GMR
The Original

A RARE CASE OF CIRCUMFERENTIAL ANORECTAL TUBERCULOSIS PRESENTING AS A NON-HEALING ANORECTAL ULCER

Dr. Varsha S[1], Dr. Divyan Devasir[2], Dr. Giridhar Aravind[3*]

[1]General Surgery Resident, Department of General Surgery, Saveetha Medical College and Hospital, Chennai, India, ORCID ID: 0009-0009-5895-9576
[2]Associate Professor, Department of General Surgery, Saveetha Medical College and Hospital, Chennai, India,
Gmail- devasirdivyan@gmail.com,
[3]Assistant Professor, Department of General Surgery, Saveetha Medical College and Hospital, Chennai, India,
Gmail- giridhararavind@gmail.com, ORCID ID - 00 0900444721069,
Corresponding author: Dr. Varsha S, Department of General Surgery, Saveetha Medical College and Hospital, Chennai, Tamil Nadu, India. ORCID ID: 0009-0009-5895-9576

ABSTRACT

Background: Background: Anorectal tuberculosis is an exceedingly rare form of extrapulmonary tuberculosis (TB) that can mimic Crohn's disease, anal fissure, fistula-in-ano, or malignancy, making its diagnosis challenging. A high index of clinical suspicion, particularly in patients with a history of TB exposure, is essential for timely diagnosis and treatment.

Case Presentation: A 37-year-old woman with a positive TB contact history and a history of treated pulmonary tuberculosis three years earlier presented with a painful, non-healing anal ulcer of six months ' duration associated with bleeding per rectum. She had a known psychiatric illness(Bipolar disorder diagnosed 10 years ago) on irregular medication. Examination revealed a well-circumscribed, 4 cm non-healing ulcer extending deep to the anal canal. MRI of the pelvis demonstrated a trans-sphincteric blind-ending sinus tract without mesorectal or pelvic lymphadenopathy.Colonoscopy reported no significant changes in rest of bowel.

Results: Edge wedge biopsy revealed granulomatous inflammation with focal necrosis; Ziehl–Neelsen, PAS, and GMS stains were negative. Cartridge-based nucleic acid amplification testing (CBNAAT) detected Mycobacterium tuberculosis with a low probability of rifampicin resistance, confirming anorectal tuberculosis. The patient was started on a first-line, multidrug anti-tubercular therapy (ATT) regimen with adjunctive sitz-bath and supportive wound care.

Conclusion: Chronic, non-healing anorectal ulceration in a patient with TB exposure warrants systematic evaluation combining clinical, radiological, histopathological, and molecular diagnostics. The integration of biopsy and CBNAAT permits rapid, specific diagnosis with concurrent drug-resistance profiling, enabling early, appropriate ATT and improved outcomes in this rare presentation of extrapulmonary tuberculosis.

KEYWORDS: Anorectal tuberculosis; Perianal ulcer; Extrapulmonary tuberculosis; CBNAAT; Granulomatous inflammation; Anti-tubercular therapy

1.INTRODUCTION

Tuberculosis (TB) remains one of the leading infectious causes of morbidity and mortality worldwide, and extrapulmonary tuberculosis accounts for a substantial minority of the overall disease burden. Within this spectrum, tuberculosis of the anorectal region is a distinctly rare entity. It involves the anal canal, rectum, and surrounding perianal tissue, and its clinical presentation is frequently variable and nonspecific, encompassing anorectal pain, ulceration, chronic non-healing wounds, fistula formation, stricture, bleeding per rectum, and mucopurulent discharge. Because these features overlap extensively with far more common anorectal conditions – Crohn's disease, simple anal fissures, cryptoglandular fistula-in-ano, malignancy, and other granulomatous diseases – anorectal tuberculosis is easily misdiagnosed or diagnosed late. The pathogenesis is usually secondary: haematogenous dissemination from a primary pulmonary focus, ingestion of infected sputum, direct extension from an adjacent infected organ, or lymphatic spread. A prior or concurrent history of pulmonary tuberculosis, therefore, should heighten clinical suspicion whenever a patient presents with a persistent, non-healing anorectal ulcer.

We report a rare case of a middle-aged woman with a remote history of treated pulmonary tuberculosis who presented with a chronic circumferential anorectal ulcer, in whom the diagnosis was established through a combination of magnetic resonance imaging, histopathology, and cartridge-based nucleic acid amplification testing (CBNAAT). This report is presented to reinforce the importance of a multimodal diagnostic approach to chronic anorectal ulceration in tuberculosis-endemic settings, and it has been prepared in accordance with the CARE (CAse REport) guidelines for case report reporting.

1.1 Epidemiology and rarity

Anorectal tuberculosis occurs in fewer than 1% of all tuberculosis cases worldwide, reflecting its extreme rarity even in high-burden regions. Gastrointestinal tuberculosis itself constitutes under 1% of all tuberculosis manifestations, and anal or perianal involvement accounts for approximately 1% of gastrointestinal tuberculosis cases. Rectal tuberculosis, often grouped under the broader heading of anorectal TB, represents less than 2% of abdominal tuberculosis cases, while perianal tuberculosis alone is estimated to account for only about 0.001% of all extrapulmonary tuberculosis. This layered rarity – rare within a rare disease category – explains why anorectal tuberculosis is seldom the first differential diagnosis considered by clinicians, even in countries with a high overall tuberculosis prevalence.

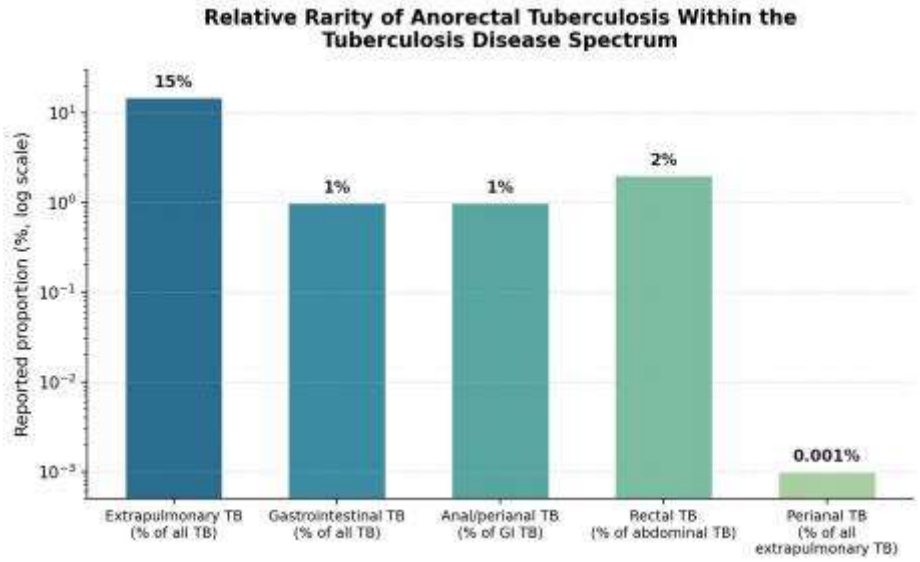

Figure 1. Relative rarity of anorectal tuberculosis within the overall tuberculosis disease spectrum, illustrating its progressively narrowing proportion from extrapulmonary TB down to isolated perianal TB (log scale).

2. Case Presentation

A 37-year-old woman presented with a six-month history of pain and ulceration in the perianal/anorectal region. She had a positive history of tuberculosis contact and had herself been treated for pulmonary tuberculosis three years previously. She was a known case of bipolar disorder/schizophrenia, on irregular psychiatric medication. The anal ulcer had an insidious onset and had gradually progressed to its current size over six months. It was associated with bleeding per rectum along with stools, though there was no history of black-coloured (melaenic) stools. She additionally reported deafness and tinnitus for the preceding one year, along with sleep disturbance, irritability, and ruminative preoccupation with stressors. There was no history of nausea, vomiting, loss of weight or appetite, abdominal distension, or burning micturition.

On local examination, a well-circumscribed, non-healing ulcer measuring approximately 4 cm was noted, extending deep to the anal canal, with undermined edges and minimal slough. No mural thickening or mesorectal/pelvic lymphadenopathy was noted on subsequent imaging (detailed below).

Figure 2. Clinical photograph obtained at initial presentation, corresponding to the anorectal region under evaluation.

3. Investigations

A comprehensive multimodal work-up was undertaken, integrating clinical examination, cross-sectional imaging, histopathology, and molecular microbiological testing, summarised in Table 1.

Investigation	Findings
Local examination	Well-circumscribed, non-healing ulcer, 4 cm in size, extending deep to the anal canal with undermined edges and minimal slough
MRI pelvis	T2-hyperintense transsphincteric, blind-ending sinus tract piercing the posterior intersphincteric space with an internal opening at the 6 o'clock position; no mural thickening or mesorectal/pelvic lymphadenopathy
Edge wedge biopsy – histopathology	Granulomatous inflammation with focal necrosis, consistent with a tuberculous aetiology
Ziehl–Neelsen stain	Negative for acid-fast bacilli
PAS and GMS stains	Negative for fungal elements
CBNAAT (Xpert MTB/RIF)	Mycobacterium tuberculosis detected; low probability of rifampicin resistance

Table 1. Summary of clinical, radiological, histopathological, and microbiologicalfindings.

Magnetic resonance imaging of the pelvis demonstrated a T2-hyperintense, transsphincteric, blind-ending sinus tract piercing the posterior intersphincteric space, with an internal opening at the 6 o'clock position. No mural thickening, mesorectal thickening, or pelvic lymphadenopathy was identified, arguing against a locally invasive malignant process.Colonoscopy done reported circumferential ulcer from anal verge to 2cm (max length) into rectum with no active bleed , rest ofthe large bowel appears normal till IC junction. An edge wedge biopsy of the rectal ulcer was performed. Ziehl–Neelsen staining for acid-fast bacilli was negative, as were periodic acid–Schiff (PAS) and Gomori methenamine silver (GMS) stains, effectively excluding a fungal aetiology. Histopathology, however, revealed granulomatous inflammation with focal necrosis – a pattern consistent with, though not pathognomonic for, tuberculous disease. CBNAAT (Xpert MTB/RIF) performed on the biopsy specimen detected Mycobacterium tuberculosis complex DNA with a low probability of rifampicin resistance, thereby establishing the microbiological diagnosis and simultaneously providing first-line drug-susceptibility information.

3.1 Differential diagnosis

Given the nonspecific nature of chronic anorectal ulceration, several differential diagnoses were considered before the tuberculous aetiology was confirmed, including Crohn's disease, simple anal fissure or fistula-in-ano, anorectal malignancy, and other granulomatous conditions such as sarcoidosis or actinomycosis. The combination of a strongly suggestive granulomatous histopathological pattern, negative fungal stains, absence of radiological features of malignancy, and a positive CBNAAT result allowed these differentials to be systematically excluded.

4. Treatment and Outcome

Following confirmation of anorectal tuberculosis, the patient was initiated on a standard first-line, multidrug anti-tubercular therapy (ATT-HRZE) regimen. Adjunctive local measures, including regular sitz baths and other supportive wound-care measures, were instituted to promote local hygiene and assist ulcer healing. Given her pre-existing psychiatric illness and irregular medication compliance historically, close multidisciplinary follow-up – involving surgery, psychiatry, and possibly otorhinolaryngology in view of her deafness and tinnitus – was planned to optimise adherence and monitor treatment response, including serial clinical assessment of ulcer healing and vigilance for drug-related adverse effects.

5. DISCUSSION

This case illustrates an unusual and diagnostically challenging presentation of anorectal tuberculosis and underscores the importance of integrating clinical, histopathological, and molecular diagnostic modalities. Isolated extrapulmonary tuberculosis without an obvious concurrent pulmonary focus, as seen here, has been described in a number ofpublished case reports, all emphasising similar diagnostic difficulty.[4]

Histologically, a granulomatous pattern with caseation or focal necrosis is characteristic of tuberculous disease, but a negative acid-fast bacilli smear – as occurred in this patient – is a common and well-recognised pitfall, since anorectal tuberculosis is frequently paucibacillary. In such paucibacillary or smear-negative cases, nucleic

acid amplification testing such as CBNAAT offers markedly higher sensitivity than conventional Ziehl–Neelsen microscopy and additionally provides rapid rifampicin-resistance profiling, which is critical for selecting an appropriate first-line versus second-line regimen. This diagnostic combination – edge biopsy for histopathology together with CBNAAT – therefore allows rapid, specific detection of Mycobacterium tuberculosis while simultaneously informing drug-resistance status, enabling timely initiation of appropriate anti-tubercular therapy. A comparison of the present case with previously reported cases of anorectal, anal, and perianal tuberculosis is presented in Table 2. Across these reports, presentations range from ulcerative lesions and fistulae to circumferential rectal masses and, occasionally, multidrug-resistant disease misdiagnosed initially as malignancy. This heterogeneity of presentation reinforces the need for a low threshold of suspicion in tuberculosis-endemic populations.

Study (year)	Age/Sex	Presentation	Diagnostic method	Treatment/Outcome
Ibn Majdoub Hassani et al. (2012)I	37/ M	Bilateral perianal tubercular ulcers with pulmonary and peritoneal involvement	Culture and histopathology (caseating granulomas)	Combined surgical drainage and 7-month ATT; complete resolution
Pandit et al. (2018)‘	6 / M	Circumferential rectal mass mimicking rectal prolapse	Colonoscopic biopsy – caseating granuloma, positive culture	9-month ATT; complete resolution of mass
Chaudhry et al. (2023)5	Adult / M	Anal fistula with granulomatous histopathology	Histopathology of anorectal tissue	Standard ATT; favourable response
Diallo et al. (2026)8	33 / F	Anal/perianal swelling initially misdiagnosed as lymphoma	Tuberculin skin test, GeneXpert MTB/RIF (stool) – MDR-TB	Second-line ATT; lesions improved, systemic complications developed
Present case (2026)	37 / F	Circumferential, non-healing anorectal ulcer with transsphincteric sinus tract	MRI, edge biopsy (granuloma with necrosis), CBNAAT – MTB detected, low RIF resistance	First-line ATT with supportive sitz-bath care; clinico-radiological follow-up planned

Table 2. Comparison of the present case with selected reported cases of anal, perianal, and anorectal tuberculosis.

An additional point of clinical relevance in this patient is her long-standing psychiatric comorbidity (bipolar disorder/schizophrenia) with irregular medication adherence, and her one-year history of deafness and tinnitus. Ototoxicity is a recognised adverse effect of injectable second-line anti-tubercular agents historically used in some retreatment regimens, and irregular treatment adherence is itself a well-documented risk factor for the development of drug resistance and disease recurrence. While a definitive causal link cannot be established retrospectively in this report, these factors highlight the importance of multidisciplinary care – combining surgical, infectious disease/pulmonology, psychiatric, and otorhinolaryngological input – when managing tuberculosis in patients with complex psychosocial backgrounds. From a surgical standpoint, the differential diagnosis of a circumferential or deep anorectal ulcer remains broad, and malignancy must always be excluded given the potential overlap in presentation. In this case, the absence of mural thickening or regional lymphadenopathy on MRI, together with a benign granulomatous histopathological pattern, argued strongly against malignancy, while the CBNAAT result was ultimately confirmatory of tuberculous disease. This case, therefore, adds to the small but growing body of literature supporting a structured, multimodal diagnostic algorithm – imaging, histopathology, and molecular testing in combination – for chronic, atypical anorectal ulceration, particularly in tuberculosis-endemic regions such as India.

6. CONCLUSION

Chronic anorectal ulceration in a patient with a history of tuberculosis exposure warrants thorough and systematic diagnostic evaluation. A combination of histopathology and CBNAAT can establish a rapid and accurate diagnosis, guide appropriate treatment decisions, and optimise patient outcomes in rare presentations of extrapulmonary tuberculosis such as this one. Clinicians managing non-healing anorectal ulcers, especially in tuberculosis-endemic populations, should maintain a high index of suspicion for this rare but treatable diagnosis.

Patient consent Written informed consent was obtained from the patient for the publication of this case report and any accompanying clinical images. A copy of the consent is available for review by the editor of the journal on request.

Conflicts of interest
The authors declare that they have no conflicts of interest relevant to this case report.

Author contributions
Varsha S: case data acquisition, literature review, and manuscript drafting. Divyan Devasir and Giridhar: clinical management, patient supervision, critical revision and final approval. All authors read and approved the final manuscript.

REFERENCES
1. Ibn Majdoub Hassani K, Ait Laalim S, Toughrai I, Mazaz K. Perianal tuberculosis: a case report and a review of the literature. Case Rep Infect Dis. 2012;2012:852763.
2. Tago S, Hirai Y, Ainoda Y, et al. Perianal tuberculosis: a case report and review of the literature. World J Clin Cases. 2015;3(9):848–852.
3. World Health Organization. Global Tuberculosis Report 2023. Geneva: World Health Organization; 2023.
4. Sharma MP, Bhatia V. Abdominal tuberculosis. Indian J Med Res. 2004;120(4):305–315.
5. Chaudhry MQ, Abid S, Kayani N. Case report: anal tuberculosis presenting as an anal fistula. Front Gastroenterol. 2023;2:1129715.
6. Pandit K, Khanal S, Bhatta S, Trotter AB. Anorectal tuberculosis as a chronic rectal mass mimicking rectal prolapse in a child – a case report. Ann Med Surg (Lond). 2018;36:264–266.
7. Puri AS, Vij JC, Chaudhary A, Kumar N, Sachdev A, Malhotra V, Malik VK, Broor SL. Diagnosis and outcome of isolated rectal tuberculosis. Dis Colon Rectum. 1996;39(10):1126–1129.
8. Diallo OH, Camara MH, Diallo BD, Bah TM, Camara ON, Camara A, Camara LM. Multidrug-resistant anal and perianal tuberculosis: a case report from the Pneumo-Phthisiology Department of Conakry University Hospital, Guinea. Case Rep Pulmonol. 2026;2026:3497569.
9. Takahashi AAR, Bassaneze T, Longo KS, Batista JG, Waisberg J. Primary extensive perianal cutaneous tuberculosis: a challenging diagnosis. Case report and a review of the literature. Braz J Infect Dis. 2023;27:102722.
10. Lip HTC, Huei TJ, Qin NZ. Perianal tuberculosis. J Gastrointest Surg. 2021;25(7):1920–1922.
11. Khan TA, Ali M, Saha KP, Nashir Uddin M, Lutful Kabir Khan M, Muhsenin N, Nahar N, Joarder S, Kuddus Ali Khan M. Tuberculosis in anal fistula: incidence, clinical insights, and diagnostic challenges. Int Surg J. 2025;12(5):717–722.
12. Parise-Fortes MR, Lastória JC, Marques SA, Putinatti MS, Stolf HO, Marques MEA, Haddad V. Lepromatous leprosy and perianal tuberculosis: a case report and literature review. J Venom Anim Toxins Incl Trop Dis. 2014;20:38.
13. Chalya PL, Mchembe MD, Mshana SE, Rambau PF, Jaka H, Mabula JB. Clinicopathological profile and surgical treatment of abdominal tuberculosis: a single-centre experience in northwestern Tanzania. BMC Infect Dis. 2013;13:270.
14. Takakazu Ribas Asato I, Souza Novaes Asato N, Amariz Yamamoto F, Ferreira Siqueira AC, Pereira da Silva AM. Intestinal tuberculosis with recurrent gluteal abscesses and perianal fistulas: a case report and literature review. Cureus. 2024;16(12):e76456.
15. Kc P, Bhattarai M, Adhikari S, et al. Intestinal tuberculosis can masquerade as Crohn's disease: a teachable moment. SAGE Open Med Case Rep. 2023;11:2050313X231184342.