

## Extrapulmonary Tuberculosis Mimicking Advanced Ovarian Cancer: A Case Report

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### Abstract:

Ovarian cancer represents the most prevalent cancer among females globally; the delayed diagnosis of the disease results from the absence of effective screening tools. Staging laparotomy represents the standard surgical procedure for ovarian cancer. Urogenital Tuberculosis (TB) is a manifestation of extrapulmonary tuberculosis (EPTB), accounting for approximately 4% of reported TB cases in India, whereas EPTB constitutes 20% of TB cases globally. Approximately 50% of patients who are HIV positive have this condition. In this report, a 55-year-old patient with suspected advanced ovarian cancer underwent staging laparotomy and received a pathological diagnosis of genital and peritoneal tuberculosis (TB).

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**Introduction:** Tuberculosis (TB) remains a significant global public health concern. Pulmonary Tuberculosis (PTB) is the most well-known and extensively researched form, while extrapulmonary Tuberculosis (EPTB), accounting for one-fifth of all Tuberculosis cases, poses significant challenges in diagnosis and management (1). The World Health Organization (WHO) identifies tuberculosis (TB) as the 13th leading cause of death globally, with extrapulmonary tuberculosis (EPTB) constituting 20% of cases, and 50% of cases occurring in individuals co-infected with Human Immunodeficiency Virus (HIV) (2). Mycobacterium tuberculosis causes tuberculosis, which can lead to a lethal infection. Approximately ten million individuals received a tuberculosis diagnosis in 2020 (3). The prevalent locations of extrapulmonary tuberculosis (EPTB) include lymph nodes, joints and bones, meninges, the abdominal cavity, and the

urogenital tract (2). Extrapulmonary tuberculosis, specifically the genitourinary and peritoneal forms, presents a diagnostic challenge due to the absence of specific diagnostic criteria or tests. Additionally, ultrasound scanning lacks distinctive features for this condition, making it impossible to establish a diagnosis of EPTB solely through ultrasound. The US serves as a screening tool in regions with high TB prevalence, complementing its function in ultrasound-guided biopsy (4). Genitourinary tuberculosis is an uncommon variant of extrapulmonary tuberculosis, accounting for approximately 4% of EPTB cases in the Indian population. Its diagnosis requires a heightened level of suspicion and the application of acid-fast bacilli testing and tissue biopsy. Computed tomography is a useful diagnostic tool for finding tubo-ovarian tuberculosis masses, which helps people avoid performing unnecessary surgeries. Peritoneal

tuberculosis represents a subtype of extrapulmonary tuberculosis (EPTB) characterized by significant ascites, which may occur with or without fever and changes in the patient's overall condition. The identification of diffuse, nodular, disseminated lesions during surgery should heighten the suspicion of peritoneal tuberculosis. In patients with complex fistula disease, gastrointestinal tuberculosis should be considered.

### Case Report

A 55-year-old woman from Elobied City, North Kordofan, Sudan, has been in a committed marriage for 40 years. She is para 10, and all of her children, who were born spontaneously through vaginal delivery, are currently alive and well. She has experienced menopause for the past decade. The patient presented to our obstetrics and gynecology facility with a history of suprapubic pain and bilateral loin pain intermittently over the past four years, along with complaints of vaginal heaviness. She had no known history of diabetes, hypertension, or asthma. The patient presented with a clinically stable blood pressure of 110/70 and a diagnosis of third-degree genital prolapse. The tests showed that the person had a hemoglobin level of 12.3 gm/dl, a total white blood cell count of 9000 c/mm, a blood urea level of 20 mg/dl, a serum creatinine level of 0.4 mg/dl, an ESR of 80, an analysis of the urine showing 6–9 red blood cells (RBC), and a CA125 level of 75.0. The blood film for malaria was negative. The ultrasound scan reveals a normal-sized empty uterine cavity and a right complex adnexal mass, measuring approximately 8 by 7 cm, which is indicative of ovarian carcinoma. The circumstances surrounding the Sudan conflict prevented the performance of the requested CT scan. Without any complications, the patient underwent a staging laparotomy that included both anterior and posterior repairs. We sent the sample, which included the uterus, two tubes, two ovaries, and a portion of the omentum, for histopathological analysis. Three weeks later, the histopathology results showed that both the tubes and the omentum had a mix of inflammatory cells, mostly epithelioid histiocytes and giant cells. We observed caseous necrosis, but found no evidence of malignancy. The cervix and ovaries exhibit no significant abnormalities. The interpretation indicated tuberculosis affecting the fallopian tubes and

omentum. We referred the patient to the tuberculosis program clinic, where she started anti-tuberculosis medication and received follow-up care.

**Discussion:** Female genital tuberculosis (FGTB) can result in significant morbidity and infertility. Extrapulmonary tuberculosis (EPTB) is still hard to diagnose because the symptoms aren't always clear, doctors don't always suspect tuberculosis, the infection lasts a long time and doesn't get better, and multidrug resistance is growing. Because of the disease's paucibacillary features, extrapulmonary tuberculosis (EPTB) has a subtle clinical presentation that makes it easier to miss or delay diagnosis. With its associated social stigma and behavioral anxiety, tuberculosis (TB) has the potential to significantly impact global health and well-being, disproportionately affecting women compared to other populations (3). Technical issues and logistics influence the gold standard diagnostic tool, culture. Microscopy rarely detects acid-fast bacilli, and histopathological examinations of peritoneal or endometrial biopsies rarely identify epithelioid granuloma (9). Misdiagnosis of peritoneal tuberculosis as advanced ovarian malignancy may occur (10).

**Conclusion:** Female genital and peritoneal tuberculosis (EPTB) are typical symptoms and can be fatal. Diagnosing the condition is difficult due to its paucibacillary nature. Ultrasound screening cannot distinguish urogenital and peritoneal TB from advanced ovarian cancer.

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**Data Availability:** Data pertaining to this research is accessible and may be obtained from the corresponding authors upon request.

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