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Case Report

An unusual case of tubercular tubo-ovarian abscess in a sexually inactive female: a diagnostic dilemma

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ABSTRACT

Tubo-ovarian abscess (TOA) is usually encountered in sexually active women as a complication of pelvic inflammatory disease (PID). Its occurrence in sexually inactive patients is extremely rare and suggests atypical etiologies, including genital tuberculosis (GTB). We report a rare case of a sexually naïve young woman with a giant TOA due to isolated ovarian tuberculosis. This case highlights the diagnostic dilemma when tuberculosis mimics adnexal malignancy or pyogenic abscess and underscores the importance of maintaining a high index of suspicion, particularly in tuberculosis-endemic regions.

Keywords: Tubo-ovarian abscess, Genital tuberculosis, Sexually inactive, Adnexal mass, *Mycobacterium tuberculosis*, Salpingitis

INTRODUCTION

Tubo-ovarian abscess (TOA) is a serious gynecological condition involving infection and inflammation of the fallopian tubes, ovaries, and adjacent pelvic structures. Most cases arise from ascending polymicrobial infections in sexually active women with PID. In sexually inactive individuals, TOA is rare and its diagnosis is often delayed due to atypical presentation.[1] GTB, a form of extrapulmonary tuberculosis, continues to be an underdiagnosed cause of pelvic morbidity in tuberculosis-endemic countries. GTB most frequently involves the fallopian tubes (up to 100%), followed by the endometrium (50-80%), and ovaries (20-30%).[2] Patients commonly present with infertility, menstrual disturbances, or chronic pelvic pain, often mimicking ovarian neoplasms or TOAes.[3,4] Isolated ovarian tuberculosis presenting as a giant adnexal mass is extremely uncommon.

We present a diagnostically challenging case of tubercular TOA in a sexually inactive woman with a history of pulmonary TB, emphasizing the importance of histopathological and microbiological confirmation in such atypical cases.

CASE REPORT

A 20-year-old unmarried, sexually inactive female presented with complaints of lower abdominal pain and intermittent fever for 15 days. She had regular menstrual cycles with no gynecologic procedures or history of sexual activity. Her medical history included left-sided pleural effusion secondary to pulmonary tuberculosis, for which she had completed a six-month course of anti-tubercular therapy (ATT) eight months earlier. On admission, she was febrile (101°F), tachycardic (118 bpm), hypotensive (90/60 mmHg), and pale. Abdominal examination revealed a firm, tender, cystic abdominopelvic mass corresponding to a 20-22-week gravid uterus, which was warm, non-mobile, and with indistinct borders. Laboratory investigations showed anemia (Hb 8.5 g/dL), leukocytosis (TLC 28,600/mm^3), and mild thrombocytopenia (platelets

1.17 lakh/mm³). Chest X-ray revealed no active pulmonary lesion.

Imaging

Pelvic ultrasonography demonstrated a 13.2×13.5×9.5 cm thick-walled heterogeneous cystic mass with internal echoes in the right adnexa; the right ovary was not separately visualized (Figure 1). Contrast-enhanced CT scan revealed a 14×10×10 cm peripherally enhancing adnexal mass with thick walls, raising suspicion of an abscess or neoplasm.

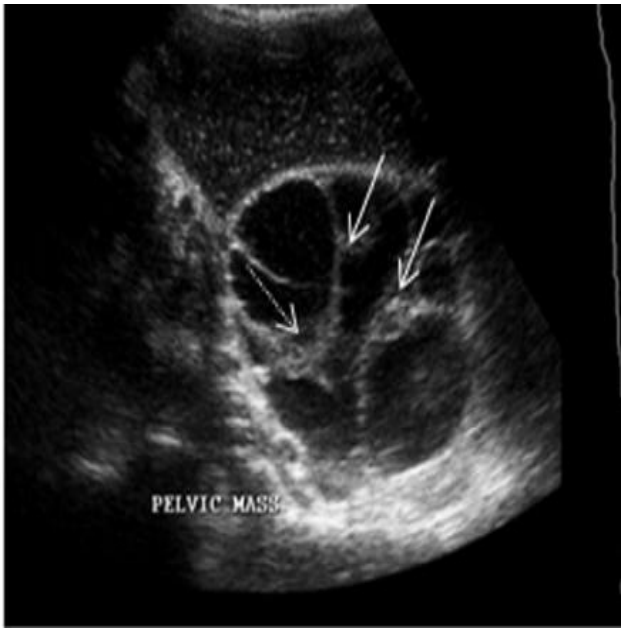

Figure 1: Pelvic ultrasonography (transabdominal, longitudinal view) showing a large, thick-walled, heterogeneous cystic mass (measuring approximately 13.2×13.5×9.5 cm) occupying the right adnexal region.
The lesion demonstrates multiple internal echoes (white arrow) suggestive of debris and septations. The right ovary is not visualized separately, raising suspicion for a TOA.

Serum CA-125 was elevated (129 U/mL). FNAC yielded purulent aspirate with abundant neutrophils, and culture grew *P. aeruginosa* sensitive to piperacillin-tazobactam. Despite broad-spectrum intravenous antibiotics, the patient's condition worsened, necessitating laparotomy. Intraoperatively during laparotomy, a large right-sided tubo-ovarian mass nearly (20×20 cm) with pyosalpinx and dense adhesions to bowel and omentum was noted. Right salpingo-oophorectomy with cystectomy was performed. The left adnexa appeared grossly normal except for mild edema of the tube. Histopathology revealed caseating granulomas, epithelioid histiocytes, and Langhans-type giant cells consistent with tuberculosis. GeneXpert assay detected *M. tuberculosis*, rifampicin-sensitive. Culture of intraoperative samples was sterile, suggesting initial FNAC contamination. The patient recovered uneventfully and was initiated on Category II ATT. At two-year follow-up, she remained asymptomatic and in good health.

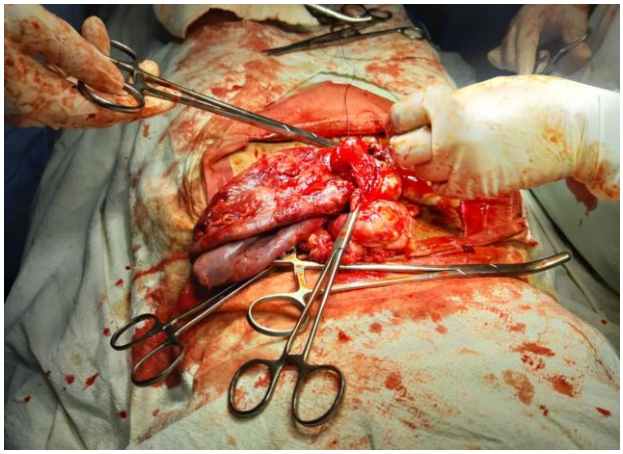

Figure 2: Intraoperative view showing a large right-sided TOA with dense adhesions to surrounding structures, including bowel and omentum.

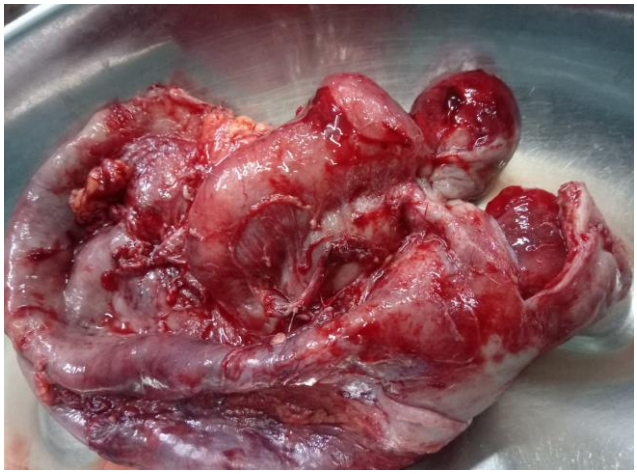

Figure 3: Gross specimen of excised right tubo-ovarian mass showing a large, multiloculated cystic lesion with areas of congestion and necrosis, consistent with tubercular tubo-ovarian abscess.

DISCUSSION

TOA in sexually inactive females is exceedingly rare and often mimics ovarian neoplasms or pyogenic abscesses. In such scenarios, GTB should be considered, particularly in endemic countries. Previous studies have emphasized the protean presentation of GTB. Kulchavenya et al reported unusual cases of GTB masquerading as adnexal tumors.[5] CA-125, though frequently elevated, is nonspecific as levels rise in both neoplastic and inflammatory pelvic conditions, including tuberculosis.[6,7] In our patient, the large adnexal mass, raised CA-125, and misleading FNAC results led to diagnostic confusion. Ultimately, surgical exploration, histopathology, and GeneXpert confirmed the diagnosis. Similar diagnostic dilemmas have been reported by Ravikumar et al and Ashrafganjooei et al in sexually inactive adolescents.[8,9] Reactivation of latent tuberculosis in the female genital tract, especially following prior pulmonary involvement, has been increasingly

recognized.[10] Therefore, a comprehensive history of tuberculosis exposure and therapy should always be considered when evaluating adnexal masses in young women.

This case reinforces the principle that in tuberculosis-endemic regions, GTB should be included in the differential diagnosis of all adnexal masses, irrespective of sexual history. FNAC and culture may be misleading, and histopathology with molecular assays remains the gold standard.

CONCLUSION

Tubercular TOA, though rare in sexually inactive females, should be considered in the differential diagnosis of adnexal masses in TB-endemic settings. Elevated CA-125 and atypical imaging findings may mimic ovarian malignancy. Definitive diagnosis relies on histopathology and molecular testing. Early surgical intervention, when indicated, can provide both diagnostic clarity and therapeutic benefit. Prompt initiation of ATT ensures favourable long-term outcomes.

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