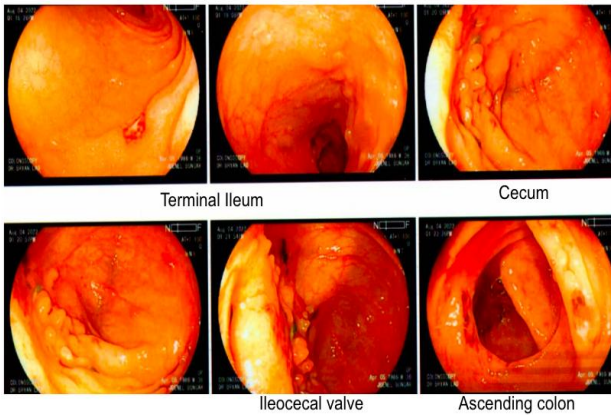


Figure 1. Colonoscopy results. The ileocecal valve is edematous and lax. In the cecum & ascending colon, there were mucosal protrusions that looks like polyps, termed as pseudo polyps

After four months, symptoms persisted. A repeat colonoscopy showed unchanged ileal ulcers, pseudopolyps, and worsening fistula-in-ano. Histopathology again revealed chronic colitis with non-caseating granulomas; MTB tests remained negative. Azathioprine was continued.

Eighteen months prior, he experienced persistent perianal pain, intermittent purulent discharge sometimes mixed with blood, and loose foul-smelling stools. A third colonoscopy showed similar findings; MTB tests remained negative. He was started on infliximab (5 mg/kg at weeks 0, 2, and 6), but showed no clinical improvement. An MRI (fistula protocol) revealed complex intersphincteric fistulas with branching tracts, mucosal defects in the low anal canal, left ischioanal fossa extension, and a small associated abscess. He was treated with ciprofloxacin 500 mg twice daily and metronidazole 500 mg three times daily for 7 days. After completion of antibiotics course, he suddenly developed yellowish discoloration of the eyes and skin.

On admission, physical examination revealed icteric sclerae, hepatosplenomegaly, and multiple purulent external fistulous openings in the perianal region. Laboratory results showed elevated liver enzymes and Hepatitis profile and HIV screening were unremarkable. Whole abdominal CT scan demonstrated hepatic nodules, intrahepatic biliary dilatation, and abdominal lymphadenopathy suggestive of hepatobiliary and abdominal TB. A fourth colonoscopy revealed with colitis with pseudo polyps in the cecum and ascending colon, along with proctitis, mixed hemorrhoids. Biopsy confirmed caseating granulomas with Langhans giant cells, consistent with tuberculous ileitis (Figure 2); however, MTB Xpert, cultures, and AFB staining remained negative.

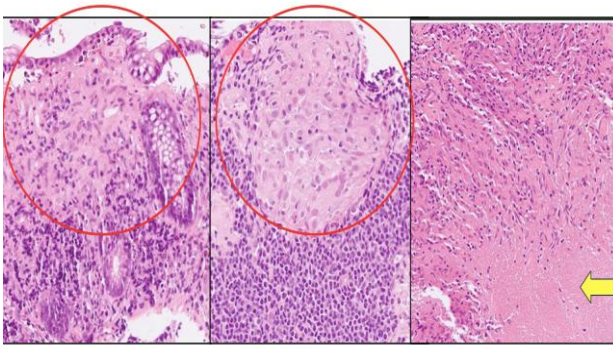


Figure 2. Histopathology- Ileum. Presence of granulomas (red circles) with pink amorphous material in some of the granulomas, which are evidence of caseation necrosis (yellow arrow).

Following confirmation of the diagnosis, the patient was initially started on a fixed-dose combination of Isoniazid (H) 75 mg, Rifampicin (R) 150 mg, and Ethambutol (E) 275 mg per tablet, given as three tablets once daily, with close monitoring of liver enzyme levels and bilirubin every 2–4 weeks, as summarized in Table 1. Pyrazinamide (Z) 400 mg per tablet was subsequently added after two weeks. The patient was adherent to and tolerated the anti-tuberculosis regimen well, with no untoward adverse events. Liver enzyme levels and bilirubin improved with supportive hepatoprotective therapy, including ursodeoxycholic acid (UDCA) 300 mg/tab once daily and intravenous glycyrrhizic acid. At follow-up (three months of anti-tuberculosis therapy), his perianal lesions showed significant clinical resolution, with minimal residual discharge and no new fistula formation (Figure 3). A repeat colonoscopy was scheduled after six months of 2HRZE/4HR therapy to assess mucosal healing and disease resolution.

From the patient's perspective, he expressed relief with the improvement of his symptoms and was satisfied with the overall treatment outcome. He appreciated the close monitoring of his liver function during therapy, which reassured him about medication safety. He reported that his perianal symptoms improved significantly within three months and was hopeful for a full recovery without recurrence.



Figure 3. Perianal Fistula at Diagnosis and After 12 Weeks of Anti-TB Regimen

Table 1. Baseline and Follow-Up Laboratory Monitoring in Patients Receiving Anti-Tuberculosis Therapy

Laboratory Test	Reference Value	Baseline	After 2 weeks on Anti-TB regimen with UDCA	After 12 weeks on Anti-TB regimen With UDCA
ALT (SGPT)	6-55 U/L	181 (3.54x)	34 (N)	48 (N)
AST (SGOT)	5-34 U/L	141 (4.14x)	66 (1.94x)	55 (1.64x)
Alkaline Phosphate	40-150 U/L	1190 (7.93x)	578 (3.85x)	524 (3.49x)
Total Bilirubin	0-21 umol/L	80.1 (3.85x)	74 (3.53x)	63 (3x)
Direct Bilirubin	3.4-12.0 umol	12.10 (1x)	3.84 (N)	5.3 (N)
Indirect Bilirubin	0-5.1 umol/L	68 (13x)	14.40 (2.82x)	7 (1.37x)

Discussion

Differentiating Crohn's disease (CD) from intestinal tuberculosis (ITB) remains a major diagnostic challenge in TB-endemic regions due to overlapping clinical, endoscopic, histologic, and radiologic features. [3] In a large retrospective study from South Korea, nearly 18% of Crohn's disease patients were initially misdiagnosed as intestinal TB, while 11% of ITB patients were first diagnosed as Crohn's disease. Although misdiagnosis of CD as ITB has declined over time, the reverse trend of misclassifying ITB as CD has increased, reflecting the growing challenge of differentiating these entities in endemic regions.[4] Both conditions can present with abdominal pain, weight loss, diarrhea, ileal ulcers, and perianal fistulae, but subtle differences in presentation and therapeutic response may provide important diagnostic clues [5].

Endoscopically, ITB typically presents with transverse ulcers and strictures, whereas CD is characterized by mucosal erythema, aphthous and serpiginous ulcers, skip lesions, and the classic cobblestone appearance. [6] In our case, the endoscopic findings were nonspecific, round, shallow ulcers, highlighting the limitations of relying solely on endoscopic appearance for diagnosis.

In spite of multiple biopsies and extensive testing, including AFB staining, GeneXpert, and cultures, all of which were negative, making the diagnosis unclear. Microbiologic meta-analyses report that GeneXpert has high specificity (91–100%) but variable sensitivity (81–95.7%). AFB staining and culture have lower sensitivities (55.3% and 69.2%, respectively) despite 100% specificity. This low sensitivity reflects the paucibacillary nature of intestinal TB lesions, where the bacillary load is often insufficient for smear or culture detection. PCR offers better accuracy (81.7% sensitivity, 97.3% specificity), but unfortunately, PCR testing of the tissue and aspiration of the abscess were not performed, due to limited availability of molecular diagnostics, precluding early diagnostic confirmation. [7,8] Additional serologic (ASCA/ANCA) and stool-based markers (fecal calprotectin) were not obtained. Although these can support IBD diagnosis, they lack specificity in differentiating Crohn's disease from intestinal tuberculosis and were unlikely to change management in this TB-endemic setting. [9,10]

Histologically, the progression from non-caseating granulomas to caseating necrosis with Langhans giant cells in the fourth biopsy likely reflects disease evolution under immunosuppressive therapy, particularly infliximab. Immunosuppression may have facilitated dissemination of latent tuberculosis, culminating in a more florid, necrotizing form. The patient's marked clinical improvement with anti-tuberculosis therapy confirmed disseminated TB involving the intestines and hepatobiliary system.

Conclusion

This case reinforces that tuberculosis can mimic inflammatory bowel disease and evade standard diagnostic tools. In TB-endemic areas, non-healing perianal fistulas should prompt suspicion for gastrointestinal TB even when classical results are absent. Longitudinal follow-up with repeated biopsies and a multidisciplinary approach ultimately clarified the diagnosis and prevented further mismanagement. Nonetheless, the lack of PCR testing and reliance on negative GeneXpert and culture delayed confirmation and resulted in unnecessary immunosuppression. As with all single-case reports, conclusions must be interpreted cautiously, yet the lessons remain highly instructive for clinicians in TB endemic regions.

Conflict of Interest

The authors declare no conflict of interest.

Patient Consent

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

References

1. Tobin EH, Khatri AM. Abdominal Tuberculosis. [Updated 2025 Feb 6]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan. Available from: https://www.ncbi.nlm.nih.gov/books/NBK556115/
2. Zhou Z, Ouboter LF, Peeters KCMJ, Hawinkels LJAC, Holman F, Pascutti MF, Barnhoorn MC, van der Meulen-de Jong AE. Crohn's Disease-Associated and Cryptoglandular Fistulas: Differences and Similarities. J Clin Med. 2023 Jan 6;12(2):466. doi: 10.3390/jcm12020466. PMID: 36675403; PMCID: PMC9860571.
3. Kedia S, Das P, Madhusudhan KS, Dattagupta S, Sharma R, Sahni P, Makharia G, Ahuja V. Differentiating Crohn's disease from intestinal tuberculosis. World J Gastroenterol. 2019 Jan 28;25(4):418-432. doi: 10.3748/wjg.v25.i4.418. PMID: 30700939; PMCID: PMC6350172.
4. Seo H, Lee S, So H, Kim D, Kim SO, Soh JS, Bae JH, Lee SH, Hwang SW, Park SH, Yang DH, Kim KJ, Byeon JS, Myung SJ, Yang SK, Ye BD. Temporal trends in the misdiagnosis rates between Crohn's disease and intestinal tuberculosis. World J Gastroenterol. 2017 Sep 14;23(34):6306-6314. doi: 10.3748/wjg.v23.i34.6306.PMID:28974897; PMCID: PMC5603497.
5. Choudhury A, Dhillon J, Sekar A, Gupta P, Singh H, Sharma V. Differentiating gastrointestinal tuberculosis and Crohn's disease- a comprehensive review. BMC Gastroenterol. 2023 Jul 19;23(1):246. doi: 10.1186/s12876-023-02887-0. PMID: 37468869; PMCID: PMC10354965.
6. Lee JM, Lee KM. Endoscopic Diagnosis and Differentiation of Inflammatory Bowel Disease. Clin Endosc. 2016 Jul;49(4):370-5. doi: 10.5946/ce.2016.090. Epub 2016 Jul 29. PMID: 27484813; PMCID: PMC4977735.
7. Maulahela, H., Simadibrata, M., Nelwan, E.J. et al. Recent advances in the diagnosis of intestinal tuberculosis. BMC Gastroenterol 22, 89 (2022). https://doi.org/10.1186/s12876-022-02171-7
8. Sharma V, Sarma D, Mishra N, et al. Differentiating gastrointestinal tuberculosis and Crohn's disease. BMC Gastroenterol. 2023;23:246.
9. Reghefaoui M, Peresuodei TS, Saavedra Palacios MS, Gill A, Orji C, Reghefaoui T, Mostafa J. The Role of Serological Markers in the Prediction of Disease Course and Response to Therapy in Inflammatory Bowel Disease. Cureus. 2023 Nov 7;15(11):e48442. doi: 10.7759/cureus.48442. PMID: 38073917; PMCID: PMC10702424.
10. Larsson G, Shenoy KT, Ramasubramanian R, Thayumanavan L, Balakumaran LK, Bjune GA, Moum BA. Faecal calprotectin levels differentiate intestinal from pulmonary tuberculosis: An observational study from Southern India. United European Gastroenterol J. 2014 Oct;2(5):397-405. doi: 10.1177/2050640614546947. Erratum in: United European Gastroenterol J. 2016 Dec;4(6):816. doi: 10.1177/2050640614561156. PMID: 25360318; PMCID: PMC4212497.