Section: Obstetrics and Gynecology

Case Series

TUBERCULOSIS IN PREGNANCY: A CASE SERIES HIGHLIGHTING THE IMPACT OF EARLY DIAGNOSIS AND FOLLOW-UP ON MATERNAL AND PERINATAL OUTCOMES

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ABSTRACT

Background: Tuberculosis (TB) in pregnancy remains a significant public health issue in India. There is an urgent need for early detection, proper antenatal care, and consistent follow-up to mitigate adverse maternal and perinatal outcomes in patients diagnosed with TB. **Primary Objective**: To evaluate maternal and perinatal outcomes among antenatal women diagnosed with tuberculosis in relation to their adherence to treatment and follow up.
Materials and Methods: We present a case series of five pregnant women diagnosed with tuberculosis at various gestational ages over a one-year period at a tertiary care Centre in South India. Clinical presentation, diagnostic modality, treatment adherence, obstetric course, and perinatal outcomes were analyzed. All patients received standard anti-tubercular therapy (ATT) as per national guidelines, along with individualized obstetric management and coordinated follow-up through the antenatal and postnatal periods.
Results: Outcomes were strongly influenced by the timing of diagnosis and treatment adherence. Women diagnosed early in pregnancy and maintained on regular follow-up had favorable maternal recovery and live term deliveries, in contrast to those diagnosed late or on irregular follow-up.
Conclusion: Tuberculosis in pregnancy demands vigilant screening, prompt initiation of therapy, and structured follow-up to ensure optimal maternal and perinatal outcomes. Strengthening antenatal TB surveillance and integrating obstetric and pulmonary care are critical to reducing preventable complications in endemic regions. **Conflict of interest:** No
Keywords: Tuberculosis, Pregnancy, Maternal outcome, Perinatal outcome, Follow-up, Antenatal care.

INTRODUCTION

Tuberculosis (TB) continues to be a major cause of preventable maternal morbidity in India, despite sustained national control efforts.[1] The incidence of TB during pregnancy is estimated at 2.3 per 1,000 pregnancies, indicating a significant disease burden among antenatal women in endemic regions.[2] In India, the estimated TB incidence among women of reproductive age was 199 per 100,000 population in 2024, highlighting the ongoing public health relevance of TB in this vulnerable group.[1] Pregnant women constitute a high-risk subpopulation due to multiple interrelated factors.[3] Diagnostic delays frequently occur as TB symptoms such as fatigue, breathlessness, and weight loss overlap with physiological changes of pregnancy.[4] Additionally, sociocultural barriers, including limited health-seeking behaviour, stigma, and restricted access to

antenatal care, further contribute to delayed diagnosis and treatment initiation.[5] These factors collectively increase the risk of advanced disease, maternal complications, and adverse perinatal outcomes, underscoring the need for heightened clinical vigilance and integrated antenatal TB surveillance.

The primary objective of this case series is to describe the clinical spectrum of tuberculosis in pregnancy, encompassing new, recurrent, and extrapulmonary presentations, and to evaluate their impact on maternal and perinatal outcomes. The secondary objectives are to assess the influence of timing of diagnosis and initiation of anti-tubercular therapy on pregnancy outcomes, analyse treatment adherence and follow-up in relation to disease progression and highlight key management challenges, thereby emphasizing the need for strengthened antenatal tuberculosis surveillance and integrated obstetric care.

Case Series

Case 1

A 20-year-old primigravida presented at 12 weeks of gestation with progressive bilateral lower limb weakness. Neurological examination revealed motor power of 3/5 in both lower limbs with reduced pain and vibration sensation up to the knees. MRI of the spine demonstrated spondylodiscitis involving D10–D12 vertebrae with pre- and paravertebral anterior epidural abscess causing spinal cord compression and edema, consistent with spinal tuberculosis. Anti-tubercular therapy with physiotherapy was initiated, and the patient was closely followed. At 36 weeks, she developed leaking per vaginum with severe preeclampsia and underwent emergency caesarean section for minor CPD, complicated by atonic postpartum haemorrhage, which was medically managed. She delivered a live preterm neonate and showed marked neurological improvement within two months of therapy, continuing ATT postpartum.

Case 2

A 21-year-old primigravida presented at 5 weeks of gestation with a two-week history of persistent cough, low-grade fever, night sweats, and poor appetite. She was weighing 42 kgs, with stable vitals, chest auscultation revealed diffuse fine crepitations bilaterally. Sputum AFB testing was positive, confirming pulmonary tuberculosis in early pregnancy. She was initiated on daily anti-tubercular therapy with close monitoring of treatment adherence, maternal weight, and fetal growth. The patient completed six months of therapy with good tolerance, achieved adequate weight gain, and delivered a healthy appropriate-for-gestational-age female infant at 38 weeks of gestation.

Case 3

A 22-year-old primigravida at 34 weeks of gestation presented with a painless swelling on the right side of the neck. Clinical examination revealed a firm, non-tender right supraclavicular lymph node measuring 5 × 4 cm. Fine-needle aspiration cytology demonstrated chronic granulomatous inflammation suggestive of tuberculosis, confirming a diagnosis of cervical tuberculous lymphadenitis in pregnancy. She was initiated on anti-tubercular therapy and continued treatment through the remainder of pregnancy. The patient delivered a healthy term neonate vaginally during the continuation phase of therapy. Postpartum follow-up showed gradual resolution of lymphadenopathy with complete clinical recovery.

Case 4

A 24-year-old primigravida at 36 weeks of gestation presented with acute-onset numbness in both lower limbs, progressing proximally from the feet to the thighs over two days. Neurological examination revealed diminished sensation and reduced motor power (4/5) bilaterally. MRI spine demonstrated features of tuberculous spondylodiscitis, confirming spinal tuberculosis in late pregnancy. She underwent emergency lower segment caesarean section for cephalopelvic disproportion with maternal neurological compromise. Postoperatively, she developed acute bilateral lower limb weakness requiring emergency decompressive laminectomy, followed by posterior spinal stabilization. Anti-tubercular therapy and physiotherapy led to gradual neurological recovery, with stable maternal and neonatal outcomes.

Case 5

A 36-year-old multigravida (G3P1L1A1) presented at 20 weeks' gestation with a four-week history of progressive right lower quadrant abdominal pain, intermittent vomiting, anorexia, and 4 kg weight loss. Examination revealed right iliac fossa tenderness with a firm, non-mobile mass; vital signs were stable. Ultrasonography showed an ill-defined ileocecal mass, and colonoscopic biopsy demonstrated caseating granulomas with CBNAAT confirming Mycobacterium tuberculosis. HIV screening was negative. She was initiated on first-line anti-tubercular therapy with pyridoxine and close antenatal surveillance. Symptoms resolved within six weeks, fetal growth remained appropriate, and she delivered a healthy term neonate vaginally with postpartum radiological regression of the lesion.

DISCUSSION

Tuberculosis in pregnancy poses a unique clinical challenge due to overlapping symptomatology with normal gestational changes, altered maternal immunity, and the potential for rapid disease progression if diagnosis is delayed.[1] Physiological symptoms such as fatigue, anemia, weight loss, and dyspnea frequently obscure TB manifestations, contributing to underdiagnosis, particularly in endemic regions like India.[4] These factors increase the likelihood of advanced disease at presentation and adversely impact both maternal and perinatal outcomes.

The five cases in this series demonstrate the wide clinical spectrum of tuberculosis in pregnancy, ranging from pulmonary disease to extrapulmonary

forms including spinal, lymph nodal, and ileocecal tuberculosis. This highlights that TB can present at any gestational age and often mimics benign pregnancy-associated conditions, reinforcing the need for a high index of suspicion during antenatal care.[3] Similar observations have been reported in previous studies, where extrapulmonary TB accounted for a substantial proportion of cases in pregnant women, often leading to diagnostic delays.[6]

Early diagnosis and prompt initiation of first-line anti-tubercular therapy (ATT) were consistently associated with favourable maternal and perinatal outcomes in this series. Women diagnosed in the first and second trimesters demonstrated good clinical recovery, adequate fetal growth, and term deliveries, underscoring the safety and effectiveness of standard ATT regimens during pregnancy. [2,6,8] These findings align with existing evidence that timely treatment significantly reduces maternal morbidity and prevents adverse fetal outcomes without increasing teratogenic risk. [8,9]

In contrast, late-presenting or severe extrapulmonary TB—particularly spinal and abdominal involvement—was associated with significant maternal morbidity, need for surgical intervention, and increased obstetric complexity. Perinatal outcomes closely mirrored maternal clinical stability, with favourable neonatal outcomes observed in women who adhered to treatment and maintained structured antenatal follow-up. Conversely, untreated, or partially treated TB has been shown to impair placental function, worsen maternal nutrition, and increase the risk of intrauterine growth restriction, preterm birth, and neonatal morbidity. [3,7,10]

This case series further emphasizes the critical importance of multidisciplinary collaboration involving obstetricians, pulmonologists, surgeons, neurologists, and infectious disease specialists. Such integrated care facilitates individualized management, timely surgical decision-making when required, avoidance of preventable complications, and safe delivery planning in complex presentations. Strengthening antenatal TB screening, ensuring uninterrupted continuation of ATT, and maintaining heightened vigilance for extrapulmonary TB—especially in endemic regions—remain essential strategies for improving maternal and perinatal outcomes.

Table 1: Clinical Spectrum, Management, and Maternal–Perinatal Outcomes of Tuberculosis in Pregnancy

Case	Patient Profile	Diagnosis	Time of Diagnosis	Key Clinical Finding	Management	Maternal Outcome	Perinatal Outcome
1	20yr, Primi	Spinal TB with neurological deficits	12 weeks	Lower limb weakness	ATT+ Physiotherapy: LSCS for CPD and severe preeclampsia	Improved neurological function	Alive Pre-term boy baby weighing 2.58 KG
2	21yr, Primi	Pulmonary TB	5 weeks	Cough, fever, night sweats, underweight	Early ATT initiation	Good maternal weight gain and recovery	Alive term boy baby weighing 2.96 KG
3	22yr, Primi	Cervical Tubercular Lymphadenitis	34 weeks	5x4 cm supraclavicular node	ATT and conservative management	Resolution of lymphadenitis	Alive term Girl baby weighing 2.56 KG
4	24yr, Primi	Pott's Spine	36 weeks	Bilateral lower limb numbness, power 4/5	LSCS+POD3 Decompressive laminectomy+ stabilization+ ATT	Gradual neurological recovery	Alive Pre-term baby weighing 2.22 KG
5	36yr, G3P1L1A1	Ileocecal TB	20 weeks	Right iliac fossa mass, anorexia, weight loss.	ATT + Nutritional therapy	Symptom resolution with ATT alone	Alive term Girl baby weighing 2.87 KG

This table summarizes the demographic characteristics, type and timing of tuberculosis diagnosis, clinical presentation, management strategies, treatment adherence, obstetric course, and maternal and perinatal outcomes across five antenatal cases, highlighting the impact of early diagnosis and coordinated multidisciplinary care.

CONCLUSION

Tuberculosis in pregnancy exhibits a wide and often atypical clinical spectrum, necessitating heightened antenatal vigilance. Maternal and perinatal outcomes are critically determined by the timing of diagnosis, prompt initiation of anti-tubercular therapy, and

sustained treatment adherence. Early detection with structured follow-up ensures maternal recovery, optimal fetal growth, and prevention of disease-related obstetric complications, whereas delayed recognition increases maternal morbidity and adverse perinatal outcomes. Pregnancy may precipitate reactivation of latent or previously treated tuberculosis, warranting targeted screening. Integrated multidisciplinary care, strengthened antenatal TB surveillance, timely investigations, and coordinated obstetric–pulmonary follow-up are essential to reduce preventable maternal and neonatal morbidity in endemic settings.

Patient Consent

Written informed consent was obtained from all patients for publication of clinical details, ensuring anonymity.

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