



Case Report

Section: Obstetrics & Gynecology

Cervical Tuberculosis in a Young Reproductive age Female Mimicking Cervical Cancer: A Rare Differential Diagnosis

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HIGHLIGHTS

- Cervical tuberculosis rarely affects reproductive women
- It often mimics advanced cervical cancer
- Clinical symptoms create significant diagnostic confusion
- Histopathology confirms tuberculosis over malignant lesion
- Early therapy ensures favorable clinical outcomes

Key Words:

Cervical tuberculosis
Carcinoma mimic
Histopathology
Anti-Tubercular therapy
Reproductive age

ABSTRACT

Introduction: Tuberculosis (TB) is a global health challenge, with extrapulmonary cases comprising up to 40%. Genital tract TB significantly impacts reproductive-age women, yet cervical involvement is exceedingly rare, representing only 0.1–0.65% of TB cases. When present, it closely mimics cervical carcinoma both clinically and radiologically, leading to serious diagnostic dilemmas and potential mismanagement, often resulting in unnecessary radical surgical interventions if histopathological confirmation is not pursued. **Aim and Objectives:** This case report emphasizes cervical tuberculosis as a rare differential diagnosis in reproductive-age women with malignant-appearing cervical lesions. Its objectives are to describe the clinical and diagnostic features of cervical TB and to highlight the importance of histopathology in distinguishing it from carcinoma, ensuring accurate diagnosis and appropriate management. **Materials and Methods:** A young multiparous woman with persistent vaginal discharge and post-coital bleeding underwent pelvic examination, baseline investigations, and cervical biopsy. Histopathological analysis including Ziehl–Neelsen staining was performed. Standard anti-tubercular therapy (ATT) was initiated, and clinical follow-up at six months was undertaken to assess response. **Results:** Per speculum examination revealed an irregular friable cervical growth resembling carcinoma. Routine investigations and chest X-ray were normal, and HIV serology was negative. Histopathology showed epithelioid granulomas with caseous necrosis, and Ziehl–Neelsen stain confirmed acid-fast bacilli, establishing cervical TB. After six months of ATT, the lesion completely regressed, confirming an excellent therapeutic outcome. **Conclusion:** Cervical tuberculosis, though rare, must be considered in the differential diagnosis of carcinoma-like cervical lesions in young women. Histopathology remains crucial for accurate diagnosis, and timely ATT ensures curative outcomes while preventing unnecessary radical surgery.



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Tuberculosis remains a formidable global health challenge, particularly in regions where the disease burden is substantial. While the lungs are the most commonly affected organ, extrapulmonary tuberculosis comprises about 15–40% of all cases, with the urogenital system accounting for roughly one-third of these instances [1]. Among women of reproductive age—often defined as 20 to 40 years—genital tract tuberculosis is a major yet largely underrecognized cause of morbidity, particularly infertility. While the fallopian tubes, endometrium, and ovaries are frequently involved, involvement of the cervix is exceptionally rare, comprising only about 0.1–0.65% of all TB cases and 5–24% of genital TB cases [2].

The development of tuberculosis in the cervix generally follows dissemination from a primary focus—most commonly pulmonary—via lymphatic or hematogenous routes, or direct extension from adjacent pelvic organs [3]. In exceedingly rare situations, primary cervical infection has been reported, but these remain the exception. When this rare manifestation occurs in women of reproductive age, it presents a significant clinical conundrum due to its uncanny resemblance to cervical cancer [4]. Patients typically exhibit symptoms such as persistent vaginal discharge—often foul-smelling—irregular or postcoital bleeding, and occasionally subtle constitutional signs like weight loss, low-grade fever, or malaise. Yet, such systemic symptoms are frequently minimal or altogether absent, further obfuscating the clinical picture [5].

On examination, the cervix may display findings such as ulcerative, exophytic, friable, polypoid, or vegetative lesions—features that almost mirror carcinoma. Even advanced imaging modalities, including MRI and CT scanning, may reinforce the suspicion of malignancy, often prompting consideration of radical treatment [6]. Multiple case reports illustrate this deceptive mimicry: in one instance, a 35-year-old nulliparous woman presenting with infertility and postcoital bleeding was initially presumed to have cervical cancer based on colposcopic and radiologic impressions. Histological analysis, however, revealed caseating granulomatous inflammation consistent with tuberculosis, and complete lesion resolution was achieved after a few months of anti-tubercular therapy [2]. Another report described a 26-year-old woman with irregular bleeding and an irregular friable cervical growth; clinical diagnosis favored carcinoma, but biopsy confirmed TB and the patient recovered fully following treatment [7]. In yet another case, a postmenopausal patient with ulceroproliferative cervical growth was thought to have carcinoma, but biopsy confirmed TB, and the patient remained disease-free after six months of therapy [8].

These cases underscore the perilous nature of relying on clinical or radiologic impressions alone. The inherent lack of specific macroscopic markers means that cervical tuberculosis

often eludes initial suspicion and may be overlooked unless histological assessment is performed [9]. This is especially true in low-risk or younger patients, where cervical cancer is less prevalent, yet the alarming appearance of the lesion may still lead to aggressive surgical intervention if TB remains unconsidered [10].

Histopathology remains the diagnostic linchpin. Biopsy specimens often reveal granulomatous inflammation with epithelioid cell granulomas, Langhans-type giant cells, and caseous necrosis, although non-caseating granulomas have also been observed [11]. Ziehl–Neelsen staining for acid-fast bacilli may be negative in many cases due to low bacillary loads, and cultures can also remain negative in a significant proportion, highlighting the diagnostic limitations of microbiological methods. In such scenarios, adjunctive molecular techniques such as PCR—especially useful in paraffin-embedded tissue—can provide vital diagnostic confirmation and should be incorporated whenever available [12].

Beyond diagnosis, acknowledging cervical tuberculosis in a young reproductive-age patient carries profound clinical significance. Genital TB is a recognized contributor to infertility, menstrual irregularities, and chronic pelvic pain. Tubal blockages, intrauterine adhesions such as Asherman's syndrome, and endometrial fibrosis are common sequelae that may persist even after anti-tubercular therapy, thereby jeopardizing fertility prospects [13]. Accurate and prompt identification of cervical TB enables tailored treatment with anti-tubercular therapy—typically administered over six months—offering the potential for lesion resolution while preserving reproductive function and avoiding unnecessary radical surgery [14].

Although cervical tuberculosis is an exceptionally uncommon entity, it demands consideration when encountering suspicious cervical lesions—especially in young women within endemic regions or with reproductive health concerns [15]. The clinical, radiologic, and colposcopic features may convincingly masquerade as malignancy, but a definitive diagnosis hinges upon biopsy and histopathological confirmation, with molecular testing serving as a valuable adjunct in ambiguous cases. Early recognition and treatment not only avert unnecessary surgical procedures and associated morbidity but also safeguard fertility and optimize patient outcomes [16].

The aim of this case report is to emphasize cervical tuberculosis as a rare differential diagnosis in reproductive-age women presenting with cervical lesions that mimic carcinoma, highlighting the critical role of histopathology in preventing misdiagnosis and unnecessary radical interventions. The objectives are to describe the clinical and diagnostic features of such cases and to assess the significance of histopathological confirmation in distinguishing cervical tuberculosis from malignancy to ensure appropriate management.

MATERIALS AND METHODS

The present study was conducted on a young female presenting with cervical lesion suspicious of malignancy. Detailed clinical evaluation, pelvic examination, and baseline investigations were performed. Cervical biopsy was obtained and subjected to histopathological analysis, which demonstrated multiple epithelioid granulomas with caseation confirming tuberculosis. The patient was initiated on standard anti-tubercular therapy (ATT) and monitored through follow-up examinations. Response assessment was done clinically and by repeat cervical evaluation after six months of therapy, showing complete regression of lesion, thereby confirming the role of histopathology and ATT in diagnosis and management of cervical tuberculosis.

RESULTS

A young reproductive-age woman presented with persistent vaginal discharge, post-coital bleeding, and a friable irregular cervical lesion resembling malignancy on per speculum examination. Routine hematological and biochemical tests were normal, chest X-ray excluded pulmonary tuberculosis, and HIV serology was negative. Cervical biopsy revealed epithelioid granulomas with caseous necrosis, and Ziehl–Neelsen staining supported tuberculosis. Histopathology confirmed cervical tuberculosis, and first-line anti-tubercular therapy was initiated as per national guidelines. At six-month follow-up, complete regression of the cervical lesion was noted, indicating a favorable therapeutic response.

Table 1: Distribution of Patients According to Type of Anemia

Parameter	Findings
Age	28 years
Parity	P2L2
Symptoms	Vaginal Discharge, Post-Coital Bleeding
Clinical Examination	Irregular friable cervical growth
HIV Status	Negative
Chest X-ray	Normal

The clinical profile highlights a 28-year-old multiparous woman (P2L2) presenting with vaginal discharge and post-coital bleeding, with examination revealing an irregular friable cervical growth. Despite suspicion of malignancy, HIV negativity and a normal chest X-ray reduce systemic risk

factors, but the cervical findings warrant further diagnostic evaluation. Such a presentation underscores the importance of considering tuberculosis in the differential diagnosis of malignant-appearing cervical lesions in young women.



Figure 1: Per Speculum view Showing an Irregular Friable Cervical Growth with Surface Ulceration Mimicking Carcinoma

The cervical lesion exhibits an irregular ulcerated surface with contact bleeding, creating a strong suspicion of malignancy. Such malignant-like appearance emphasizes the diagnostic

challenge of cervical tuberculosis, which can closely mimic carcinoma clinically.



Figure 2: Cervical Lesion with Irregular Ulcerated Surface and Contact Bleeding, Initially Suspected to Be Malignant

The per speculum image shows an irregular friable cervical growth with surface ulceration closely resembling carcinoma.

Such presentation highlights the diagnostic challenge, as cervical tuberculosis can mimic malignant lesions clinically.

Table 2: Histopathological Findings

Feature	Observation
Granulomas	Multiple Epithelioid Granulomas
Necrosis	Caseous Necrosis Present
Acid-Fast Bacilli (ZN Stain)	Positive
Final Diagnosis	Cervical Tuberculosis

Histopathological examination revealed multiple epithelioid granulomas with caseous necrosis, a hallmark of tubercular pathology. The presence of acid-fast bacilli on Ziehl–Neelsen staining further confirmed *Mycobacterium tuberculosis*

infection. These findings strongly differentiate tuberculosis from malignancy or other granulomatous conditions. Thus, the final diagnosis of cervical tuberculosis was established, guiding appropriate anti-tubercular therapy.

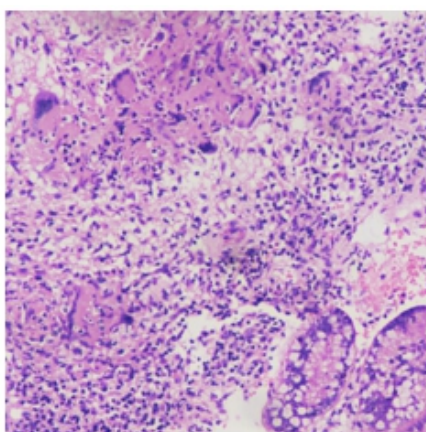


Figure 3: Histopathological Image Demonstrating Epithelioid Granulomas with Caseation Necrosis, Consistent with Cervical Tuberculosis

The histopathological image reveals epithelioid cell granulomas with central caseous necrosis, a characteristic hallmark of tuberculosis. Such findings distinguish tubercular pathology from neoplastic or other granulomatous

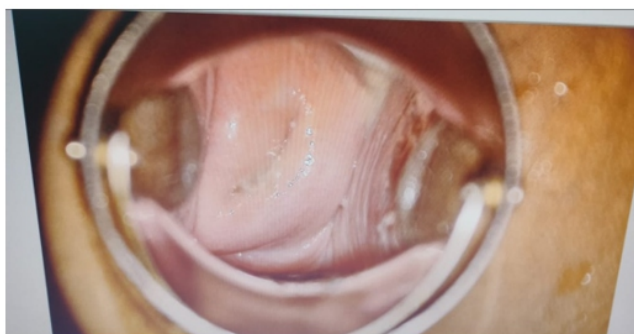
conditions. The presence of well-formed granulomas with necrosis strongly supports the diagnosis of cervical tuberculosis. This confirms the infectious etiology and validates the need for anti-tubercular therapy.

Table 3: Treatment Response

Timeline	Findings
Before ATT	Friable Growth Mimicking Carcinoma
After 6 months of ATT	Complete Regression of Cervical Lesion

The patient initially presented with a friable cervical growth mimicking carcinoma, raising strong suspicion of malignancy. However, after six months of standard anti-tubercular therapy, there was complete regression of the lesion. This favorable

response highlights the effectiveness of ATT in cervical tuberculosis and rules out malignancy as the cause. It reinforces the importance of histopathological confirmation to avoid unnecessary radical surgical interventions.

**Figure 4: Per Speculum View Showing Response After 6 Months of Antitubercular Therapy (ATT)**

This per speculum image demonstrates a favorable therapeutic response to antitubercular therapy, with resolution of active disease features and restoration of a more normal cervical mucosal surface.

DISCUSSION

Tuberculosis remains a global health challenge, with extrapulmonary forms accounting for up to 40% of cases and genital involvement contributing significantly to morbidity in reproductive-age women —(17). Cervical tuberculosis, though rare, often mimics carcinoma clinically and radiologically, leading to diagnostic dilemmas and potential overtreatment. Symptoms include persistent discharge, irregular bleeding, and friable cervical lesions resembling malignancy (18). Histopathology remains the diagnostic cornerstone, with granulomatous inflammation and caseous necrosis confirming diagnosis. Adjunctive PCR enhances detection in paucibacillary cases. Early recognition is essential to prevent unnecessary radical surgery, preserve fertility, and ensure favorable outcomes with standard anti-tubercular therapy(19).

Our findings highlight a 28-year-old multiparous woman (P2L2) presenting with persistent vaginal discharge and post-coital bleeding, where examination revealed an irregular friable cervical growth mimicking malignancy. Although systemic risk factors were reduced by HIV negativity and a normal chest X-ray, the cervical findings warranted further evaluation, emphasizing the importance of considering tuberculosis as a differential diagnosis in malignant-appearing cervical lesions among young women. Similar observations were reported by Abasiattai AM et al. (2022),

who described a nulliparous woman with persistent discharge and intermenstrual bleeding, in whom examination revealed a friable erythematous cervical lesion clinically indistinguishable from carcinoma. Biopsy confirmed tuberculosis, and initiation of anti-tubercular therapy led to complete resolution, underscoring that histopathology remains decisive in avoiding misdiagnosis and overtreatment. Likewise, Varma S et al. (2024) reported a young woman with a cervical mass that clinically and sonographically suggested malignancy, but further work-up established tuberculosis, and she showed marked improvement with anti-tubercular therapy. Their case reinforced how cervical TB can mimic carcinoma and highlighted the necessity of tissue confirmation before radical interventions(20, 21).

Our findings revealed that histopathological examination demonstrated multiple epithelioid granulomas with caseous necrosis, a hallmark feature of tuberculosis, and Ziehl–Neelsen staining confirmed the presence of acid-fast bacilli, establishing *Mycobacterium tuberculosis* infection. These features clearly differentiated tuberculosis from malignancy or other granulomatous diseases, allowing for the final diagnosis of cervical tuberculosis and appropriate initiation of anti-tubercular therapy. Similar observations were made by Solanki S et al. (2024), who reported a case where punch biopsy from a cancer-suspect cervical mass revealed multiple caseating granulomas, and Ziehl–Neelsen stain demonstrated acid-fast bacilli. The patient improved significantly on anti-tubercular therapy, highlighting the crucial role of combining histology and Ziehl–Neelsen stain in distinguishing cervical tuberculosis from carcinoma. Halder A et al. (2022) described a patient in whom the cervix was replaced by friable, bleeding tissue closely mimicking cervical cancer; biopsy

revealed caseous granulomas with Ziehl–Neelsen-positive tubercle bacilli, alongside a normal chest X-ray and HIV-negative status. The patient responded well to six months of anti-tubercular therapy, mirroring the diagnostic and therapeutic pathway in our case(5, 22).

Our finding shows that a friable cervical growth mimicking carcinoma regressed completely after six months of anti-tubercular therapy, confirming cervical tuberculosis and excluding malignancy. This favorable response underscores the effectiveness of ATT and highlights the need for histopathological confirmation to avoid unnecessary radical interventions. Chua AH & Lim TY (2018) reported a 36-year-old woman with infertility, post-coital bleeding, and a friable cervical mass where imaging suggested malignancy, yet biopsy revealed caseating granulomas with acid-fast bacilli. She responded dramatically to ATT, with complete resolution by three months and completed nine months of therapy. Similarly, Bhardwaj B et al. (2022) described a young patient with ulcerative cervical lesions masquerading as carcinoma; biopsy confirmed granulomatous cervicitis, and six months of ATT led to complete healing, reinforcing tuberculosis as a crucial differential diagnosis (2, 9). Solanki et al. (2024) emphasized the diagnostic dilemma posed by papillary, vegetative cervical growths mimicking cancer, where biopsy and Ziehl–Neelsen staining confirmed tuberculosis and medical management achieved favorable outcomes(5).

CONCLUSION

Cervical tuberculosis, though rare, should always be considered a differential diagnosis in reproductive-age women presenting with cervical growths mimicking carcinoma. Our case demonstrated that histopathological confirmation is crucial for accurate diagnosis, as clinical and radiological findings alone may be misleading. The complete regression of the lesion following six months of anti-tubercular therapy highlights both the curability of the condition and the importance of timely recognition. This emphasizes avoiding unnecessary radical interventions by ensuring tissue diagnosis. Ultimately, awareness of this entity can guide appropriate management and improve reproductive as well as overall patient outcomes.

REFERENCES

- Viegas de Carvalho L, Soares Nogueira F, Vale F, Nazaré P, Pereira E, Gaspar B, et al. Cervical Tuberculosis Mimicking Cervical Cancer in a Postmenopausal Woman: A Case Report. 2025;70(1):1.
- Chua AHK, Lim TYKJJoMC. Tuberculosis of the Cervix Mimicking Carcinoma. 2018;9(7):204-6.
- Moule MG, Cirillo JDJFic, microbiology i. Mycobacterium tuberculosis dissemination plays a critical role in pathogenesis. 2020;10:65.
- Lowy I. A woman's disease: the history of cervical cancer:
- Farah CS, Jessri M, John K, Lalla Y, Vu A, Kujan O. Clinical features and diagnosis. Oral and oropharyngeal cancer: CRC Press; 2018. p. 95-166.
- Agrawal S, Madan M, Leekha N, Raghunandan CJ. A rare case of cervical tuberculosis simulating carcinoma cervix: a case report. 2009;2(1):161.
- Singh S, Seth A, Basu IJJoR, Contraception, Obstetrics, Gynecology. A rare case of cervical tuberculosis mimicking carcinoma cervix. 2017;6(1):339.
- Bhardwaj B, Menon A, Singh RJJRCOG. Cervical tuberculosis: A diagnostic dilemma in young mimicking cervical cancer. 2022;11(4):1306-9.
- Pule ML. Potential prognostic factors for cervical cancer patients undergoing radiotherapy at Charlotte Maxeke Johannesburg Academic Hospital: a retrospective analysis: University of the Witwatersrand, Johannesburg (South Africa); 2014.
- Koç H, Kaya Mİ, Koca NJDMJ. From Diagnosis to Management: Navigating the Complex Terrain of Granulomatous Disease. 2024;4(2):35-53.
- Riello FN, Brígido RT, Araújo S, Moreira TA, Goulart LR, Goulart IMJBID. Diagnosis of mycobacterial infections based on acid-fast bacilli test and bacterial growth time and implications on treatment and disease outcome. 2016;16(1):142.
- Sikenis M, Prajapati B, Singh AK, Yadav K, Rahman A, Pandey MK, et al. Genital tuberculosis: A silent contributor to infertility and adverse pregnancy outcomes. 2024;5(17):1.
- Riccardi N, Occhineri S, Vanino E, Antonello RM, Pontarelli A, Saluzzo F, et al. How We Treat Drug-Susceptible Pulmonary Tuberculosis: A Practical Guide for Clinicians. 2023;12(12):1733.
- Geremew TT, Zewdie WJ, Seid NA, Gutema TJJoSCR. Incidental finding of isolated uterine cervix tuberculosis with successful management: A case report. 2025;126:110693.
- Singla A, Kumari R, Mehta S, Sanyal KJJoT. Tubercular cervicitis—A diagnostic dilemma: Report of five cases and literature review. 2025;72(1):89-93.
- Muneer A, Macrae B, Krishnamoorthy S, Zumla AJNRU. Urogenital tuberculosis—epidemiology, pathogenesis and clinical features. 2019;16(10):573-98.
- Amanati A, Jahromi MG, Jafarian H, Abdipour Mehrian SR, Sajedianfard S, Farokhmanesh S, et al. Aspergillus-related immune reconstitution inflammatory syndrome in pediatric cancer patients, clinical characteristics, imaging findings, and survival. 2024;24(1):1423.
- Mohanty S, Khanna MK, Adhikary K, Mukherjee T, Sahu A, Kahwa I, et al. Combating TB Pathology: Advanced Diagnostics, Innovative Therapies, and Public Health Strategies: A Review. 2025.
- Abasiattai AM, Edu EB, Utuk NM, Nwafor CC, Ekuma

- AEJNMJ. Tuberculosis of the cervix mimicking cervical carcinoma: a case report. 2022;63(4):336-9.
21. Varma S, Lakshmi M, Moorthy S, Bhaskar E, BHASKAR EJC. Disseminated Tuberculosis Masquerading as a Uterine Cervical Mass in an Immunocompetent Young Female: A Case Report. 2024;16(10).
22. Halder A, Tiwari P, Goel G, John JHJJJoO. Primary tuberculosis of cervix: a rare entity not to be missed. 2022;9(1):176-9.