

A Clinical Examination of Genital TB as a Cause of Infertility in NSCB Medical College, Jabalpur

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Abstract

Background: Genital TB accounts for 5-18% of cases and causes irreversible damage to the fallopian tube and uterus. This study was aimed to evaluate the incidence of genital tuberculosis as a cause of infertility.

Aims and objectives: To estimate the incidence of tuberculosis in infertile women and to determine the histological pattern of involvement, clinical spectrum, and impact on infertility in women infected with tuberculosis.

Materials and Methods: Hundred female with infertility were studied at the Department of Obstetrics and Gynaecology NSCB Medical College, Jabalpur, from January 2020 to December 2020. In addition to through sociodemographic parameters each patient underwent diagnostic laparoscopy and a thorough inspection of the fallopian tubes, ovaries, pelvic peritoneum, Douglas pouch, and peritoneal cavity.

Results: Out of 100 infertile patients, 20 developed genital TB. In 10 (50%) instances, the fallopian tube was the most common location of involvement in genital TB. There were 15 cases of primary infertility and 5 cases of secondary infertility in genital TB.

Conclusion: According to the findings, genital TB frequently manifests as primary infertility. Menstrual problems were not a common symptom. The fallopian tube was the most commonly involved location in genital TB.

Keywords: Genital Tuberculosis, Infertility, Infertile Women.

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Introduction

Most of the causes of fertility include female factor (40%), male factor (20%), both (20%), and unexplained (15%). Ovulatory dysfunction accounts for 20-40% of female infertility, tubal factors 40%, pelvic elements 5%, and unexplained

2-4%. [1] Genital tuberculosis (TB), which affects 5-18% of women, causes irreversible damage to the fallopian tubes and uterus.

Mycobacterium tubercle bacilli invade the vaginal tract via hematogenous or

lymphatic routes, causing genital tuberculosis. Infertility is caused by genital tuberculosis, which affects the fallopian tube (complete obstruction 85-90%), the endometrium (impairs implantation 35-50%), the ovary (ovulatory failure 5-6%), the cervix (3%), the vulva and the vagina (2%). Though chemotherapy works well in most instances with genital TB, the odds of pregnancy are minimal, increasing the chances of ectopic and spontaneous abortion. This study was aimed to evaluate the incidence of genital tuberculosis as a cause of infertility.

Materials and methods

The present clinical study was performed in the Department of Obstetrics and Gynaecology NSCB Medical College, Jabalpur, on 100 patients from January 2020 to December 2020.

The study included all female patients with infertility that are sexually active and of reproductive age. Patients of non-reproductive age who have had their family were excluded from the study.

A thorough history and socioeconomic situation were obtained. A general physical examination was carried out. A systematic study was performed, which included a haemogram, renal and liver function tests, ESR, and TLC. The Montoux test was used to diagnose tuberculosis, and the skin test was read 48 to 72 hours after administration. ZN staining was used to detect mycobacterium tuberculosis in two sputum specimens. Smear-positive

tuberculosis was found in one of two specimens. To rule out uterine and adnexal disease, a pelvic ultrasound was performed.

Each patient underwent diagnostic laparoscopy and a thorough inspection of the fallopian tubes, ovaries, pelvic peritoneum, Douglas pouch, and peritoneal cavity. The presence of miliary tubercles on the uterus and tubes, nodular salpingitis, caesosalpinx, hydrosalpinx, peritubular, periovarian, omental, and intestinal adhesions, and free fluid in the pouch of Douglas was also examined for. Following this, an endometrial biopsy was performed. Tubercle bacilli, caseous necrosis, large cells, epithelial cell clusters, and lymphocytic infiltration were found on the histology of endometrial curettage.

Statistical analysis:

The data was recorded in SPSS version 25. Data were expressed as numbers and percentages. The association of each of the categorical variables was assessed with a chi-square test. P value of <0.05 is considered significant.

Results

Out of 100 cases, 20 cases had genital tuberculosis. The average age of infertile women was 31-35 years old. As demonstrated in Table 1, most patients with genital TB were between the ages of 26 and 30, with the remaining 20% being between the ages of 31 and 35. In the current study, the average age was 28.11 years.

Table 1: Age-wise distribution of infertile women and genital TB patients

Parameters	Age (years)	Numbers	Percentage
Infertile patients	<20	04	04
	21-25	18	18
	26-30	26	26
	31-35	43	43
	>35	9	9
Genital tuberculosis patients	<20	0	0
	21-25	1	5
	26-30	9	45
	31-35	6	30
	>35	4	20

The data is expressed as numbers and percentage

In our current study, hypomenorrhea (15%) was the most common menstrual complaint in infertile and genital TB patients, followed by menorrhagia 5% and amenorrhoea 5%. The majority of women ($p=0.0001$) had normal menstrual function, which is notable. The majority of women

(50%) had normal menstrual function. As demonstrated in Table 2, the most common menstrual abnormality detected in genital TB was hypomenorrhea (6 patients (30%), followed by menorrhagia (3 patients (15%) and amenorrhea (1 patient (5.5%)).

Table 2: Different menstrual patterns in infertile and genital TB patients

Categories	Menstrual abnormality	Numbers	Percentage	P-value
Infertile patients	Normal menstruation	75	75	0.0001
	Hypomenorrhea	15	15	
	Menorrhagia	5	5	
	Amenorrhea	5	5	
Genital tuberculosis patients	Normal menstruation	10	50	0.0001
	Hypomenorrhea	6	30	
	Menorrhagia	3	15	
	Amenorrhea	1	5	

The data is expressed as numbers and percentage

In genital tuberculosis, 15 cases (75%) had primary infertility, while 5 patients (25%) had secondary infertility, as demonstrated in Table 3.

Table 3: Infertility pattern in infertile and genital TB patients

Categories	Menstrual abnormality	Numbers	Percentage	P-value
Infertile patients	Primary infertility	75	75	0.0001
	Secondary infertility	25	25	
Genital tuberculosis patients	Primary infertility	15	75	0.0001
	Secondary infertility	5	25	

The data is expressed as numbers and percentage

Table 4: Different etiologies of female infertility

Etiology	No. of patients	Percentage	P-value
Ovulatory dysfunction (anovulation)	32	32	0.08
Tubal factor	29	29	
Uterine factor *congenital + *acquired	15 4+11	15	
Pelvic factors (endometriosis)	22	22	
Unexplained	2	2	

The data is expressed as numbers and percentage

Our findings demonstrated that the primary cause of infertility in the current study is ovulatory dysfunction (32%), followed by tubal factor (29%), endometriosis (22%), and uterine factor (15%), as shown in Table 4.

Table 5: Pattern of involvement in genital TB

Genital tract involved	No. of patients	Percentage	P-value
Fallopian tube	10	50	0.0001
Fallopian tube + ovary	2	10	
Fallopian tube + ovary + uterus	7	35	
Ovary	-	-	
Uterus	1	5	

Cervix	-	-	
Vagina	-	-	

The data is expressed as numbers and percentage

Fallopian tubes are the most common location of involvement in patients with genital TB. Our study showed that fallopian tubes were the most prevalent site in 10 of the 20 instances, followed by 7 cases in which fallopian tubes, uterus, and ovaries were also implicated ($p=0.0001$), as shown in Table 5.

Discussion

Our study showed that out of 100 infertile women, 20 (20%) were found to have genital tuberculosis. Umoh AV and Gabiel MA did a similar study on 114 infertile women, and genital tuberculosis was found in 19 infertile women (16.7%).[2] Singh et al. performed a study on 140 infertile patients, out of which 58 patients (41.4%) had genital TB.[3] Genital tubal TB is paucibacillary and asymptomatic, it is frequently misdiagnosed; despite being a primary cause of female tubal infertility.[3,4]

The reported prevalence varies greatly around the world due to variances in the population groups tested, the sensitivity and specificity of the test employed for its diagnosis, and the time of the sample in relation to the menstrual cycle. In our study, the majority of infertile women (43%) were between the ages of 31 and 35, with a mean age of 29.85 years. Hull and colleagues studied 472 infertile women. In their study, the average age of infertile women was 28 years, similar to our study.[5] Philippov OS et al. conducted their research on 333 infertile couples. In their study, the average age of infertile women was 24 years.5 The mean age of infertile women with genital TB in our study was 28.11 years, which was equal to the study where the maximum age group of infertile women with TB is 26-30 years (44.4%).[6]

In the current study, women with genital TB experienced primary infertility (75%), with a small number (25%) experiencing

secondary infertility. The data suggested that genital TB could disrupt normal reproductive processes in women of reproductive age. OS Phillipov conducted a similar study in Iran and discovered that 85% of infertile women with genital TB had primary infertility and 15% had secondary infertility.[6]

In the current study, the majority of the women (75%) had normal menstrual function, whereas 15% had hypomenorrhea, followed by menorrhagia (5%) and amenorrhea (5%). Paul et al. discovered atypical menstruation in 14.2% of the cases. Philippov et colleagues evaluated 333 infertile couples and discovered that 20% of primary infertility patients and 10% of secondary infertility patients had irregular menstruation.[6,7] Santosh et colleagues investigated 110 cases of female genital TB during a 15-year period, finding menstrual abnormalities in 27 (24.5%) of the patients. Vaginal bleeding (18%), amenorrhea (5%), and vaginal discharge (4%) were the most prevalent results.[8]

Ovulation failure was the most common cause of infertility in our sample, followed by tubal factor (32%). Endometriosis was identified in 22% of genital TB patients, while uterine factor was found in 15%. Hull et al. evaluated 472 infertile women, finding that 21% had an ovulatory failure, 14% had a tubal factor, 6% had endometrial involvement, and 28% had an unknown etiology.

Philippov et al.'s study of 333 infertile couples, the most common reason for female infertility were tubal patency problems and pelvic adhesions in 23.6%. Chronic cervicitis affected 25.3%, mycoplasma affected 18.3%, and adhesions caused by surgical difficulties affected 5.4%. [6] The fallopian tube was implicated in 50% of the cases in our study. When

tuberculosis affects the female genital tract, the fallopian tube is the first to be impacted, followed by the endometrium. Singh et al. investigated 58 cases of genital tuberculosis and discovered that 13 patients had a bilateral fimbrial block, 21 had corneal block, 8 had hydrosalpinx, 4 had tubo-ovarian mass, and 8 had tubercular endometritis.[3]

Conclusion

Our investigation discovered that the most common cause of infertility in infertile women is genital TB. Primary infertility is a common symptom of genital TB. The most common cause of infertility was discovered to be ovarian dysfunction. Menstrual problems were not a common symptom. The fallopian tube was the most commonly involved location in genital TB.

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