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Original Research Article

Prevalence of Genital Tuberculosis Cause of Infertile Women: A Clinical Study

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Abstract

Background: Genital tuberculosis (GTB) is a significant, often asymptomatic cause of infertility, particularly in developing regions. It affects both females (tubal blockage, uterine adhesion) and males (sperm quality) by causing chronic inflammation and scar tissue, often leading to irreversible damage if not treated early, requiring assisted reproduction methods. Aims of this study is to assess the prevalence of tuberculosis in infertile women and to determine the histological pattern of involvement, clinical spectrum and impact on infertility in women with tuberculosis.

Methods: Between January 2024 and December 2024, 100 patients at the obstetrics and gynecology department of Madhubani Medical College and Hospital in Madhubani, Bihar, participated in the current clinical study.

Results: Eighteen of the 100 infertile females had genital tuberculosis (GTB). In nine (50%) cases of GTB, the fallopian tube was the most often involved location, followed by the endometrium. There were five cases of secondary infertility and thirteen cases of primary infertility in GTB.

Conclusion: According to our study, GTB frequently manifests as primary infertility. Menstrual issues were not frequently reported. In GTB, the fallopian tube was frequently involved.

Keywords: Infertility, Female Genital Tuberculosis.

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Introduction

Main cause of infertility includes female factor (40%), male factor (20%), both (20%), unexplained (15%).Infertility is defined by the World Health Organization as "failure to conceive despite over 12 months of regular and unprotected intercourse." One of the main causes of female infertility is tuberculosis, a chronic infectious disease. The Global TB Report 2016 estimates that there were 2 million fatalities and 10.4 million new cases of tuberculosis (TB) globally, including 3.5 million in women.[1] Female genital TB is currently regarded as a major medical and social issue for women of reproductive age (24–35 years), and it is thought to be the cause of 10–27.8% of female infertility cases.[2] One of the highest rates of tuberculosis worldwide is seen in India. Therefore, it is recommended that female genital tract tuberculosis (FGTB) be checked for in all patients seeking infertility consultations in developing countries.In contrast to pulmonary tuberculosis, genital tuberculosis is typically asymptomatic or presents with a variety of symptoms, making clinical diagnosis challenging. The diagnosis is not greatly aided by standard laboratory tests like microscopy and culture. When it comes to tuberculosis diagnosis, PCR (polymerase chain reaction) has the best sensitivity, but its specificity is low because of false positive results.[3] In premenstrual endometrial tissue biopsy, only histo-pathological evidence can definitively diagnose the condition. The diagnosis of MDR-TB (multidrug resistance tuberculosis) and active tuberculosis may undergo a revolution thanks to GeneXpert MTB/RIF (mycobacterium tuberculosis/resistance to rifampicin). The GeneXpert assay is a significant advancement in the fight against tuberculosis, and the WHO recommended its usage by "December 2010."

Material and Methods

The present study was conducted on 100 patients in the department of Obstetrics and Gynaecology, Madhubani Medical College and Hospital, Madhubani, Bihar from January 2024 to December 2024.

All sexually active women of reproductive age group with infertility were included in this study.Patients of non-reproductive age group who have completed their family were excluded in this study.

Detailed history and socio-economic status was taken. General physical examination was done. Routine investigation i.e. haemogram, renal and liver function tests, ESR, TLC was carried out. Montoux test was done for diagnosis of tuberculosis and skin test was read between 48 and 72 hours after administration. Two sputum specimens were sent for detection of mycobacterium tuberculosis by ZN staining. One specimen out of two was considered smearpositive TB. Pelvic ultrasound was done to rule out uterine and adnexal pathology.

Each patient was subjected to diagnostic laparoscopy examination and a careful evaluation of fallopian tubes, ovaries, pelvic peritoneum, pouch of Douglas and peritoneal cavity. Features suggestive of genital TB were looked for by noting the presence of miliary tubercles on uterus and tubes, nodular salphingitis, caeseosalphinx, hydrosalpinx, presence of peritubal, periovarian, omental and bowel adhesions, free fluid in pouch of Douglas. Following this endometrial biopsy was done. On histopathology of endometrial curettage, the features suggestive of tuberculosis were the presence of tubercle bacilli, caseous necrosis, giant cells, epithelial cell clusters and lymphocytic infiltration.

All entries were entered in SPSS version 24. Association of each of the categorical variable was assessed with chi-square test.

Results

Ggenital tuberculosis (GTB) was present in 18 out of 100 cases. The age range of the maximum infertile women in Table 1 was 31 to 35. The majority of patients in the genital TB category are between the ages of 26 and 30 (44.4%), followed by those between the ages of 31 and 35 (27.7%), and women beyond the age of 36 (16.6%). The study's mean age was 28.11 years.

Table 1: Age wise distribution of infertile women and GTB patients

Parameters	Age (years)	No. of cases	Percentage
Infertile patients	<20	3	3%
	21-25	17	17%
	26-30	25	25%
	31-35	45	45%
	>35	10	10%
Female Genital TB patients	<20	0	0
	21-25	2	11.1%
	26-30	8	44.4%
	31-35	5	27.7%
	>35	3	16.6%

Hypomenorrhea (10%) was the most frequent menstruation complaint in the infertile group, followed by menorrhagia (5%) and amenorrhea (5%). Table 2 demonstrates that the majority of women had normal menstrual function, which is significant (p - 0.0001).

Table 2: Different menstrual pattern in infertile and GTB patients

Categories	Menstrual abnormalities	No. of cases	Percentage	p-value
Infertile patients	Normal menstruation	80	80%	0.0001
	Hypomenorrhea	10	10%	
	Menorrhagia	5	5%	
	Amenorrhea	5	5%	
Female Genital TB patients	Normal menstruation	9	50%	0.0001
	Hypomenorrhea	5	27.7%	
	Menorrhagia	3	16.6%	
	Amenorrhea	1	5.5%	

Fifty percent of the eighteen female patients with genital TB had regular menstrual cycles. In five patients (27.7%) of genital TB, hypomenorrhea was the most prevalent monthly abnormality, followed by menorrhagia (16.6%) and amenorrhea (5.5%). Table 3 shows that 13 instances of genital TB had primary infertility and 5 cases had secondary infertility.

Table 3: Infertility pattern in infertile and GTB patients

Categories	Menstrual abnormalities	No. of cases	Percentage	p-value
Infertile patients	Primary infertility	74	74%	<0.0001
	Secondary infertility	26	26%	
Female Genital TB patients	Primary infertility	13	72.2%	<0.0001
	Secondary infertility	5	27.8%	

According to the current study, the most common cause of infertility is ovulatory dysfunction (30%), which is followed by tubal factor (28%), endometriosis (24%), and uterine factor (14%) (p - 0.08) (Table 4).

Table 4: Different etiologies of female infertility

Etiology	No. of patients	Percentage
Ovulatory dysfunction (anovulation)	30	30%
Tubal factor	28	28%
Uterine factor	14	14%
* congenital	2	2%
* acquired	12	12%
Pelvic factors (endometriosis)	24	24%
Unexplained	3	3%

The fallopian tubes are the most often affected location in patients with genital TB. Nine of the eighteen instances in our analysis had fallopian tubes as the most prevalent site, followed by six cases where fallopian tubes were also implicated together with the uterus and ovaries (p - 0.0001), which was significant (table 5).

Table 5: Pattern of involvement in GTB

Genital tract involved	No. of cases	Percentage
Fallopian tube	9	50%
Fallopian tube+ ovary	1	
Fallopian tube+ovary+ uterus	6	
Ovary	-	
Uterus	2	11%
Cervix	-	
Vagina	-	-

Discussion

The current study was carried out to evaluate the prevalence of tuberculosis in infertile women and to ascertain the clinical spectrum, pattern of involvement, and effect on fertility in tuberculosis-affected women. Umoh AV and Gabiel MA conducted a similar study on 114 infertile women, and 19 of them (16.7%) had genital TB.[5]58 patients (41.4%) of the 140 infertile patients in Singh et al.'s study had genital TB. Due to its paucibacillary nature and lack of symptoms, genital TB is frequently underdiagnosed and a major contributor to female tubal infertility.[6,7] Due to variations in the population group under study, the sensitivity and specificity of the test employed for diagnosis, and the time of the sample in relation to the menstrual cycle, the stated prevalence varies greatly across the globe. The majority of infertile women in our study (45%) were in the 31–35 age range, and their mean age was 29.85 years.

Hull et al. studied 472 women who were infertile. Similar to our study, the mean age of infertile women in theirs was 28.[8] The study conducted by Philippov OS et al. involved 333 infertile couples. In their study, the average age of infertile women was 24.[9] The average age of infertile women with genital TB in our study was 28.11 years, which was similar to our findings. The largest age range of TB-affected infertile women is 26–30 years old (44.4%).

The majority of women with genital TB in the current study (72.22%) had primary infertility, whereas just 27.77% had secondary infertility. The results indicated that in women of reproductive age, genital TB may disrupt the normal process of reproduction. A similar study conducted in Iran by OS Phillipov revealed that 15% of infertile women had secondary infertility and 85% of infertile women with genital TB had primary infertility.[9]

In our study maximum patients of infertility had marital life less than 5 years (36%) and mean age of marital life was 6.16 years. Paul et al studied 113 infertile women; the mean age of marital life in infertile women was 5.6 years in their study.[10] In present study majority of the women had normal menstrual function (80%) while 10% of the patients had hypomenorrhea followed by menorrhagia (5%) and amenorrhea (5%). Paul et al observed abnormal menstruation was present in 14.2 % cases. Philippov et al studied 333 infertile couples in

which irregular menstruation was present in 20% of primary infertility and 10% of secondary infertility patients.[6,7] Santosh et al studied 110 cases of female genital tuberculosis over a period of 15 years in which menstruation disturbances were found in 27 patients (24.5%).[11] The most common findings were vaginal bleeding (18%), amenorrhea (5%), and vaginal discharge (4%).

In our study ovulation dysfunction was the leading cause of infertility followed by tubal factor (28%). Endometriosis was found in 24% of the genital TB patients, uterine factor was present in 14% of the cases. Hull et al studied 472 infertile women in which ovulatory failure was present in 21% patients, tubal factor in 14% patients, endometrium involvement in 6% patients and 28% patients had unexplained cause.Philippov et al studied 333 infertile couple which shows that the most frequent causes for female infertility were disturbances in tubal patency and pelvic adhesions in 23.6%.

In 25.3% had chronic cervicitis,18.3% had mycoplasma and adhesions due to postoperative complications in 5.4%.[6] In our study fallopian tube was involved in 88.5% cases. When tuberculosis affects the female genital tract, the fallopian tube is primarily affected and endometrium is secondary involved. Singh et al 3 studied 58 case of genital TB and found 13 patients had bilateral fimbrial block, 21 had corneal block, 8 had hydrosalphinx, 4 had tubo-ovarian mass, 8 had tubercular endometritis 3.

Conclusion

According to our study, the most frequent cause of infertility in infertile women is female genital TB. Primary infertility is a common symptom of genital TB. Infertility was found to be most frequently caused by ovarian malfunction. Menstrual issues were not frequently reported. Genital tuberculosis frequently affected the fallopian tube.

References

1. Global Tuberculosis Report 2016. Geneva, World Health Organisation 2016. Available at https://reliefweb.int/report/world/global-tuberculosis-report-2016. Accessed on 10 August 2018.
2. Klinyshkova TV, Yakovlela AA. Female infertility associated with genital tuberculosis. Obstet Gynecol Reprod. 2018;12(1):74-85.
3. Thangappah RB, Paramasivan CN, Narayan S. Evaluation PCR, culture and HPE for diagnosis of female genital tuberculosis. Indian J Med Res. 2011; 134:40-6.
4. World health organisation; practical considerations - Xpert MTB\RIF implementation manual, technical and operational „How-to"; Geneva Switzerland, WHO 2014; 8-9. Available at: http://www.who. int/tb/publications/xpert_implem_manual/en/. Accessed on 10 August 2018.
5. Umoh AV, Gabriel MA. Genital tuberculosis with secondary infertility- a case report of successful treatment and subsequent livebirth in Uyo, Nigeria. Journal of Medicine and Medical Science. 2011; 2(5): 839-42.
6. Singh N, Sumana G. Genital tuberculosis: a leading cause of infertility in women seeking assisted conception in north India. International journal of Gynaecology & Obstetrics. 2008; 278(4): 325-7.
7. Gupta N, Sharma JB, et al. Genital tuberculosis in Indian infertility patients. Int J Gynaecol& Obstetrics. 2008; 278(4): 325-7.
8. Hull MGR, Kelly NJ, et al. Population study of causes, treatment and outcome of infertility. British Medical Journal. 1985; 29(1): 222-25.
9. Philippov OS, Radionchenko AA, Bolotova VP, Voronovskaya NI, Potemkina TV. Estimation of the prevalence and causes of infertility in Western Siberia. Bull WHO Bulletin Organ. 1998; 76(2):183-7.
10. Adamson PC, Krupp K, et al. Prevalence and correlates of primary infertility among young women in Mysore, India. Indian J Med Res. 2011 October;134(4): 440-46.
11. Santosh KM. Histopathologic analysis of female genital TB: A fifteen-year retrospective study of 110 cases in Eastern India. Turkish Journal of Pathology. 2013; 29: 41-5.