Current Trends of Genital Tuberculosis Among Infertile Females Attending a Tertiary Care Centre: A Prevalence and Clinico-Histopathological Study

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Abstract

Background: Genital tuberculosis (GTB) is a form of extrapulmonary tuberculosis that specifically targets the female reproductive organs and is a significant yet under-recognized contributor to female infertility, particularly in tuberculosis-endemic regions such as India. Owing to its insidious onset and nonspecific presentation, GTB is frequently detected only during evaluation for infertility. This study was undertaken to determine the prevalence of genital tuberculosis among infertile females attending a tertiary care centre and to relate endometrial biopsy findings with sociodemographic factors.

Materials and Methods: A study was conducted in the Department of Obstetrics and Gynaecology, Prasad Institute of Medical Sciences, Lucknow, on 57 infertile women of reproductive age (20–45 years) suspected of having genital tuberculosis. After informed consent and application of inclusion and exclusion criteria, detailed clinical history and examination were recorded and a premenstrual endometrial biopsy was obtained. Samples were preserved in 10% formalin, processed, and subjected to histopathological examination for features of tuberculosis. Data were analysed using SPSS version 26; the Chi-square test was applied for categorical variables, with $p < 0.05$ considered significant.

Results: Genital tuberculosis was diagnosed in 15 of 57 women, yielding a prevalence of 26.3%. The majority of participants belonged to the 26–30 years age group (40.3%), and among GTB-positive women 40% were in this age group. More than half were from rural areas (54.4%) and belonged to the lower socioeconomic class (68.4%). Primary infertility predominated (70.2%). Menstrual irregularities (60%) and chronic pelvic pain (46.7%) were more frequent among GTB-positive women. A past history of tuberculosis was significantly associated with GTB positivity ($p = 0.008$), while age, residence, and socioeconomic status showed no significant association. Among GTB-positive biopsies, caseating granulomas (73.3%), Langhans giant cells (60%), endometrial atrophy (46.7%), and chronic endometritis (33.3%) were the predominant histopathological findings.

Conclusion: Genital tuberculosis remains a major and underdiagnosed cause of female infertility in TB-endemic regions, with a notably high prevalence of 26.3% in the studied population. Past history of tuberculosis emerged as the only significant risk factor. Early clinical suspicion and routine histopathological screening of infertile women—particularly those with a past TB history, long-standing infertility, menstrual disturbances, or pelvic pain—are essential for timely diagnosis and prevention of irreversible reproductive tract damage.

Keywords: Genital tuberculosis, Female infertility, Endometrial biopsy, Histopathology, Extrapulmonary tuberculosis, Granuloma

Introduction

Infertility, defined as the inability to conceive after one year of unprotected intercourse, affects approximately 10–15% of couples globally. Among these, female factors contribute to nearly half of the cases. In resource-limited countries like India, the social stigma and emotional distress associated with infertility are particularly profound, often leading to psychological trauma, marital

discord, and societal exclusion. As the healthcare community strives to uncover and manage the multifactorial causes of female infertility, genital tuberculosis (GTB) emerges as a significant yet under-recognized contributor, especially in tuberculosis-endemic regions.

Genital tuberculosis is a form of extrapulmonary tuberculosis (EPTB) that specifically targets the female reproductive organs. It is primarily caused by Mycobacterium tuberculosis, although M. bovis and atypical mycobacteria have also been implicated in rare cases. The infection usually reaches the genital tract via hematogenous or lymphatic dissemination from a primary focus, typically located in the lungs, gastrointestinal tract, or lymph nodes. Despite the widespread implementation of national TB control programs, the incidence of extrapulmonary TB, including GTB, has not seen a proportional decline, particularly among immunocompromised individuals and women in their reproductive years.

The clinical presentation of genital tuberculosis is often insidious, nonspecific, and varies widely, contributing to delayed diagnosis and treatment. A significant number of cases remain asymptomatic and are discovered incidentally during evaluation for infertility, which is the most common presenting complaint—reported in up to 60–80% of women with GTB. Menstrual irregularities are the next most frequent symptom, including oligomenorrhea, amenorrhea, menorrhagia, or intermenstrual spotting, often resulting from endometrial involvement and scarring. Chronic lower abdominal or pelvic pain, dyspareunia, and abnormal vaginal discharge may also be reported, though these are less specific and can mimic other gynecological conditions such as pelvic inflammatory disease or endometriosis. The non-specificity and overlap with other conditions necessitate a high index of suspicion, especially in women from endemic regions or with a past history of tuberculosis or contact with TB patients.

The pathophysiology of genital tuberculosis is characterized by chronic granulomatous inflammation resulting from the hematogenous or lymphatic spread of Mycobacterium tuberculosis to the female reproductive organs. Once the bacilli reach the genital tract, the fallopian tubes are usually the first and most frequently affected site (in over 90% of cases). Involvement of the endometrium, seen in about 50–60% of patients, leads to endometrial thinning, ulceration, and subsequent fibrosis and synechiae (Asherman's syndrome), severely impairing implantation. Histologically, GTB is marked by the presence of epithelioid cell granulomas, Langhans giant cells, and central caseous necrosis. The combination of structural damage and altered immunological environment within the reproductive tract culminates in infertility, either by mechanical obstruction, poor endometrial receptivity, or hormonal dysregulation.

Diagnosing GTB is a complex endeavor due to its nonspecific presentation and the paucibacillary nature of the infection. Conventional techniques include imaging modalities such as ultrasonography, hysterosalpingography, and magnetic resonance imaging, while endometrial biopsy, laparoscopy, and hysteroscopy provide visual and histopathological confirmation. Microbiological tests such as Ziehl–Neelsen staining, Lowenstein–Jensen culture, and molecular techniques including polymerase chain reaction (PCR) and GeneXpert have increased diagnostic sensitivity but are not uniformly available. The management of GTB primarily involves prolonged antitubercular therapy over 6–9 months; however, while therapy may halt disease progression, it seldom reverses anatomical damage already inflicted on the reproductive organs.

Given the dynamic epidemiology of tuberculosis and its implications on reproductive health, it is imperative to routinely assess current trends in GTB among infertile women, especially in high-burden countries like India. The present study was therefore undertaken to explore and document the current trends of genital tuberculosis among infertile females attending a tertiary care centre, with a focus on demographic distribution, clinical features, and histopathological findings, thereby informing clinical practice and enhancing early detection strategies in tuberculosis-endemic regions.

Aim and Objectives

Aim: To determine the prevalence of genital tuberculosis among infertile females attending a tertiary care centre.

Objectives: (1) To identify cases of genital tuberculosis among infertile females based on histopathological findings; and (2) to relate the findings of endometrial biopsy with sociodemographic factors.

Materials and Methods

Study Area, Design and Duration

The study was carried out in the Department of Obstetrics and Gynaecology, Prasad Institute of Medical Sciences, Lucknow. It was conducted as a cross-sectional study after obtaining permission from the Research Review Board and Institutional Ethical Committee of the college, and continued until December 2025.

Sample Size

A total of 57 patients were included in the study. The sample size was calculated using the formula $N = Z^2 \times P(1 - P)/d^2$, where Z = 1.96 (normal deviate at 95% confidence interval), P = 0.18 (prevalence of genital tuberculosis in infertile women, 18%), and d = 0.1 (margin of error at 10%). Considering a 95% confidence level, the minimum calculated sample size was 57.

Inclusion Criteria

Infertile women suspected of having genital tuberculosis; and women of the reproductive age group (20–45 years).

Exclusion Criteria

Women not suspected of having genital tuberculosis; women with other systemic diseases that could confound the diagnosis; women with contraindications for undergoing diagnostic procedures; and patients not willing to participate in the study.

Methodology

After obtaining ethical clearance from the Institutional Ethical Committee and informed consent from participants, 57 infertile women suspected of genital tuberculosis were selected and screened against the inclusion and exclusion criteria. A detailed clinical history was collected, including age, duration of infertility, menstrual history, gynecological history, and past history of tuberculosis, followed by a comprehensive clinical examination. A premenstrual endometrial biopsy was collected and the biopsy samples were preserved in 10% formalin and transported to the laboratory. Laboratory processing comprised formalin fixation, paraffin embedding, sectioning, and staining,

followed by microscopic examination and histopathological evaluation for characteristic features of tuberculosis, such as caseating granulomas in endometrial tissue.

Statistical Analysis

The collected data were entered into Microsoft Excel and analysed using the Statistical Package for the Social Sciences (SPSS) version 26 (SPSS Inc., Chicago, IL, USA). Continuous variables were presented as mean ± standard deviation or range, whereas categorical variables were expressed as frequency and percentage. The Chi-square test was used for comparison of categorical variables and the Student's t-test for continuous variables; for comparisons involving more than two groups, ANOVA or the Kruskal–Wallis test was applied as appropriate. All analyses were conducted at a 95% confidence interval, with $p < 0.05$ considered statistically significant and $p < 0.001$ highly significant.

Results

Table 1: Age distribution (N = 57)

Age Group (Years)	Number (n)	Percentage (%)
20–25	17	29.80
26–30	23	40.30
31–35	12	21.00
36–40	5	8.70
Total	57	100

Among the 57 women, the majority (40.30%) belonged to the 26–30 years age group, followed by 29.80% in the 20–25 years group. About 21% were 31–35 years old, while only 8.7% were above 35 years, indicating that most women seeking infertility evaluation were in their reproductive prime.

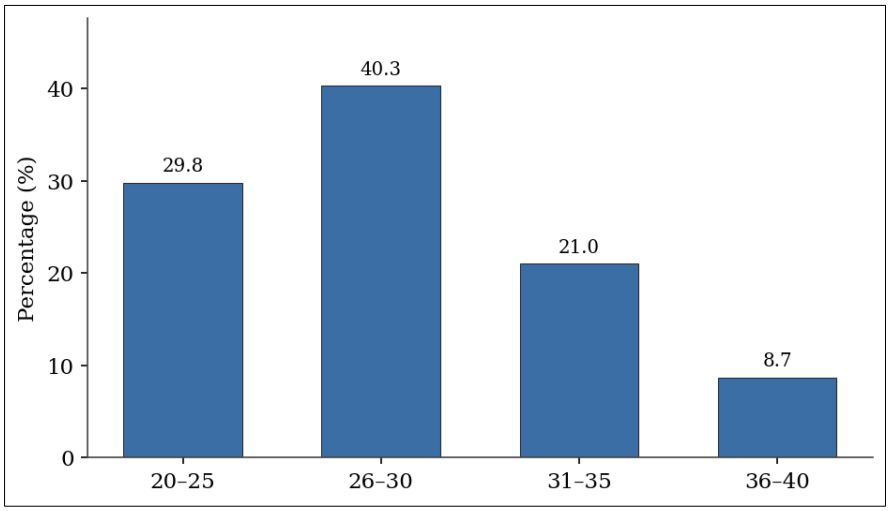

Fig 1: Age distribution of study subjects (N = 57).

Table 2: Residence (N = 57)

Residence	Number (n)	Percentage (%)
Rural	31	54.40
Urban	26	45.60
Total	57	100

Of 57 participants, 54.4% were from rural areas while 45.6% belonged to urban settings, suggesting a relatively higher representation of rural women in infertility investigations at the institute.

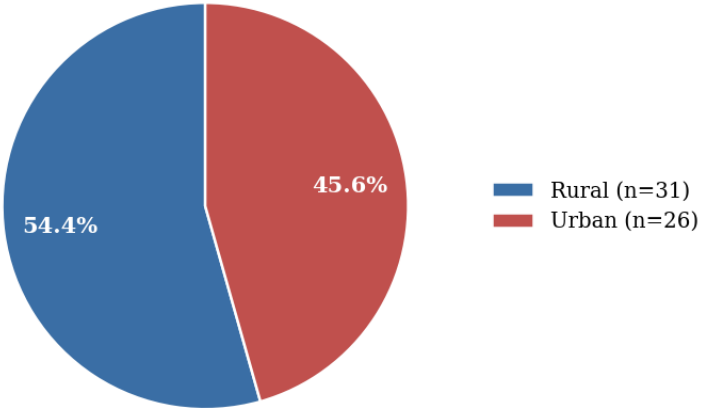

Fig 2: Distribution of participants by residence (N = 57).

Table 3: Socioeconomic status (N = 57)

Socioeconomic Class	Number (n)	Percentage (%)
Lower	39	68.40
Middle	15	26.30
Upper	3	5.30
Total	57	100

A majority of subjects (68.4%) belonged to the lower socioeconomic class, followed by 26.3% from the middle class and only 5.3% from the upper class, reflecting the socioeconomic background commonly seen in public healthcare setups.

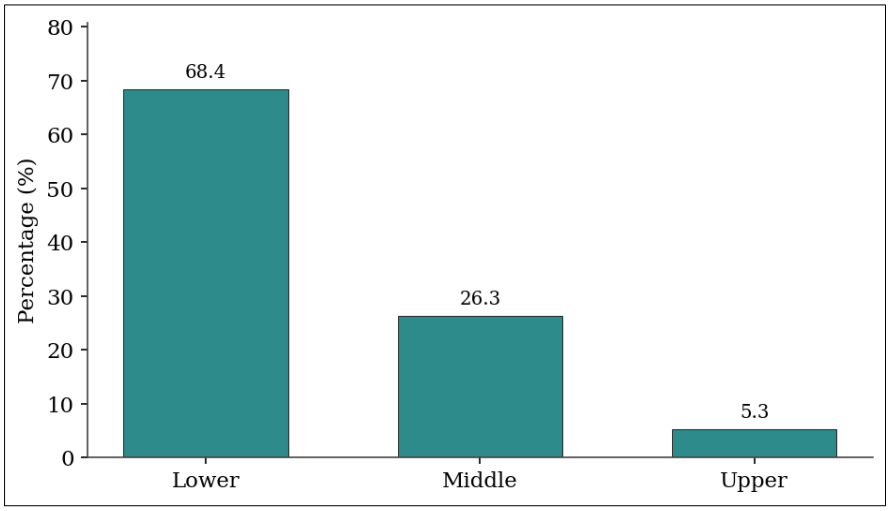

Fig 3: Distribution of participants by socioeconomic status (N = 57).

Table 4: Past history of tuberculosis (N = 57)

Past TB History	Number (n)	Percentage (%)
Present	10	17.50
Absent	47	82.50
Total	57	100

A past history of TB was present in 17.5% of patients, while most women (82.5%) did not report any previous TB, highlighting the need to screen infertile women for subclinical or undiagnosed genital tuberculosis despite the absence of a past TB history.

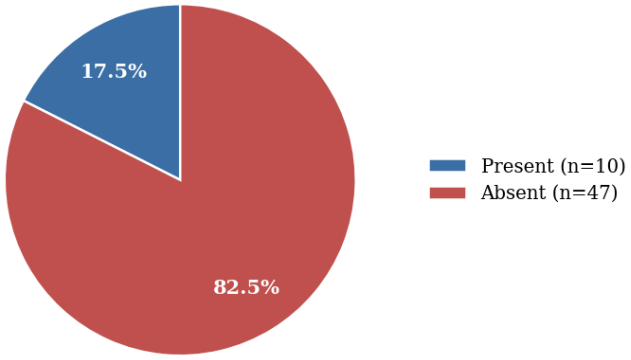

Fig 4: Past history of tuberculosis among participants (N = 57).

Table 5: Duration of infertility (N = 57)

Duration	Number (n)	Percentage (%)
< 3 years	23	40.30
3–5 years	20	35.10
> 5 years	14	24.60
Total	57	100

The most common duration of infertility was less than 3 years (40.3%), followed by 3–5 years (35.1%); about 24.6% had infertility for more than five years, indicating a significant proportion of chronic and long-standing cases.

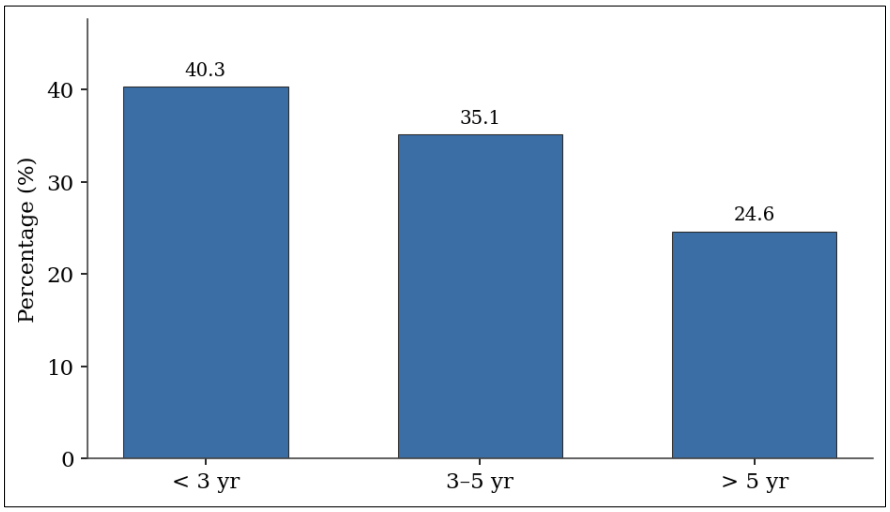

Fig 5: Duration of infertility among participants (N = 57).

Table 6: Type of infertility (N = 57)

Type	Number (n)	Percentage (%)
Primary infertility	40	70.20
Secondary infertility	17	29.80
Total	57	100

Primary infertility accounted for the majority (70.2%), while 29.8% had secondary infertility. The predominance of primary infertility is consistent with previous studies on genital TB-associated infertility.

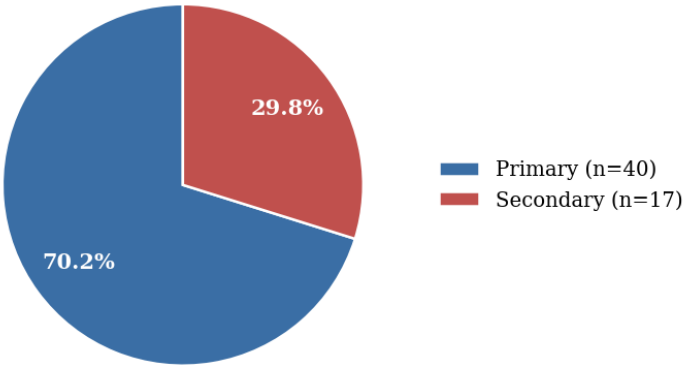

Fig 6: Type of infertility among participants (N = 57).

Table 7: Menstrual irregularities (N = 57)

Menstrual History	Number (n)	Percentage (%)
Present	26	45.60
Absent	31	54.40
Total	57	100

Menstrual irregularities were observed in 45.6% of women, whereas 54.4% reported normal cycles. The presence of irregular cycles in nearly half the cases may indicate underlying endometrial pathology or hormonal imbalance.

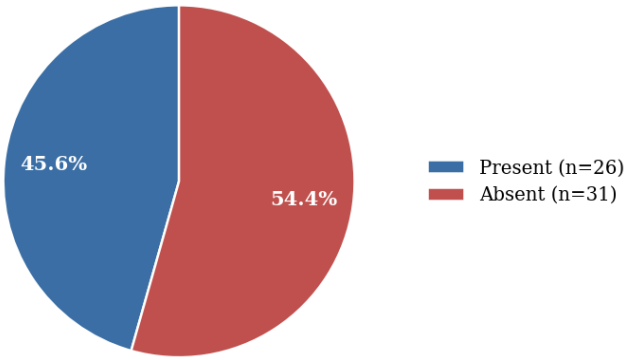

Fig 7: Menstrual irregularities among participants (N = 57).

Table 8: Chronic pelvic pain (N = 57)

Pelvic Pain	Number (n)	Percentage (%)
Present	18	31.60
Absent	39	68.40
Total	57	100

Chronic pelvic pain was present in 31.6% and absent in 68.4% of patients. Although not highly prevalent, pelvic pain remains an important clinical indicator in suspected GTB cases.

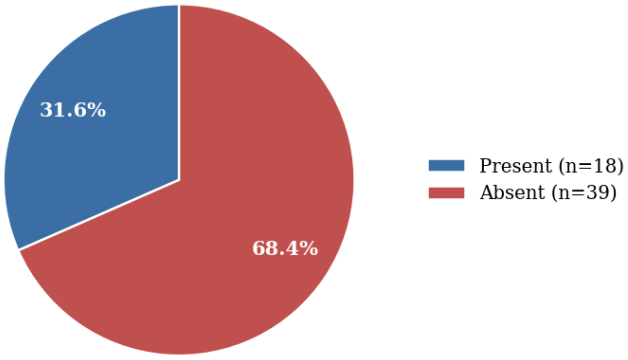

Fig 8: Chronic pelvic pain among participants (N = 57).

Table 9: Histopathological features in GTB-positive cases (n = 15)

Histopathological Feature	Count (n)	Percentage (%)
Caseating granuloma	4	26.70
Non-caseating granuloma	5	33.30
Chronic granulomatous inflammation suggestive of TB	6	40.00
Total (GTB +)	15	100

Among the 15 histopathologically confirmed GTB-positive cases, chronic granulomatous inflammation suggestive of TB was the most common finding (40%), followed by non-caseating granuloma (33.3%) and caseating granuloma (26.7%), showing that granulomas—caseating or non-caseating—remain key diagnostic markers.

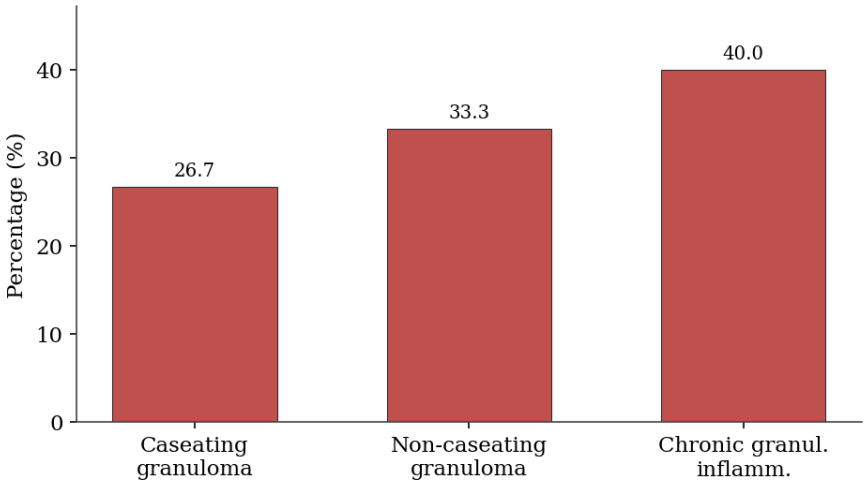

Fig 9: Histopathological features in GTB-positive cases (n = 15).

Table 10: Endometrial pattern in GTB-negative cases (n = 42)

Endometrial Pattern	Number (n)	Percentage (%)
Proliferative phase	19	45.20
Secretory phase	14	33.30
Chronic non-specific endometritis	6	14.30
Non-diagnostic sample	3	7.10
Total (GTB −)	42	100

Among 42 GTB-negative cases, the endometrium was in the proliferative phase in 45.2%, secretory phase in 33.3%, chronic non-specific endometritis in 14.3%, and non-diagnostic in 7.1%—non-specific patterns commonly seen in infertile women but not indicative of GTB.

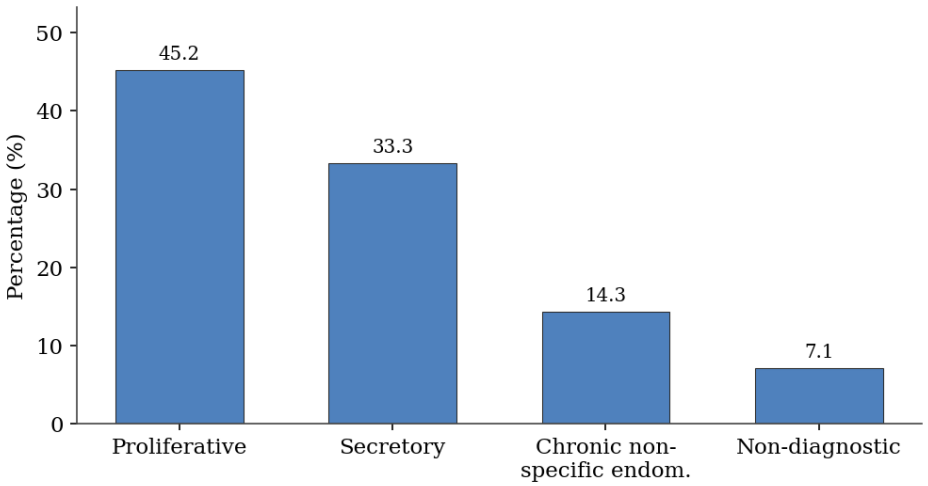

Fig 10: Endometrial pattern in GTB-negative cases (n = 42).

Table 11: Prevalence of genital tuberculosis (N = 57)

Histopathology Result	Number (n)	Percentage (%)
GTB positive	15	26.30
GTB negative	42	73.70
Total	57	100

Out of 57 participants, 15 cases (26.3%) were diagnosed with GTB while 42 (73.7%) were negative, indicating a notably high prevalence of genital TB in the infertile population investigated.

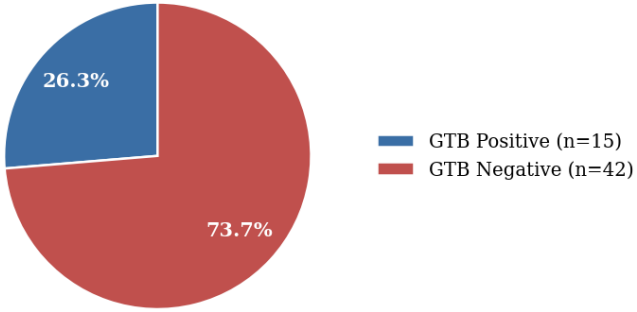

Fig 11: Prevalence of genital tuberculosis (N = 57).

Table 12: Age-wise distribution of study subjects (N = 57)

Age Group (Years)	GTB Positive (n=15)	GTB Negative (n=42)	Total (%)
20–25	3 (20%)	14 (33.3%)	17 (29.8%)
26–30	6 (40%)	17 (40.5%)	23 (40.3%)
31–35	4 (26.7%)	8 (19.0%)	12 (21.0%)
36–40	2 (13.3%)	3 (7.1%)	5 (8.7%)
Total	15	42	57

GTB positivity was distributed across all age groups. The highest proportion of GTB-positive cases occurred in the 26–30 years age group (40%), followed by 31–35 years (26.7%). Only 13.3% of GTB-positive women were above 35 years. The distribution was not statistically significant, implying no age association with GTB positivity.

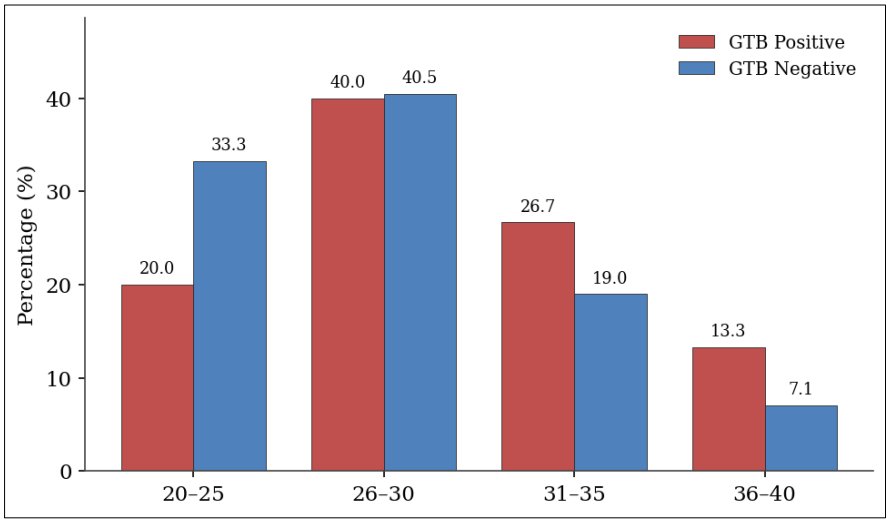

Fig 12: Age-wise distribution of GTB-positive and GTB-negative subjects.

Table 13: Sociodemographic characteristics of participants

Variable	GTB Positive (n=15)	GTB Negative (n=42)	p-value
Residence – Rural	10 (66.7%)	21 (50%)	0.21
Residence – Urban	5 (33.3%)	21 (50%)	—
Socioeconomic – Lower	12 (80%)	27 (64.3%)	0.29
Socioeconomic – Middle	3 (20%)	12 (28.6%)	—
Socioeconomic – Upper	0	3 (7.1%)	—
Past TB history – Present	6 (40%)	4 (9.5%)	0.008 (Sig.)
Past TB history – Absent	9 (60%)	38 (90.5%)	—

GTB positivity was higher among rural residents (66.7%) and the lower socioeconomic class (80%); however, these associations were not statistically significant. A significant association was found between past TB history and GTB positivity (p = 0.008), indicating that women with previous TB infection have a higher risk of developing genital tuberculosis.

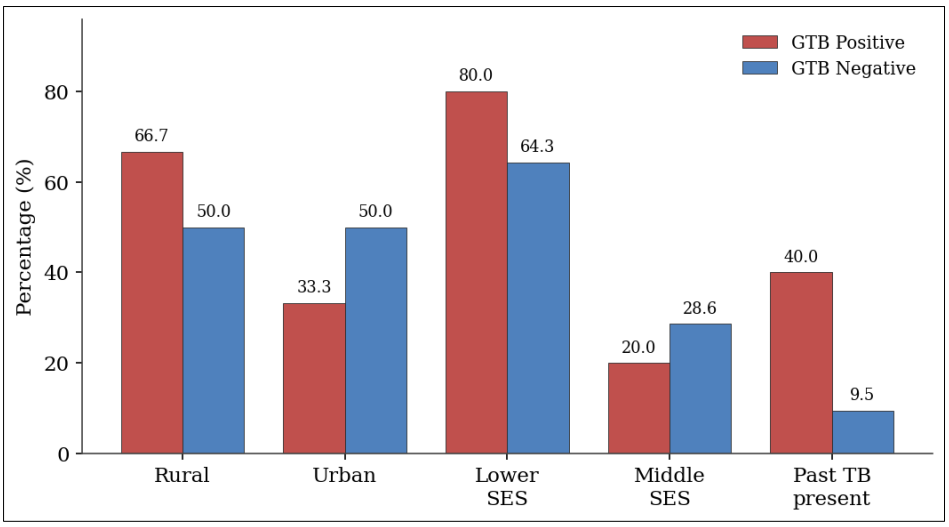

Fig 13: Sociodemographic characteristics by GTB status.

Table 14: Clinical profile of the study subjects

Clinical Parameter	GTB Positive (n=15)	GTB Negative (n=42)
Primary infertility	11 (73.3%)	29 (69%)
Secondary infertility	4 (26.7%)	13 (31%)
Duration < 3 years	4 (26.7%)	19 (45.2%)
Duration 3–5 years	6 (40%)	14 (33.3%)
Duration > 5 years	5 (33.3%)	9 (21.4%)
Menstrual irregularities	9 (60%)	17 (40.5%)
Chronic pelvic pain	7 (46.7%)	11 (26.2%)

Primary infertility was slightly more common in GTB-positive women (73.3%) than in GTB-negative women (69%), and longer duration of infertility (> 5 years) was more prevalent in GTB-positive cases. Menstrual irregularities (60%) and chronic pelvic pain (46.7%) were both higher among GTB-positive patients, indicating that these symptoms may raise suspicion toward GTB.

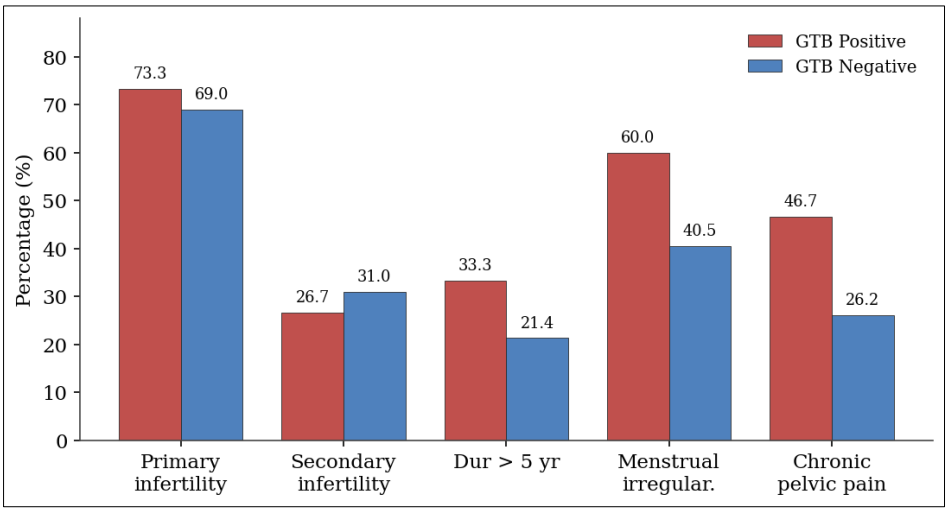

Fig 14: Clinical profile of GTB-positive versus GTB-negative subjects.

Table 15: Histopathological findings among GTB-positive cases (n = 15)

Histopathological Feature	Number (n)	Percentage (%)
Caseating granulomas	11	73.30
Epithelioid granulomas (non-caseating)	4	26.70
Langhans giant cells	9	60.00
Endometrial atrophy	7	46.70
Chronic endometritis	5	33.30

In a detailed evaluation of 15 GTB-positive biopsies, caseating granulomas were most frequent (73.3%), followed by Langhans giant cells (60%), endometrial atrophy (46.7%), and chronic endometritis (33.3%)—classic and supportive histological features confirming TB infection in the reproductive tract.

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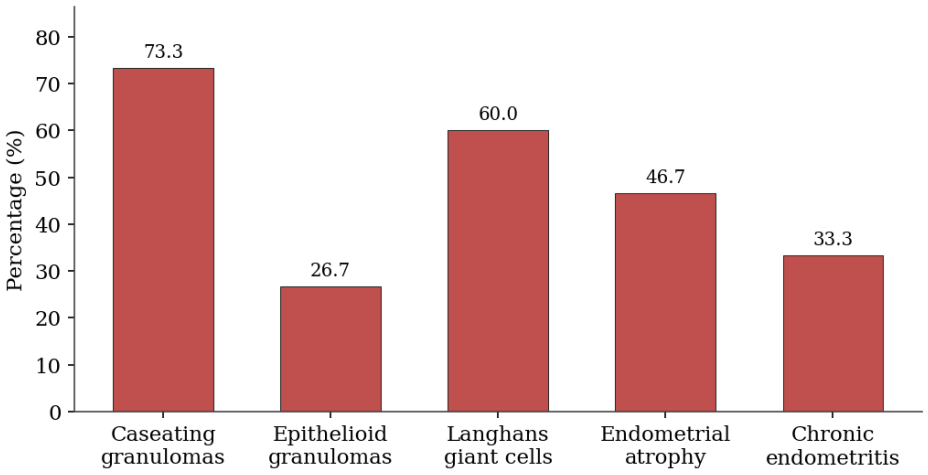

Fig 15: Histopathological findings among GTB-positive cases (n = 15).

Table 16: Association between key sociodemographic variables and GTB positivity

Parameter	χ^2 Value	p-value	Significance
Age group	1.12	0.57	Not significant
Residence (Rural/Urban)	1.49	0.22	Not significant
Socioeconomic status	2.08	0.35	Not significant
Past history of TB	7.02	0.008	Significant

Statistical analysis revealed that only past history of tuberculosis was significantly associated with GTB positivity (p = 0.008). Age, residence, and socioeconomic status showed no significant correlation, suggesting that GTB can occur across all demographic strata.

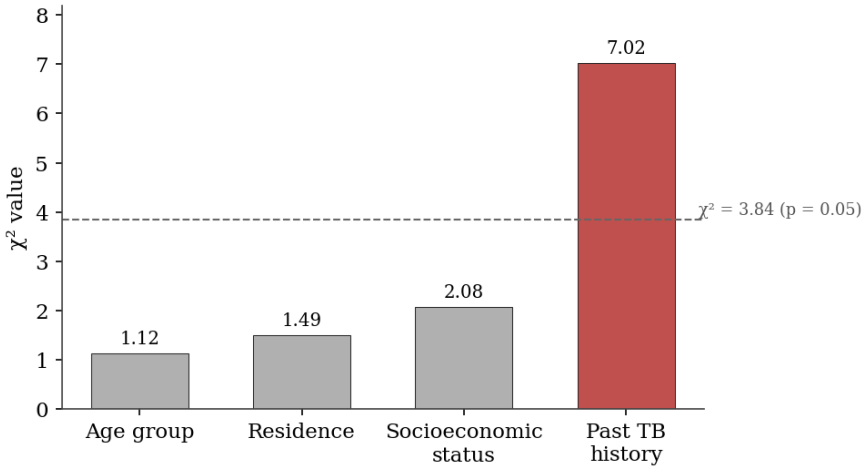

Fig 16: Chi-square values for association between sociodemographic variables and GTB positivity (dashed line = significance threshold, χ^2 = 3.84).

Discussion

Genital tuberculosis (GTB) remains a significant yet underdiagnosed cause of female infertility, particularly in tuberculosis-endemic countries such as India. Despite global advances in tuberculosis control, extrapulmonary tuberculosis—including GTB—continues to exert a profound impact on women of reproductive age, often presenting silently and being detected only during infertility evaluation. The present study was conducted to analyse the demographic profile, clinical characteristics, histopathological features, and prevalence of GTB among infertile women attending a tertiary care centre and to compare these findings with existing literature.

In the present study, the majority of women were between 26–30 years (40.3%), followed by 20–25 years (29.8%), with clustering in the early reproductive age group. Among GTB-positive women, 40% belonged to the 26–30-year age group, followed by 26.7% in the 31–35-year group; however, statistical analysis showed no significant association between age and GTB positivity ($p = 0.57$). These findings are comparable to observations reported by Jena *et al*., Singh *et al*., and Gunasekaran *et al*., where GTB predominantly affected women in their reproductive years (20–35 years). The lack of age association aligns with findings from Tal *et al*. and Reis-de-Carvalho *et al*., suggesting that GTB should be suspected across all reproductive age groups.

In the current study, 68.4% of women belonged to the lower socioeconomic class and 54.4% were from rural areas. GTB positivity was higher among rural women (66.7%) and those from lower socioeconomic strata (80%), although these associations were not statistically significant ($p = 0.21$ and $p = 0.29$, respectively). Similar demographic patterns have been documented by Shende *et al*., Bandyopadhyay *et al*., and Panda *et al*., who attributed higher GTB prevalence among women from lower socioeconomic backgrounds to overcrowding, malnutrition, delayed healthcare access, and poor TB awareness. The absence of statistical significance in the present study supports observations by Parvez *et al*. and Sarbhai *et al*., who highlighted that GTB can affect women irrespective of socioeconomic or residential status.

Primary infertility was observed in 70.2% of participants, while 29.8% had secondary infertility. Among GTB-positive women, 73.3% had primary infertility and 33.3% had an infertility duration exceeding five years. These findings closely mirror the meta-analysis by Chaman-Ara *et al*., which reported primary infertility in 75.7% of women with GTB, and the report by Ahmed *et al*., who documented that 66% of GTB-associated infertility was primary. Prolonged infertility duration in GTB-positive women has also been reported by Eryani *et al*. and Maheshwari *et al*., emphasizing delayed diagnosis due to subclinical disease progression.

Menstrual irregularities were present in 45.6% of participants and were higher among GTB-positive women (60%) compared to GTB-negative women (40.5%). Chronic pelvic pain was reported by 31.6% overall, with a higher prevalence in GTB-positive women (46.7%). These findings align with reports by Grace *et al*., Sharma *et al*., and Singh *et al*., who described menstrual disturbances and pelvic pain as common but nonspecific manifestations of GTB. The present study reinforces that while these symptoms increase suspicion, their absence does not exclude disease, as emphasized by Kaya *et al*. and Tzelios *et al*.

A past history of tuberculosis was present in 17.5% of participants and showed a statistically significant association with GTB positivity ($p = 0.008$)—the only variable demonstrating statistical significance. This correlation is consistent with findings from Parvez *et al*., Sinha *et al*., and Maheshwari *et al*., who identified previous TB infection as a major risk factor for GTB. Sinha *et al*. further demonstrated significantly higher tubal pathology among women with prior TB. The present study reinforces the need for routine GTB screening in infertile women with a past TB history, even in the absence of symptoms.

The prevalence of GTB in the present study was 26.3%, which is notably high and comparable to findings by Shende *et al*. (27%) and Jena *et al*., and aligns with the pooled prevalence of 20% reported in the meta-analysis by Ahmed *et al*. Vijay *et al*. reported an even higher pooled prevalence of 34.86% among infertile Indian women. Higher prevalence in tertiary care centres likely reflects referral bias, as noted by Gunasekaran *et al*. and Sarbhai *et al*. In contrast, Western studies such as Reis-de-Carvalho *et al*. reported a prevalence of 0.72%, underscoring regional epidemiological differences.

Among GTB-positive cases, caseating granulomas were observed in 73.3%, Langhans giant cells in 60%, endometrial atrophy in 46.7%, and chronic endometritis in 33.3%. These classic histopathological features are consistent with descriptions by Sharma *et al*., Grace *et al*., and Singh *et al*. The presence of non-caseating granulomas in 26.7% of cases highlights diagnostic challenges, as emphasized by Dahiya *et al*. and Fatima *et al*., who advocated for a composite diagnostic approach rather than reliance on a single modality.

The diagnostic difficulty posed by the paucibacillary nature of GTB has been well documented by Thangappah, Goel *et al*., and Sarbhai *et al*. Even after successful antitubercular therapy, fertility outcomes remain poor; Eryani *et al*. reported conception rates of only 12.8%, while Shende *et al*. reported improvement in 28% of treated women. Emerging evidence from Chatterjee *et al*. and Gai *et al*. suggests that latent or subclinical GTB may impair implantation and IVF outcomes through immunological and molecular mechanisms, even in the absence of active disease.

The findings of the present study closely align with national and international literature and confirm that genital tuberculosis remains a major, underrecognized cause of infertility in TB-endemic regions. The significant association with past TB history, high prevalence in reproductive-age women, and characteristic histopathological findings underscore the importance of early suspicion and systematic screening.

Conclusion

The present study highlights genital tuberculosis (GTB) as a significant and underrecognized cause of female infertility in a tuberculosis-endemic setting. Among the 57 infertile women evaluated at a tertiary care centre, the prevalence of GTB was 26.3%, indicating a substantial disease burden. GTB was predominantly observed in women of reproductive age (20–35 years), with the highest proportion in the 26–30 years group. Although GTB positivity was more frequent among women from rural areas and lower socioeconomic strata, these associations were not statistically significant, suggesting that GTB can affect women across all demographic groups.

Primary infertility constituted the majority of cases (70.2%) and was slightly more common among GTB-positive women (73.3%), who also demonstrated a longer duration of infertility. Menstrual irregularities (60%) and chronic pelvic

pain (46.7%) were more prevalent among GTB-positive women, indicating that these symptoms may serve as important clinical indicators; however, their absence does not exclude the disease. A statistically significant association was observed between past history of tuberculosis and GTB positivity ($p = 0.008$), establishing previous TB infection as a major risk factor for genital involvement.

Histopathological examination played a pivotal role in diagnosis, with caseating granulomas, Langhans giant cells, endometrial atrophy, and chronic endometritis being the most common findings among GTB-positive cases. Overall, this study reinforces that genital tuberculosis remains a silent yet devastating cause of infertility, often diagnosed late when irreversible damage has already occurred. Integrating routine screening for GTB into infertility evaluation protocols at tertiary care centres in TB-endemic regions may facilitate earlier detection, prevent disease progression, and potentially preserve reproductive function.

Conflict of Interest: The authors declare that there are no conflicts of interest regarding the publication of this study.

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