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Case Report

Navigating the Challenges of High-Risk Pregnancy: A Case Study of Female Genital Tuberculosis and Obstetric Complications

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Abstract

Female genital tuberculosis (FGTB), a severe form of extrapulmonary tuberculosis, is a leading cause of infertility and recurrent pregnancy complications, particularly in developing countries. Often asymptomatic, FGTB causes significant reproductive challenges through endometrial destruction and tubal damage. This case report describes a 38-year-old woman with a history of FGTB who presented with high-risk pregnancy complications. Her obstetric history included preterm delivery at 28 weeks and a spontaneous miscarriage at 19 weeks. In her current pregnancy, she experienced spotting at 7 weeks, cervix shortening at 21 weeks, and a urinary tract infection (UTI) caused by *Escherichia coli* at 25 weeks. Dydrogesterone SR (30 mg; Dydroboon 30 SR), nifedipine, and hydroxyprogesterone were administered to manage the risk of preterm labor. Dexamethasone was administered to promote fetal lung maturation. The UTI was successfully treated with antibiotics, and she delivered a healthy male infant vaginally at 36 weeks. A multi-disciplinary approach ensured the best possible outcomes for both mother and infant. FGTB significantly reduces fertility and adversely affects pregnancy outcomes, highlighting the need for early detection and focused treatment. Comprehensive TB screening before assisted reproductive procedure is crucial. This case highlights the need for infection management, preterm labor prevention, and multidisciplinary care in high-risk pregnancies, emphasizing evidence-based approaches for improved maternal and fetal health. Robust healthcare systems, multidisciplinary management, and individualized care are essential to mitigate the impact of FGTB and obstetric complications, ultimately improving maternal and neonatal outcomes.

Keywords: Female genital tuberculosis; High-risk pregnancy; Preterm labor; Infertility; Multidisciplinary care

Introduction

Maternal health remains a global concern, with an estimated 211 maternal deaths per 100,000 live births in 2017. This underscores the persistent challenges in addressing pregnancy and childbirth complications, particularly in low- and middle-income countries. India accounts for approximately 1.3 million maternal deaths over the past two decades, contributing to 12% of global maternal mortality. These statistics highlight the urgent need for effective interventions to improve maternal health outcomes [1]. Tuberculosis (TB) is a leading cause of infection-related mortality worldwide, affecting an estimated 10 million individuals annually. While pulmonary TB is most common, extrapulmonary tuberculosis (EPTB) occurs in about 16% of the cases globally, with regional variations. Female genital tuberculosis (FGTB), a significant form of EPTB, accounts for approximately 27% of

EPTB cases [2]. However, diagnosing FGTB is challenging as one in 10 affected women are asymptomatic, while others present with nonspecific symptoms [3].

The FGTB prevalence in India (19%) is notably higher than in other developing countries (4–8% in Pakistan) [4]. Reports indicate that over 15% of patients with infertility and up to 48% of assisted reproductive care seekers are diagnosed with FGTB, with an overall incidence ranging from 3–26% [4,5]. FGTB can cause infertility and reproductive morbidity, often leading to chronic pelvic inflammatory disease [3]. This underscores the need for a comprehensive healthcare system to manage obstetric complications and TB-related reproductive health challenges. This case report details a 38-year-old woman with FGTB and pregnancy complications, emphasizing the importance of an individualized, multidisciplinary approach in high-risk pregnancies.

Case Presentation

A 38-year-old woman presented with a history of spotting at 7 weeks of gestation during her current pregnancy. As the pregnancy progressed, she experienced episodes of pyrexia, lower abdominal pain, and urinary discomfort. Prominent uterine irritability was reported at 25 weeks of gestation. Based on these symptoms and her obstetric history, she was classified as having a high-risk pregnancy, necessitating meticulous medical management to ensure a favorable outcome. Six years ago, she was diagnosed with FGTB through laparoscopy and received 6 months of anti-tuberculosis therapy under the National Tuberculosis Elimination Programme (isoniazid, rifampicin, pyrazinamide, and ethambutol for 2 months, followed by isoniazid, rifampicin, and ethambutol for 4 months).

After completing the treatment, she successfully conceived but delivered preterm at 28 weeks of gestation via cesarean section. Despite neonatal challenges, her first child is now healthy. Two years ago, she conceived again but experienced a spontaneous miscarriage at 19 weeks of gestation. Her current pregnancy, achieved through spontaneous conception, showed early signs of viability with a detected fetal heartbeat at 5 weeks. She was initiated on folic acid (500 mcg), aspirin (75 mg), and dydrogesterone sustained release (SR) (30 mg; Dydroboon 30 SR) to support her pregnancy.

Clinical evaluation and progression

A physical examination conducted during her initial presentation showed stable vital signs and no immediate indications of concern. However, further issues were identified during follow-up visits. The patient developed spotting at 7 weeks, which led to the discontinuation of aspirin to reduce the additional risk of bleeding while continuing dydrogesterone. A second-trimester anomaly scan (level-II scan) at 21 weeks showed a 2.6 cm reduction in cervical length, indicative of a higher risk of premature labor. Her condition deteriorated around 25 weeks when she experienced episodes of pyrexia, lower abdominal pain, and uterine irritability, raising suspicion of a urinary tract infection (UTI). A urine culture test identified the presence of nitrofurantoin-sensitive *Escherichia coli* (10^5 CFU/mL).

Management and outcomes

A multidisciplinary approach was used to manage her pregnancy. Following a successful 2 week regimen of nitrofurantoin to clear her UTI, additional measures were taken to reduce the risk of preterm labor. A 10-day course of nifedipine (20 mg thrice daily for 3 days and twice daily for 7 days) was administered to inhibit uterine contractions. Hydroxyprogesterone caproate (500 mg intramuscularly, administered weekly for a total of four doses) was used for uterine relaxation, and dexamethasone was prescribed to promote fetal lung maturation. Her condition improved following these interventions, and she was discharged at 26 weeks of pregnancy. Dydrogesterone, along with iron and calcium supplements, was continued to support both maternal and fetal health. A male infant weighing 2.4 kg was delivered vaginally at 36 weeks, with an Apgar score of 8/10.

Discussion

The case described herein highlights the complexities of managing high-risk pregnancies in patients with a history of FGTB and recurrent obstetric complications. The patient's history of FGTB, which significantly impaired fertility, underscores the importance of early diagnosis and individualized treatment to optimize reproductive outcomes.

FGTB represents a severe manifestation of EPTB, particularly in developing countries. Tuberculosis of the fallopian tubes is the leading cause of tubal factor infertility [6]. Almost half of the women with tubal factor infertility are diagnosed with FGTB, and more than eight in 10 have a history of TB treatment [7]. Early detection and treatment are crucial, as untreated FGTB can cause irreversible tubal damage and endometrial destruction, leading to permanent infertility [8].

Patients with FGTB may consider in vitro fertilization (IVF), but the reported success rate is only 17% [8]. More importantly, the use of assisted reproductive technology carries the risk of TB transmission to the fetus, potentially resulting in congenital TB, even if the pregnancy is successful. In one case, a mother undergoing IVF was not screened for TB, FGTB remained undiagnosed, and the child developed congenital TB at 3 months [9]. *Mycobacterium tuberculosis* can spread from other body sites to the bilateral fallopian tubes and/or endometrium [5]. Therefore, extensive systemic screening before IVF is recommended, especially in endemic countries [9,10].

Acid-fast bacilli (AFB) staining, though widely used for TB

diagnosis due to its availability and low cost, requires a high bacterial burden (at least 10^4–10^6 organisms/mL), whereas FGTB is considered paucibacillary [5]. AFB culture is more reliable but takes up to 8 weeks [5]. Pre-IVF screening for FGTB should include an interferon-gamma release assay, tuberculin skin test, and AFB culture [5]. Radiological examinations are valuable in diagnosing FGTB. Hysterosalpingography findings commonly include intrauterine adhesions, a distorted uterine cavity, and fallopian tube abnormalities such as a beaded appearance or a rigid, fibrotic structure [5]. Ultrasound imaging can also aid in evaluation, revealing endometrial thickening, distortion, and hyperechoic foci suggestive of calcification or fibrosis within the endometrium and ovaries. Additionally, affected fallopian tubes may appear dilated and thickened [5,11]. Multi-gene polymerase chain reaction may be considered for FGTB screening in patients with infertility from TB-endemic areas [12].

In this case, preterm labor was successfully managed with a combination of dydrogesterone, nifedipine, and hydroxyprogesterone, to prevent premature delivery. Both dydrogesterone and nifedipine are effective in prolonging preterm birth, and a combination of these is reported to be even more effective than monotherapy [13]. In our case, these drugs were administered as part of a tocolytic regimen, and no adverse effects such as headache, hot flashes, maternal tachycardia, or dizziness were observed. A single corticosteroid course, including betamethasone or dexamethasone was commonly administered to pregnant mothers between 24 0/7 weeks and 33 6/7 weeks of gestation who are at risk of preterm delivery within 7 days to promote neonatal lung maturation and reduce neonatal respiratory distress [14]. In our case, dexamethasone was administered to promote fetal lung maturation, highlighting the significance of anticipating challenges in cases of threatened preterm labor.

Beyond managing immediate pregnancy complications, treatments to improve endometrial receptivity have shown promise in enhancing fertility outcomes. FGTB-related infertility is linked to poor endometrial receptivity due to immune system dysregulation, and suppression of essential growth factors [8,10]. It also upregulates proinflammatory cytokines and antiphospholipid antibodies while downregulating ovarian reserve markers [8]. Dydrogesterone, a progestogenic drug, effectively induces endometrial receptivity and creates a favorable environment for embryo implantation [15,16]. In this case, dydrogesterone was administered to ensure favorable reproductive outcomes in the context of FGTB history.

Approximately 45% of cases of bacteremia occur in the third trimester, and bacteremia of genital origin is a significant cause of fetal death [17]. UTIs complicate 8% of pregnancies, necessitating prompt diagnosis and treatment [18]. In our case, the patient developed an *E. coli*-induced UTI, which further complicated pregnancy management. Bacterial invasion of the amniotic cavity can trigger inflammatory mediators and increase the risk of spontaneous preterm labor [19]. This case emphasizes the importance of a strong healthcare system capable of addressing maternal and reproductive health challenges associated with FGTB. Early diagnosis, multidisciplinary care, and patient-centric strategies are crucial for improving maternal and fetal outcomes.

Conclusion

This case illustrates the complexities of managing high-risk pregnancies in patients with a history of FGTB. Successful outcomes depend on early diagnosis, timely interventions, and a multidisciplinary approach to address complications such as infections and preterm labor. This underscores the importance of individualized care and a robust healthcare system in optimizing both maternal and fetal outcomes.

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Ethical Considerations

The patient provided informed consent for the use of anonymized data from their diagnosis and treatment for research purposes, ensuring that all identifying information would be removed. Written informed consent was obtained from the patient described in this case report.

Conflict of interest

The authors declare no conflicts of interest.

References

1. P. Kuppusamy, R.K. Prusty, D.P. Kale (2023) High-risk pregnancy in India: prevalence and contributing risk factors – a national survey-based analysis, J. Glob. Health. 15: 04116.
2. Y. Wang, R. Shao, C. He (2021) Emerging progress on diagnosis and treatment of female genital tuberculosis, J. Int. Med. Res. 49: 03000605211014999.
3. H. Kesharwani, S. Mohammad, P. Pathak (2022) Tuberculosis in the female genital tract, Cureus 14: e28708.
4. J.B. Sharma, E. Sharma, S. Sharma (2018) Female genital tuberculosis: revisited, Indian. J. Med. Res. 148: S71–83.
5. C. Tzelios, W.M. Neuhausser, D. Ryley, Nhi Vo 4, Rocio M Hurtado, et al. (2022) Female genital tuberculosis, Open Forum Infect. Dis. 9: ofac543.

6. T. Djuwantono, W. Permadi, L. Septiani, Ahmad Faried, Danny Halim, et al. (2017) Female genital tuberculosis and infertility: serial cases report in Bandung, Indonesia and literature review, BMC. Res. Notes 10: 683.

7. N. Singh, G. Sumana, S. Mittal (2008) Genital tuberculosis: a leading cause for infertility in women seeking assisted conception in North India, Arch Gynecol Obstet. 278: 325–327.

8. S. Gupta, P. Gupta (2020) Etiopathogenesis, challenges and remedies associated with female genital tuberculosis: potential role of nuclear receptors, Front. Immunol 11: 02161.

9. N. Emiralioglu, D. Dogru, B. Oguz (2016) Congenital tuberculosis after in-vitro fertilization in a woman previously undiagnosed with tuberculosis salpingitis, Pediatr Neonatol 57: 539–540.

10. D. Tjahyadi, B. Ropii, K.D. Tjandraprawira (2022) Female genital tuberculosis: clinical presentation, current diagnosis, and treatment, Infect. Dis. Obstet. Gynecol 1–6.

11. H.U. Shah, B. Sannananja, A.D. Baheti (2015) Hysterosalpingography and ultrasonography findings of female genital tuberculosis, Diagn. Interv. Radiol. 21: 10–15.

12. V. Bhanothu, J.P Theophilus, P.K. Reddy (2014) Occurrence of female genital tuberculosis among infertile women: a study from a tertiary maternal health care research centre in South India, Eur. J. Clin. Microbiol. Infect. Dis. 33: 1937–1949.

13. S. Singh, P. Tyagi, D. Anand (2023) A comparative study of efficacy and side effects of nifedipine with nifedipine along with dydrogesterone in management of preterm labor, Int. J. Reprod. Contracept. Obstet. Gynecol. 12: 1670–1674.

14. Committee on obstetric practice (2017) Committee opinion No. 713: antenatal corticosteroid therapy for fetal maturation, Obstet. Gynaecol. 130: e102–e109.

15. S. Muneeba, N. Acharya, S. Mohammad (2023) The role of dydrogesterone in the management of luteal phase defect: a comprehensive review, Cureus. 15: e48194.

16. K. Neumann, A. Masuch, R. Vonthein (2022) Dydrogesterone and 20α-dihydrodydrogesterone plasma levels on day of embryo transfer and clinical outcome in an anovulatory programmed frozen-thawed embryo transfer cycle: a prospective cohort study, Hum. Reprod. 37: 1183–1193.

17. L. Surgers, A. Bleibtreu, C. Burdet (2024) Escherichia coli bacteraemia in pregnant women is life-threatening for foetuses, Clin. Microbiol. Infect. 20: O1035–1041.

18. Urinary tract infections in pregnant individuals, Obstet. Gynaecol (2023) 142: 435–445.

19. P. Cools (2017) The role of Escherichia coli in reproductive health: state of the art, Res. Microbiol. 168: 892-901.