



Coexistence of Ovarian Endometrioma, Leiomyoma, and Genital Tuberculosis Mimicking Malignancy: A Case Report

Kirana Paramitha Santosa¹. Anggar Jito²

¹ General Practitioner, Regional Public Hospital Bantargebang, Bekasi, West Java, Indonesia

² Departement of Pulmonology and Respiratory Medicine, Regional Public Hospital Chasbullah Abdulmadjid, Bekasi, West Java, Indonesia

Corresponding Author : paramithakirana17@gmail.com

Article History :

Received date : 2025/09/04
Revised date : 2025/10/12
Accepted date : 2025/12/23
Published date : 2026/01/21



Copyright: © 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (BY NC) license (<https://creativecommons.org/licenses/by-nc/4.0/>).

E-ISSN :

ISSN 3048-1368



P-ISSN

ISSN 3048-1376



ABSTRACT

Introduction: Genital tuberculosis (TB) can present with nonspecific symptoms and clinical findings that resemble gynecologic malignancy, particularly when accompanied by elevated tumor markers, large pelvic masses, and ascites.¹

Case Report: A 34-year-old female presented with progressive lower abdominal pain for five months, especially during menstruation. Additional symptoms included weight loss, abdominal distension, difficulty with defecation and urination. Abdominal MSCT demonstrated the presence of ascites and a large adnexal mass compressing the rectum, suggestive of malignancy. Laboratory testing showed an elevated CA-125 level of 372.70 U/mL. Initially, ovarian malignancy was the primary differential diagnosis. After thorough consideration, a bilateral oophorectomy and hysterectomy were performed, despite the patient not yet having borne children. Histopathological

examination of the surgical specimens revealed a leiomyoma, ovarian endometrioma, and chronic granulomatous inflammation consistent with TB infection was found in both ovaries and endometrium.

Discussion: This case underlines the importance of considering genital TB in the differential diagnosis of pelvic masses with elevated CA-125, especially in TB-endemic regions.² This is crucial because both diseases can coexist in the same individual. When malignancy is initially suspected, it is important to conduct a thorough investigation to rule out or confirm TB, as the treatment and management strategies differ significantly, potentially avoiding unnecessary aggressive intervention.³

Conclusion: This study emphasizes the importance of including GTB in the differential diagnosis of pelvic masses associated with elevated tumor markers, particularly in TB-endemic regions. This consideration is essential because benign pelvic masses and GTB may coexist in the same patient. Given the wide variability in clinical presentation and the limited accuracy of current diagnostic modalities, it may be misdiagnosed as a gynecologic malignancy which has a significantly different treatment strategies.

Keywords: leiomyoma, endometrioma, genital tuberculosis

INTRODUCTION

Tuberculosis (TB) remains a major global health burden. In 2023, the majority of TB cases occurred in the World Health Organization (WHO) regions of South-East Asia (45%), Africa (24%), and the Western Pacific (17%). The three countries with the highest TB burden are India, Indonesia, and China.¹ Prior to the COVID-19 pandemic, TB was the second leading cause of death from infectious diseases worldwide, following HIV/AIDS.²

Genital tuberculosis (GTB) represents one of the more common forms of extrapulmonary TB, accounting for approximately 40% of cases. However, isolated genital involvement is relatively rare, occurring in only 9%. GTB can mimic or coexist with various gynecologic and abdominal pathologies, including genital neoplasms, acute appendicitis, ovarian cysts, pelvic inflammatory disease (PID), and ectopic pregnancy.^{3,4} The diagnostic challenge is heightened when clinical findings strongly suggest malignancy, as therapeutic and management approaches differ significantly.⁵

In this report, we describe a patient initially suspected of having ovarian malignancy based on clinical manifestations, elevated CA-125 levels, and imaging findings. The initial assessment did not indicate GTB. Subsequent evaluations, however, established the final diagnoses of ovarian endometrioma, leiomyoma, and GTB. This case highlights the diagnostic challenges in differentiating and recognizing the coexistence of benign pelvic masses with TB.

CASE PRESENTATION

A 34-year-old woman presented with lower abdominal pain for five months prior to admission, predominantly occurring during menstruation. The pain was progressive, reaching a visual analog scale (VAS) score of 9, and severely limited her daily activities. She also reported progressive abdominal distension with associated dyspnea, increased urinary frequency, and recurrent constipation. In addition, she experienced an unexplained weight loss of 25 kg. Her menstrual cycles were regular (28-day cycle), with no complaints of vaginal discharge, abnormal

bleeding, or dyspareunia. She had been married for four years, was not using contraception, but had not conceived. There was no history of fever, cough, night sweats, or other systemic symptoms suggestive of TB. The patient had received BCG vaccination in childhood and denied close contact with individuals diagnosed with TB.

On initial examination, the patient appeared underweight (BMI 17). Chest examination was unremarkable. Abdominal palpation revealed fluid fluctuation and a firm, immobile, tender mass in the suprapubic region. Laboratory findings showed an elevated erythrocyte sedimentation rate (ESR, 44 mm/hr), while complete blood count, renal, and liver function tests were within normal limits. Serologic tests for HBsAg and anti-HIV were nonreactive, and a pregnancy test was negative. Carcinoembryonic antigen (CEA) levels were normal, but cancer antigen-125 (CA-125) was elevated (372.70 U/mL).

Chest radiography showed no abnormalities (Fig. 1). Abdominal ultrasonography revealed a heterogeneous adnexal mass with both solid and cystic components, minimal vascularity, and associated ascites, suggestive of a borderline neoplasm. Abdominal computed tomography (CT) demonstrated a well-defined heterogeneous mass with lobulated margins in the right adnexal region, measuring approximately $12.8 \times 11.6 \times 14.4$ cm. The lesion compressed the rectum without evidence of invasion into adjacent organs. A differential diagnosis of an ovarian mass with suspicion of malignancy and massive ascites was considered.



Figure. 1 Normal CXR

Given the clinical, laboratory, and imaging findings suggestive of malignancy, the patient underwent exploratory laparotomy, total hysterectomy, and bilateral oophorectomy. The resected specimens, including both ovaries and the uterus, were submitted for histopathological analysis. Grossly, the external surfaces of the ovaries and uterus were unremarkable. Sectioning of the uterus revealed a solid brownish mass measuring 13×10.8 cm. Multiple cystic lesions were identified in the ovaries, releasing granular, cheese-like material on sectioning, while other areas appeared gray-whitish, brown, and jelly-like in consistency.

Histopathological examination confirmed leiomyoma of the uterus (Fig. 2), ovarian endometriomas (Fig. 3), and extensive caseous necrosis surrounded by epithelioid histiocytes, Langhans giant cells, and lymphocytic infiltration, consistent with tuberculosis involving both ovaries and the endometrium (Fig. 4). Postoperatively, the patient was initiated with first-line anti-TB treatment, consist of isoniazid, rifampicin, pyrazinamide, and ethambutol. After two months of treatment, her general condition improved, abdominal pain gradually subsided, and body weight increased. She continues to receive a nine-month anti-TB regimen with close outpatient follow-up.

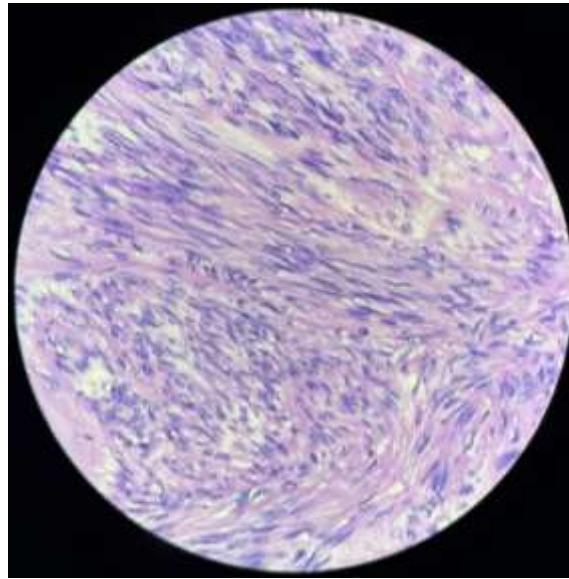


Fig. 2 Uterine Leiomyoma (spindle-shaped smooth muscle cells)

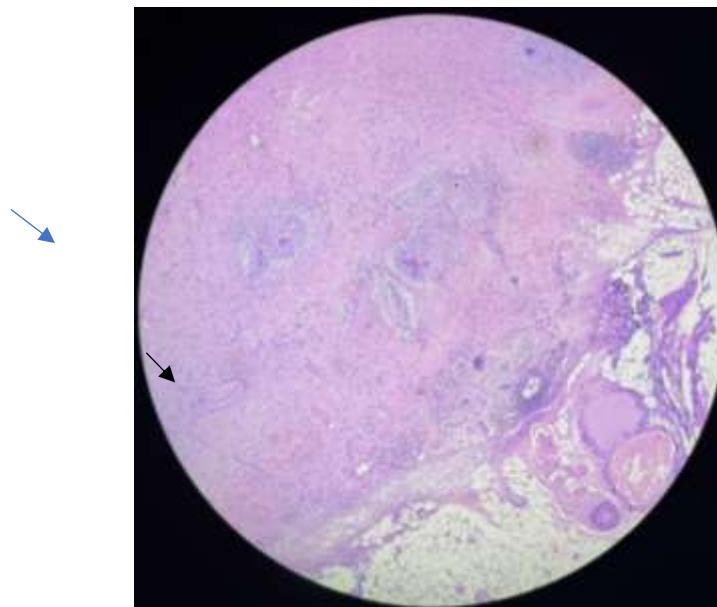


Fig. 3 Endometrioma (black arrow) and Tuberculoma (blue arrow)

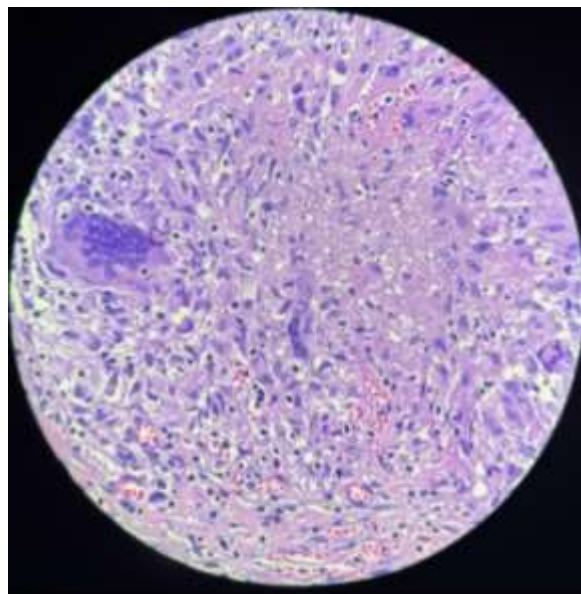


Fig. 4 Caseous granuloma, epithelioid cells, Langhans giant cell

DISCUSSION

The diagnosis of extrapulmonary tuberculosis (EPTB) remains a significant global challenge for clinicians due to its nonspecific clinical presentation and the frequent absence of a history of tuberculosis exposure. The manifestations of EPTB vary widely depending on the affected anatomical site, and no clinical or radiological feature is pathognomonic for a definitive diagnosis.^{6,7} Among extrapulmonary forms, genitourinary TB represents the second most common site of involvement. Nevertheless, isolated ovarian TB without evidence of other organ involvement, as observed in the present case, is rarely reported in the literature. This condition typically occurs in young women aged 20–30 years residing in endemic regions.⁸

In genital tuberculosis (GTB), the fallopian tubes are the most frequently affected organs, involved in approximately 95%–100% of cases, followed by the endometrium (50%–60%), ovaries (20%–30%), cervix (5%–15%), and, less commonly, the vulva and vagina (around 1%).⁹ Ovarian TB may present in two distinct forms: perioophoritis, characterized by the encasement of the ovary within dense adhesions and the presence of tubercles resulting from direct spread from the fallopian

tube; and oophoritis, in which the infection disseminates hematogenously, leading to the formation of caseating granulomas within the ovarian parenchyma as observed in this case.¹⁰ GTB most commonly arises secondary to a primary focus in the lungs, lymph nodes, bones, or intestines, spreading through hematogenous or lymphatic routes. However, the primary pulmonary lesion often heals completely without leaving any clinical or radiological evidence, as observed in our patient, thereby complicating the distinction GTB in the presence of pelvic mass.¹¹

Risk factors for GTB include contact with a smear-positive pulmonary TB patient, a previous history of TB infection, residence in or recent travel to endemic regions, low socioeconomic status, HIV infection, and substance abuse.¹² Patients may present with a wide range of symptoms, including pelvic pain, infertility, fever, weight loss, general malaise, abnormal uterine bleeding, ascites, and a pelvic mass.⁷ In the present case, GTB was considered an unlikely preoperative diagnosis due to the absence of any personal history of TB or known contact with affected individuals, as well as the lack of constitutional symptoms. Additionally, the patient's regular menstrual pattern further reduced the suspicion of GTB.

Elevated serum CA-125 levels, leukocytosis, and anemia may also be observed in patients with GTB. Although the coexistence of a pelvic mass, ascites, elevated CA-125 levels, and peritoneal seeding typically raises strong suspicion for pelvic malignancy, TB should always remain a differential consideration.¹³ CA-125, which is elevated in more than 80% of ovarian cancer cases, may also increase in various chronic inflammatory and benign conditions, including TB, pelvic inflammatory disease (PID), pregnancy, uterine fibroids, endometriosis, pancreatitis, hepatitis, ascites, and postoperative states.^{5,6} Owing to the potentially fatal nature of malignancy, most women presenting with such findings are often presumed to have advanced-stage ovarian cancer; thus, obtaining tissue samples for histopathological evaluation is essential for definitive diagnosis. Distinguishing GTB from malignancy preoperatively, however, remains particularly challenging.¹⁴

Preoperative investigations that may assist in diagnosing GTB include a positive Mantoux (tuberculin) test, and staining or culture for acid-fast bacilli in ascitic fluid. However, these tests frequently yield negative results even in the presence of extensive disease.^{8,7} Although we could not show an acid-fast bacilli by Ziehl–Neelsen stain from the specimens obtained at laparotomy in this

case, histological findings confirmed TB along with leiomyoma and endometrioma. Because GTB is a paucibacillary form of the disease, smears and cultures are commonly negative. Polymerase chain reaction (PCR) testing is a rapid and sensitive molecular method for detecting *Mycobacterium tuberculosis* DNA in extrapulmonary specimens, however, it was not performed in this case as it is not routinely available in our institution.⁹ The WHO has prohibited the use of serological tests for individuals suspected of having any form of active TB, regardless of HIV status. A retrospective study by Goel *et al.* concluded that none of the currently available diagnostic tests possess sufficient sensitivity to identify all cases of genital tuberculosis.¹²

Performing a preoperative chest X-ray (CXR) may be beneficial and is strongly recommended. However, in the present case, no abnormalities were detected. Similarly, in a study conducted by Hasanzadeh *et al.*, none of their GTB patients demonstrated abnormal chest radiographic findings.⁷ The absence of detectable abnormalities in the chest radiographs—reported in up to 92% of cases—can be attributed to the effective healing capacity of immunocompetent individuals.¹¹ Imaging modalities are generally nonspecific, as ovarian malignancies, degenerating leiomyomas, and tuberculous abscesses can exhibit overlapping features on ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI). These conditions may present as heterogeneous pelvic masses with possible infiltration into the omentum and adjacent organs. Ascites and lymphadenopathy are also commonly observed, further obscures the distinction among these pathologies.^{8,15}

Although laparoscopy is considered a reliable and safe method for obtaining tissue samples for histopathological evaluation, laparotomy is frequently performed in cases where ovarian malignancy is suspected. Given that the standard management of ovarian cancer typically involves radical surgical dissection, and preoperative diagnosis of GTB being difficult, performing a laparotomy can be considered justifiable.¹⁴ Moreover, laparotomy is often preferred to prevent potential tumor seeding along laparoscopic port tracts. However, even during open surgery, differentiating between GTB and malignancy may be difficult, as the macroscopic appearance of pelvic TB can closely resemble peritoneal carcinomatosis.⁸ A definitive diagnosis is therefore established through histopathological examination (HPE) of specimens obtained via biopsy or

frozen section.⁷ The identification of typical caseous granulomas with giant epithelioid cells is suggestive of TB. To improve diagnostic accuracy, specimens should be collected from multiple sites, since *Mycobacterium tuberculosis* organisms are typically scarce in genital TB, the sampled area may not always represent the infected site, and cyclical endometrial shedding may result in incomplete granuloma formation.¹² Leiomyomas are characterized histologically by interlacing bundles of spindle-shaped smooth muscle cells, whereas endometriosis demonstrates the presence of endometrial glands and stroma outside the uterine cavity. In contrast, malignant tumors such as ovarian carcinoma exhibit atypical cellular morphology with marked pleomorphism, hyperchromatic nuclei, and variations in cell size and shape. The poorer the degree of differentiation, the more advanced the disease stage.¹⁶ In this case, the patient's vague clinical signs and the combination of imaging findings of adnexal mass, ascites, and elevated CA-125, led us to suspect advanced ovarian carcinoma, but histological findings allowed us to diagnose Ovarian Endometrioma, Leiomyoma, and GTB correctly.

The treatment of GTB is primarily medical. According to WHO guidelines, GTB should be managed using the standard anti-TB regimen of 2RHZE/4RH (two months of rifampicin, isoniazid, pyrazinamide, and ethambutol, followed by four months of rifampicin and isoniazid). Although the disease typically responds well to this standard regimen, the optimal duration of therapy remains a matter of debate, with some clinicians extending treatment to 9–12 months despite the lack of definitive scientific evidence.¹⁷ In the absence of specific guidelines, it is reasonable to adopt a monitoring strategy similar to that used for pulmonary TB, including interval assessment of clinical and radiological progress at two and six months. Treatment failure should be defined by clinical deterioration or worsening imaging findings, prompting repeat sampling for microbiological reassessment to evaluate for possible drug resistance or concomitant superinfection.¹⁸ If a patient fails to respond to medical therapy, total abdominal hysterectomy with bilateral salpingo-oophorectomy may be indicated.¹³

Leiomyoma and endometrioma are benign gynecological conditions that can significantly impact a woman's reproductive health. Patients affected by either or both conditions often experience reduced quality of life due to variable complaints, including menorrhagia,

dysmenorrhea, dyspareunia, infertility, anemia, urinary incontinence, constipation, back pain, lower abdominal and pelvic pain.¹⁹ In a literature review conducted by Hadi *et al.* on leiomyomas mimicking ovarian tumors, all patients underwent surgical intervention for suspected ovarian malignancy—12 underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy, while 11 underwent tumor excision only.¹⁵ In contrast, advanced ovarian carcinoma typically requires cytoreductive (debulking) surgery, followed or preceded by chemotherapy, and is generally associated with a poor prognosis. Therefore, accurate differentiation between these conditions is crucial for ensuring appropriate management.¹⁷

The findings from this case highlight the importance of considering GTB in the differential diagnosis of pelvic masses among young women, particularly those residing in endemic regions. When the diagnosis remains uncertain or conflicting, timely surgical intervention is warranted, as GTB may coexist with other gynecologic pathologies or be misinterpreted as a malignancy. Early and appropriate surgical management, in conjunction with adequate antitubercular therapy, can substantially improve clinical outcomes and achieve complete disease resolution.

CONCLUSION

This study emphasizes the importance of including GTB in the differential diagnosis of pelvic masses associated with elevated tumor markers, particularly in TB-endemic regions. This consideration is essential because benign pelvic masses and GTB may coexist in the same patient. Given the wide variability in clinical presentation and the limited accuracy of current diagnostic modalities, it may be misdiagnosed as a gynecologic malignancy which has a significantly different treatment strategies. Therefore, standardized diagnostic approaches are crucial to facilitate early detection, enable timely treatment, and prevent severe long-term complications.

REFERENCES

1. World Health Organization. 2024 *Global tuberculosis report*. 2024. ISBN 9789240101531. Available from: <https://www.who.int/teams/global-programme-on-tuberculosis-and-lung-health/tb-reports/global-tuberculosis-report-2024> (Last accessed on 7 Oct 2025).
2. Chekol TD, Engedaw HA, Asres EM, Yismaw TA, Bezie GA, Fentaye SM *et al*. Female genital tuberculosis mimicking advanced ovarian cancer – a diagnostic dilemma in resource limiting setup: case report and literature review. *Annals of Medicine & Surgery* 2025; **87**: 3032–3036.
3. Autade A, Kulkarni T, Resident J. A RARE CASE OF TUBERCULAR ENDOMETRITIS PRESENTING AS A LEIOMYOMA-A CASE REPORT. doi:10.36106/ijrsr.
4. Yang S, Yang Z, Zhang S, Len T, Yang L. Coexistence of genital tuberculosis and ovarian serous cystadenofibroma in a young female patient: a case report. *Journal of International Medical Research* 2020; **48**. doi:10.1177/0300060520949410.
5. Jellal C, Kabila B, Mesbah O, Beqqali B, Badri B, Reguig N *et al*. Pelvic-peritoneal pseudotumoral tuberculosis with elevated CA 125 mimicking ovarian cancer: A case report. *Radiol Case Rep* 2025; **20**: 182–186.
6. Rinaldi I, Muthalib A, Gosal D, Wijayadi T, Sutedja B, Setiawan T *et al*. Abdominal Tuberculosis Mimicking Ovarian Cancer: A Case Report and Review of the Literature. *Int Med Case Rep J* 2022; **15**: 169–185.
7. Hasanzadeh M, Naderi HR, Hoseine Hoshyar A, Shabane S, Shahidsales S. Female genital tract tuberculosis presenting as ovarian cancer. 2014.
8. Rabesalama SSEN, Mandeville KL, Raherison RA, Rakoto-Ratsimba HN. 7 ISOLATED OVARIAN TUBERCULOSIS MIMICKING OVARIAN CARCINOMA: CASE REPORT AND LITERATURE REVIEW. 2011.
9. Gupta A, Gupta S, Manaktala U, Khurana N. Coexisting genital malignancies with tuberculosis: A case series with review of literature. *J Midlife Health*. 2016; **7**: 159–162.

10. Bhardwa S, Goyal S, Kumar Yadav A, Batra A, Goyal A. Concomitant struma ovarii with serous cystadenoma in a background of tuberculosis: A rare and interesting presentation. *Clin Case Rep Rev* 2017; **3**. doi:10.15761/ccrr.1000357.
11. Lobo FD, Wong MY. Coexistence of benign ovarian serous cystadenoma and tuberculosis in a young woman. *Singapore Med J* 2013; **54**. doi:10.11622/smedj.2013118.
12. Angeline Grace G, Bella Devaleenal D, Natrajan M. Genital tuberculosis in females. *Indian Journal of Medical Research*. 2017; **145**: 425–436.
13. Shirazi M, Shahbazi F, Pirzadeh L, Rahim Mohammadi S, Ghaffari P, Eftekhari T. Tuberculosis Endometritis Presenting as A Leiomyoma. .
14. Martingano D, Cagle-Colon K, Chiaffarano J, Marcus A, Contreras D. Pelvic Tuberculosis Diagnosed during Operative Laparoscopy for Suspected Ovarian Cancer. *Case Rep Obstet Gynecol* 2018; **2018**: 1–4.
15. Erfani H, Chiang S, Dickinson S, Chi DS, Kim SH. When it's not ovarian cancer: A case of a massive leiomyoma with hydropic change. *Gynecol Oncol Rep* 2024; **53**. doi:10.1016/j.gore.2024.101415.
16. Tumas JB, Chan J. Educational Case: Ovarian neoplasms: A series of educational cases to review malignancies of epithelial, stromal, and germ cell origin. *Acad Pathol* 2023; **10**. doi:10.1016/j.acpath.2023.100080.
17. Boukhris S, Rahmouni E, Romdhane R Ben, Mansouri H, Hssine S Ben, Mahjoub N *et al*. Ovarian carcinoma and peritoneal tuberculosis: A rare coexistence with challenging diagnosis, a case report and literature review. *Women's Health* 2025; **21**. doi:10.1177/17455057251342358.
18. Tzelios C, Neuhausser WM, Ryley D, Vo N, Hurtado RM, Nathavitharana RR. Female Genital Tuberculosis. *Open Forum Infect Dis* 2022; **9**. doi:10.1093/ofid/ofac543.
19. Fatima A, Yazdani T, Zafar B, Shafqat H. Co-Existence of Uterine Myomas and Endometriosis in Women Undergoing Myomectomy/Hysterectomy. *Pakistan Armed Forces Medical Journal* 2024; **74**: 1639–1644.