

# Genital tuberculosis cause of infertility: a clinical study

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## ABSTRACT

**Background:** Genital tuberculosis which accounts for 5-18% prevalence causes irreparable loss of function of fallopian tube and uterus. In our study we tried to evaluate the prevalence of genital TB as a cause of infertility. **Objectives:** To find out the prevalence of genital tuberculosis in infertile women and to determine the histological pattern of involvement, clinical spectrum and impact on infertility in women with genital tuberculosis. **Results:** Out of 100 cases of infertile patients 18 cases had genital tuberculosis. Fallopian tube was the most common site of involvement in genital tuberculosis in 9(50%) cases. In genital tuberculosis 13 cases had primary infertility while 5 cases had secondary infertility. **Conclusion:** In our study we found that genital tuberculosis commonly presents as primary infertility. Menstrual problem were not a common presentation. Fallopian tube was the common site of involvement in genital tuberculosis.

**Keywords:** Infertility, genital tuberculosis.

Main cause of infertility includes female factor (40%), male factor (20%), both (20%), unexplained (15%). Different etiologies of female infertility are ovulatory dysfunction 20-40%, tubal factors 40%, and pelvic factors 5-10% and unexplained 2-4%<sup>1</sup>. Genital tuberculosis (TB) which accounts for 5-18% prevalence causes irreparable loss of function of fallopian tube and uterus.

Genital TB is secondary to primary TB caused by mycobacterium tubercle bacilli which infect genital tract via hematogenous or lymphatic route. Genital TB causes infertility by affecting fallopian tube (total obstruction 85-90%), endometrium (impairs implantation 35-50%), ovary (ovulatory failure 5-6%), cervix (3%), vulva and vagina (2%). Though majority cases of genital TB respond well to chemotherapy, chances of pregnancy is low and increase chances of ectopic and spontaneous abortion. In our study we tried to evaluate the prevalence of genital TB as a cause of infertility.

**Aims and objectives:** 1) To assess the prevalence of tuberculosis in infertile women, 2) To determine the histological pattern of involvement, clinical spectrum and

impact on infertility in women with tuberculosis.

## Materials and methods

The present study was conducted on 100 patients in the department of Obstetrics and Gynaecology, Gajra Raja Medical College, Gwalior from September 2011 to August 2012.

**Inclusion criteria:** All sexually active women of reproductive age group with infertility.

**Exclusion criteria:** Patients of non-reproductive age group who have completed their family.

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. Mantoux 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 smear positive TB. Pelvic ultrasound was done to rule out uterine and adnexal pathology.

Each patient was subjected to diagnostic laparoscopy

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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.

Statistical analysis: All entries were entered in SPSS version 15. Association of each of the categorical variable was assessed with chi-square test.

**Results**

Out of 100 cases 18 cases had genital tuberculosis. In table 1 shows maximum infertile women were 31-35 years of age. In genital TB group maximum patients belongs to 26-30 years of age (44.4%) followed by 31-35 years age group (27.7%) and 16.6% were women belongs to >36 years of age. Mean age was 28.11 years in present study.

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

Parameters	Age (years)	Numbers	%
Infertile patients	<20	3	3
	21-25	17	17
	26-30	25	25
	31-35	45	45
	>35	10	10
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

**Table 2: Different menstrual pattern in infertile and genital TB patients**

Categories	Menstrual abnormality	No	%	P - value
Infertile women	Normal menstruation	80	80	0.0001
	Hypomenorrhoea	10	10	
	Menorrhagia	5	5	
	Amenorrhoea	5	5	
Genital TB patients	Normal menstruation	9	50	0.0001
	Hypomenorrhoea	5	27.7	
	Menorrhagia	3	16.6	
	Amenorrhoea	1	5.5	

**Table 3: Infertility pattern in infertile and genital TB patients**

Parameters	No	%	P-value
Infertility patients	Primary infertility	74	74
	Secondary infertility	26	26
Genital TB patients	Primary infertility	13	72.2
	Secondary infertility	5	27.8

Most common menstrual complaint in infertile group was hypomenorrhoea (10%) followed by menorrhagia 5% and amenorrhoea 5%. The table 2, shows majority of women had

normal menstrual function (p - 0.0001) which is significant. Out of 18 cases of genital tuberculosis patient's majority of women had normal menstrual function (50%). The most common menstrual abnormality which was found in genital TB was hypomenorrhoea 5 cases (27.7%) followed by menorrhagia in 16.6% cases and amenorrhoea in 5.5%. In genital tuberculosis 13 cases had primary infertility while 5 cases had secondary infertility (table 3).

In present study we found that ovulatory dysfunction is leading cause of infertility (30%) followed by tubal factor (28%), endometriosis in 24% cases, and uterine factor in 14% of the cases (p - 0.08) (table 4).

**Table 4: Different etiologies of female infertility**

Etiology	No. of patients	%
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

**Table 5: Pattern of involvement in genital TB**

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

In the patients of genital tuberculosis fallopian tubes are the most common of the site of involvement. In our study out of 18 cases in 9 cases fallopian tubes are the most common site followed by 6 cases in which fallopian tubes along with uterus and ovaries were also involved (p - 0.0001) which was significant (table 5).

**Discussion**

The present was conducted to assess the prevalence of tuberculosis in infertile women and to determine the pattern of involvement, clinical spectrum and impact on fertility in women with tuberculosis. Similar study was done by Umoh AV and Gabel MA on 114 infertile women and genital tuberculosis was found in 19 infertile women (16.7%)<sup>2</sup>.

Singh et al done their study on 140 infertile patients, out of these 58 patients (41.4%) had genital TB. Genital TB being paucibacillary and asymptomatic, it is often underdiagnosed and it being a major cause of female tubal cause of infertility<sup>3,4</sup>. The reported prevalence varies widely world over due to differences in population group studied, sensitivity and specificity of test used for its diagnosis and

timing of sample with respect to menstrual cycle. In our study maximum infertile women were in 31-35 years age group (45%) and mean age of infertile women was 29.85 yrs. Hull et al conducted their study on 472 infertile women. The mean age of infertile women in their study was 28 years which was similar to our study<sup>5</sup>. Philippov OS et al done their study on 333 infertile couple. The mean age of infertile women was 24 years in their study<sup>6</sup>. In our study mean age of infertile women with genital TB is 28.11 years which was comparable to our study. Maximum age group of infertile women with TB is 26-30 years (44.4%).

In the present study women having genital tuberculosis was predominantly having primary infertility (72.22%) and a small proportion (27.77%) had secondary infertility. The findings suggested the fact that genital TB could interfere with normal reproductive process in women of reproductive age group. Similar study was done in Iran by OS Phillipov, showed 85% of infertile women with genital TB had primary infertility and 15% of women had secondary infertility<sup>6</sup>.

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.<sup>7</sup> 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<sup>6,7</sup>. 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%)<sup>8</sup>. 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%<sup>6</sup>. 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<sup>3</sup> studied 58 case of genital TB and found 13 patients had bilateral fimbrial block, 21 had cornual block, 8 had hydrosalpinx, 4 had tubo-ovarian mass, 8 had tubercular endometritis<sup>3</sup>.

#### Conclusion

In our study we found that genital tuberculosis is the most common cause of infertility in infertile women. Genital tuberculosis commonly presents as primary infertility. Ovarian dysfunction was found to be most common cause of infertility. Menstrual problem were not a common presentation. Fallopian tube was the common site of involvement in genital tuberculosis.

**Conflict of interest:** None. **Disclaimer:** Nil.

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