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Case Report

Genital Tuberculosis with Pleuritis and Intra-abdominal Tuberculosis

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ABSTRACT

Introduction: Female Genital Tuberculosis (FGTB) is a rare but serious form of extrapulmonary tuberculosis that significantly impacts female reproductive health. It accounts for 15–20% of extrapulmonary TB cases and is found in 5–10% of infertile women. Diagnosis is often delayed due to nonspecific symptoms and the difficulty of confirming infection through histopathology.

Case Presentation: A 35-year-old woman presented with abdominal pain, nausea, vomiting, vaginal discharge, and postcoital bleeding. A cervical biopsy confirmed tuberculous cervicitis, supported by systemic TB symptoms and a left pleural effusion, leading to a diagnosis of extrapulmonary TB. She was treated with a full course of anti-TB therapy and referred for fertility evaluation due to persistent amenorrhea, where hysteroscopy revealed intrauterine adhesions and granulomas, confirming suspected genital TB and suggesting Asherman's syndrome as a complication.

Conclusion: Female Genital Tuberculosis is a rare cause of infertility; early diagnosis using integrative methods and awareness of genital TB transmission are essential for timely treatment and improved reproductive outcomes.

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INTRODUCTION

Female Genital Tuberculosis (FGTB) is a form of extrapulmonary tuberculosis that is rarely reported but has significant implications for reproductive health. Globally, FGTB accounts for approximately 15–20% of all extrapulmonary tuberculosis cases and is found in 5–10% of women with infertility, particularly in countries with a high tuberculosis burden. According to reports from the World Health Organization (WHO), the overall incidence of tuberculosis remains high in many developing countries, including Indonesia, which ranks third in the world for the number of tuberculosis cases, following India and China. Data from the Indonesian Ministry of Health indicates that extrapulmonary tuberculosis cases make up around 10–15% of total TB cases, with genital organ involvement often going undiagnosed due to vague and nonspecific clinical manifestations [1,2].

Genital tuberculosis typically occurs as a result of hematogenous spread from a primary Mycobacterium tuberculosis infection in the lungs, although lymphatic spread or direct extension from intra-abdominal tuberculosis foci may also occur. The pathogenesis of FGTB usually involves the endometrium and fallopian tubes as primary sites of infection, with further spread to the ovaries, cervix, and pelvic peritoneum. Chronic inflammation due to tuberculosis infection can lead to fibrosis and intrauterine and tubal adhesions, contributing to infertility. This infection can also cause menstrual disturbances, chronic pelvic pain, and the formation of adnexal masses that often mimic malignancy. Histopathological examination of endometrial or fallopian tube tissue often reveals only

early-stage granulomas with minimal caseous necrosis, making diagnosis confirmation challenging [3,4,5].

CASE PRESENTATION

A 35-year-old woman, Mrs. IM, who presented with complaints of abdominal pain, nausea and vomiting, vaginal discharge (fluor albus), and a history of postcoital bleeding 6 days ago. The patient had a history of using injectable birth control for the last 3 months in 2017 and had not menstruated until now. Due to the presence of fluor albus and postcoital bleeding, she was referred by the Internal Medicine (Gastroenterology) and Dermatovenereology (DV) teams to the Obstetrics and Gynecology (Ob-Gyn) team. A cervical biopsy confirmed tuberculous cervicitis, with histopathological findings of caseating granulomas, langhans giant cells, and necrosis. This was also supported by systemic symptoms such as weight loss of 5 kg in 3 months and night sweats. Radiological findings showed a left pleural effusion, leading to a diagnosis of extrapulmonary tuberculosis (pleural and genital). Microscopic acid-fast bacilli (AFB) staining and Xpert MTB/RIF (TCM) testing were negative, leading to a diagnosis of negative pulmonary TB.

The patient began anti-tuberculosis treatment (ATT) with a 2-month intensive phase of 4FDC (fixed-dose combination of rifampicin, isoniazid, pyrazinamide, and ethambutol), followed by a 7-month continuation phase with 2FDC. On speculum examination, the cervix appeared smooth [Fig.1]. A follow-up cervical biopsy showed no signs of chronic specific inflammation (TB). However, secondary amenorrhea persisted despite positive progestin challenge (P test) and estrogen-progestin (EP) tests, suspected to be due to tuberculous endometritis and Asherman's syndrome. Liver and kidney function monitoring during treatment showed good tolerance, with no significant hepatotoxicity.

The patient was referred to the fertility division and scheduled for hysteroscopic resection with endometrial biopsy and laparoscopic cystectomy due to suspected Asherman's syndrome and an ovarian cyst, possibly ovarian TB. Intraoperative findings revealed adhesions and granulomas throughout the abdominal cavity and uterine synechiae. Endometrial biopsy confirmed nonspecific chronic endometritis, while the post-treatment cervical biopsy showed no active TB features, indicating successful therapy. Surgical intervention was limited to adhesiolysis and biopsy, avoiding radical procedures due to the risk of bowel perforation.

Treatment

Postoperatively, the patient was prescribed Progynova (1 tablet daily) for one cycle (28 days), followed by a transvaginal ultrasound (TVUS) evaluation. Twelve days after surgery, the patient menstruated, and treatment was switched to Cycloprogynova (1 tablet daily) for three cycles. Postoperative histopathology did not show active granulomas, confirming TB eradication, although Asherman's syndrome and endometrial dysfunction remained the main causes of amenorrhea. Further management includes cyclic hormonal therapy and a plan for assisted reproductive technology (IVF-ET) if the patient desires fertility, although the fertility prognosis is poor due to severe anatomical damage.

DISCUSSION

FGTB (Female Genital Tuberculosis) is a significant form of extrapulmonary tuberculosis (EPTB), particularly in countries with high TB prevalence, and is



Fig 1. Clinical appearance on speculum examination before (left) and after (right) 9 months of Anti-Tuberculosis Drug treatment.

one of the leading causes of female infertility [1,2]. It typically affects women of reproductive age and is less common in postmenopausal women [6]. The pathogenesis of FGTB is usually secondary to an extragenital or pulmonary TB that spreads to the genital tract via hematogenous, lymphatic spreads, or direct extension from nearby abdominal organs such as the intestines or lymph nodes [6–8]. Therefore, a multidisciplinary approach is essential for the diagnosis and management of FGTB, especially in areas with limited laboratory facilities [9].

In our patient, the infection spread via the hematogenous route, following a history of inactive primary pulmonary tuberculosis. The disease then spread to the genital organs via the hematogenous route, which was confirmed by the clinical findings of pleural tuberculosis (tuberculous pleuritis) and intra-abdominal organ involvement. The main manifestation in this patient was tuberculous endometritis, consistent with systemic disease dissemination. The pleural involvement underscored a systemic spread pattern contributing to the genital infection.

Diagnosis of FGTB is particularly challenging as it requires a stepwise and comprehensive approach to address the complex paucibacillary nature of the disease. Patients commonly present with infertility (in 80–90% of cases), both primary and secondary, also often accompanied by recurrent pregnancy loss or IVF implantation failure. Menstrual irregularities such as secondary amenorrhea, oligomenorrhea, hypomenorrhea, or postmenopausal bleeding should be thoroughly explored. Chronic pelvic pain with unresponsiveness to broad-spectrum antibiotics is a red flag for pelvic TB. Constitutional symptoms like weight loss >10% within six months, low-grade fever (37.5–38°C), or night sweats may be present but are not always seen in latent FGTB. This can also be supported by a complete blood test that shows signs of inflammation. A history of close contact with active pulmonary TB patients, previous anti-TB treatment, or migration from endemic areas significantly increases risk [10–13].

A key diagnostic failure in this case was the prolonged neglect of secondary amenorrhea that has lasted for seven years, since 2017. According to the American Society for Reproductive Medicine and recent clinical guidelines, secondary amenorrhea lasting ≥3 months in women with previously regular cycles, or ≥6 months in those with irregular cycles, warrants thorough evaluation, even in the absence of menstrual complaints [14]. In this case, the patient had a history of injectable contraceptive use, which may cause temporary amenorrhea, and some systemic symptoms like weight loss and night sweats suggested a systemic etiology such as tuberculosis. Unfortunately, these signs were not adequately investigated, likely due to the clinical focus on abdominal pain and vaginal discharge, which directed attention toward gastrointestinal or gynecological infections.

Guidelines from the American Academy of Family Physicians recommend starting with β-hCG testing to rule out pregnancy, followed by basic hormonal evaluations including TSH, prolactin, gonadotropins (FSH and LH), and estradiol to differentiate between hypo- and hypergonadotropic hypogonadism. If estrogen deficiency or intrauterine pathology is suspected, a progestin challenge or combined estrogen-progesterone test is advised. Imaging approaches such as transvaginal ultrasound or pelvic MRI are required to assess uterine and ovarian anatomy, as well as hysteroscopy if intrauterine adhesions or other intrauterine lesions are suspected [15–18]. But in this case, there was no early evaluation of FSH, estradiol levels, and progestin tests. These assessments were only carried out after nine months of anti-TB therapy, leading to a delayed diagnosis of Asherman's syndrome confirmed by hysteroscopy.

FGTB management generally follows the pulmonary TB treatment protocol recommended by WHO and India's National Tuberculosis Elimination Program (NTEP), consisting of a six-month regimen with intensive and continuation phases [13]. The intensive phase includes daily oral administration for two months of four first-line drugs, namely rifampicin (R), isoniazid (H), pyrazinamide (Z), and ethambutol (E), followed by a continuation phase with rifampicin, isoniazid, and ethambutol (RHE) for four months. In cases that develop into multidrug-resistant TB (MDR-TB), another regimen involving second-line or reserve drugs is necessary. In addition to pharmacology, surgical therapy is generally possible but not recommended in the management of FGTB, as most patients respond well to medical treatment. Surgery is highly indicated for draining abscesses that do not resolve with medication [11,18,19].

This case reveals a critical management error, namely the delayed evaluation of long-standing amenorrhea, which only began after completing the continuation phase of TB treatment, even though it had lasted for seven years. This led to a late diagnosis of Asherman's syndrome resulting from tuberculous endometritis. Hormonal evaluation and hysteroscopy should have been conducted earlier, especially in patients with TB risk factors, through a multidisciplinary approach. Furthermore, surgical interventions such as laparoscopy and hysteroscopy were delayed until after nine months of treatment, whereas they are ideally performed during the intensive phase when the infection is well controlled. Such delays increase the risk of tissue damage and compromise fertility potential.

Another misstep was the unadjusted use of hormonal therapy, which failed to yield optimal results and instead prolonged the amenorrhea, also worsening

the reproductive prognosis. This was likely due to insufficient monitoring of drug interactions between anti-TB drugs and hormonal therapy. Rifampicin, a key anti-TB drug, is a strong inducer of cytochrome P450 enzymes, which accelerate estrogen and progesterone metabolism. As a result, the effectiveness of hormonal therapy may decrease significantly if the dose is not adjusted. According to the guidelines, patients who require concomitant hormonal therapy with rifampicin, such as in amenorrhea with thin ET (<4 mm), require adjustment of the estrogen dose by giving estradiol valerate 2-4 mg/day, plus a progestin such as medroxyprogesterone acetate 10 mg/day for 10 days per cycle [20,21]. Yet, hormonal therapy plays a vital role in endometrial regeneration and improvement of the intrauterine environment, which can optimize the patient's chances of fertility after treatment.

CONCLUSION

This case illustrates the challenges in diagnosing and managing Female Genital Tuberculosis (FGTB), especially regarding delayed detection and infertility complications. A high index of suspicion in amenorrheic patients with a history of TB exposure and the use of an integrative diagnostic algorithm are crucial. Recommendations include routine TB screening for infertile patients in endemic areas, improved access to molecular diagnostic tools, and education about the risk of genital TB transmission through sexual contact. Further research is needed to explore the role of immunomodulators in reducing tissue damage and improving fertility outcomes after TB.

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CONFLICT OF INTEREST

The authors declare there is no conflict of interest.

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