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EVALUATION OF GENITAL TRACT INVOLVEMENT IN EXTRAGENITAL TUBERCULOSIS PATIENTS

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ABSTRACT **Background:** Tuberculosis (TB) remains a major global health challenge, with extrapulmonary manifestations often being overlooked. Genital TB is a particularly underdiagnosed form of extrapulmonary TB, which can lead to significant morbidity, especially infertility in women. **Aim:** This study aims to assess the prevalence of genital tract involvement in patients diagnosed with extragenital tuberculosis (EPTB). **Methods:** A prospective observational study was conducted over a 24-month period (September 2022 to August 2024) involving 100 women aged 20–45 years with confirmed EPTB at two government hospitals in Hanamkonda. Endometrial samples were examined using histopathology and CBNAAT PCR techniques to detect genital TB. **Results:** Genital tract involvement was detected in 12% of patients by CBNAAT PCR, while histopathological evidence was present in 4%. CBNAAT PCR demonstrated a sensitivity of 44.3% and specificity of 80.4%, surpassing histopathology's sensitivity of 8.2% but with 100% specificity. The majority of affected women were of normal body weight, from lower-middle socioeconomic backgrounds, and had completed school-level education. **Conclusion:** Genital TB involvement among EPTB patients is considerable and is likely underdiagnosed by conventional methods. Molecular diagnostics such as CBNAAT PCR provide a more sensitive tool for early detection, which is crucial to prevent serious reproductive complications.

KEYWORDS : Tuberculosis, Extrapulmonary TB, Genital Tract, CBNAAT, Infertility, Diagnosis

INTRODUCTION

Tuberculosis, caused by Mycobacterium tuberculosis, remains a leading cause of mortality worldwide despite widespread availability of diagnostic and treatment options. While pulmonary TB is the most common form, extrapulmonary TB (EPTB) involving other organs, including the genital tract, significantly contributes to disease burden. Genital TB is a notable cause of female infertility in endemic regions. Its nonspecific clinical manifestations and limitations in diagnostic modalities often delay diagnosis and treatment, resulting in irreversible sequelae.

AIMS AND OBJECTIVES

Aim:

To evaluate the frequency and characteristics of genital tract involvement in patients with extragenital TB.

Objectives:

- To ascertain the prevalence of genital TB among EPTB patients.
- To facilitate early diagnosis for timely initiation of therapy.
- To prevent permanent genital tract damage and preserve reproductive potential.

MATERIALS AND METHODS

Study Design: Prospective observational study

Period: September 2022 to August 2024 (24 months)

Setting: Departments of Gynecology and Pulmonology, Government Hospitals, Hanamkonda, India

Participants: One hundred women aged 20–45 years with confirmed EPTB or undergoing antitubercular therapy

Inclusion Criteria: Reproductive-age women diagnosed with extragenital TB who consented to participate

Exclusion Criteria: Women outside the age range, known cases of genital TB, and those with significant comorbidities (HIV, diabetes, hypertension), and non-consenting

Procedures:

Clinical history and physical examinations were documented. Endometrial tissue was obtained during the late premenstrual phase or day 1 of menstruation and assessed by histopathology (H&E staining) and CBNAAT PCR for Mycobacterium tuberculosis. Data analysis was performed using SPSS v24.0, with significance set at $p<0.05$.

RESULTS

Demographic and Clinical Profile

Majority of patients were aged 26–30 years (53%) with mean age of 27.35 ± 2.16 years

45% had normal BMI

58% had attained school-level education

36% belonged to lower middle socioeconomic class

68% lived in kutcha houses with 55% experiencing overcrowding

Family history of TB was positive in 83%

Childhood TB history was absent in 81%

Lung was the primary site of TB in 93%

84% had received BCG vaccination

52% were currently on antitubercular therapy

Diagnostic Findings

Genital TB confirmed by CBNAAT PCR in 12% of cases

Histopathological confirmation in 4% of cases

CBNAAT PCR showed higher sensitivity (44.3%) but lower specificity (80.4%) than histopathology (8.2% sensitivity, 100% specificity)

DISCUSSION

This study reveals that genital TB is significantly prevalent among women with extragenital tuberculosis, aligning with other regional studies. Most affected women were from socioeconomically disadvantaged backgrounds with crowded living conditions, factors known to facilitate TB transmission. Molecular diagnostic methods such as CBNAAT PCR demonstrated superior sensitivity, highlighting their value in early and accurate diagnosis. This is critical for initiating

timely treatment and preventing complications such as infertility and chronic pelvic infection. Concerted efforts to integrate molecular diagnostics in routine evaluation of EPTB patients can enhance case detection and improve reproductive health outcomes.

CONCLUSION

Genital tuberculosis is a frequently overlooked manifestation in patients with extragenital TB. CBNAAT PCR offers enhanced diagnostic accuracy and should be incorporated into standard diagnostic protocols for early detection. Prompt diagnosis and treatment are imperative to prevent irreversible reproductive damage and improve quality of life.

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