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EVALUATION OF ENDOMETRIAL TUBERCULOSIS BY ENDOMETRIAL BIOPSY AT OUR TERITIARY CARE CENTRE

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Background: Tuberculosis (TB) is one of the most frequent communicable endemic diseases in poorer areas of the world and remains a major cause of morbidity and mortality across the globe despite of availability of effective anti-tubercular medications. The incidence of female genital tuberculosis (FGTB) is higher in developing countries; the disease usually affects fallopian tubes, uterine endometrium, ovaries, cervix, uterine myometrium and vagina/vulva. Genital TB causes infertility, menstrual irregularity and pregnancy loss in women. It is thus well recognized as an important etiological cause for infertility in areas with high prevalence of tuberculosis. **Objectives of the study:** To study the prevalence of endometrial tuberculosis among the infertility subjects undergoing endometrial biopsy**. Materials and Methods:** Demographic data regarding age, menstrual pattern, type of infertility, past-history of TB in any part of the body or history of TB contact. All the subjects were evaluated for GTB by CXR, USG, Culture AFB, Biopsy, and histopathological examination. **Results:** We performed various investigations which include CXR, USG and CS for AFB, we found that all the subjects had normal CXR, 158 had tubo-ovarian mass on USG, and culture for AFB was positive in 32 subjects. We further evaluated endometrial involvement in 110 infertility subjects we found that tubercular endometritis was found in 13 subjects accounting for 11.8 % prevalence, 9 women had endometrial hyperplasia, 16 had nonspecific endometritis, 34 had proliferative epithelium, and 38 had secretary epithelium. **Discussion and Conclusion:** In our study, we found the prevalence of 11.8% endometrial tuberculosis in subjects suffering from infertility. Female genital tuberculosis is an underestimated disease mainly due to its asymptomatic nature and lack of sensitive tests. It is detected most frequently when a woman presents to with unexplained infertility. Therefore, screening for genital TB should be routinely done for the evaluation of infertility.

Key-words: genital tuberculosis, acid fast bacilli, endometrial tuberculosis, chest X ray, ultrasonography, infertility.

INTRODUCTION

Tuberculosis (TB) is one of the most frequent communicable endemic diseases in poorer areas of the world and remains a major cause of morbidity and mortality across the globe despite of availability of effective anti-tubercular medications [1, 2]. Pulmonary tuberculosis (PTB) constitutes the more common clinical presentation of TB [2]. The incidence of female genital tuberculosis (FGTB) is higher in developing countries; the disease usually affects fallopian tubes, uterine endometrium, ovaries, cervix, uterine myometrium and vagina/vulva. Genital TB causes infertility, menstrual irregularity and pregnancy loss in women. It is thus well recognized as an important etiological cause for infertility in areas with high prevalence of tuberculosis. This disease not only causes tubal obstruction and dysfunction but also impairs implantation due to endometrial involvement and ovulatory failure from ovarian involvement [3-6].

A study on female genital TB among patients with infertility from India shows an incidence of 3-16%. Despite the availability of various techniques, diagnostic dilemma for genital TB still exists. A high degree of suspicion and elaborate history and clinical examination are essential for diagnosis. Laparoscopic findings cannot help in absolute diagnosis in early stages, however it is a valuable procedure for obtaining tissue specimen for culture and other tests [7-9]. Hence we have taken up this study to evaluate the prevalence of endometrial tuberculosis in infertility subjects.

AIM AND OBJECTIVES:

The objective of our study is to estimate prevalence of endometrial tuberculosis among the infertility subjects undergoing endometrial biopsy.

MATERIALS AND METHODS

Study area: The study was conducted in the Department of Obstetrics and Gynaecology at National Institute of Medical Sciences and Research.

Study Design: This was the cross-sectional study conducted in conducted in the Department of Obstetrics and Gynecology at National Institute of Medical Sciences and Research.

Study population:

We included a total of 200 cases aged between 24-40 years visiting OPD of OBG with complaints as per the inclusion criteria.

Inclusion Criteria:

- Women willing to give voluntary consent.
- A woman presenting with infertility (defined as the inability to conceive despite regular unprotected intercourse for 1 year).
- A woman with provisional diagnosis of Pelvic inflammatory disease (triad of Pelvic pain, cervical motion and adnexal tenderness and presence of fever (>38º c) with or without other features like Pelvic organ tenderness, white discharge, and/ or mucopurulent endocervicitis).

Exclusion criteria:

- Women with already diagnosed gynaecological problems or chronic discharge due to Fibroid, PCOS, CIN, Dysplasia.
- Infertility due to male infertility factor

Study Period: The study was conducted from Sept 2008 to August 2009.

Sample Size: Sample size was calculated using the formula

$n = Z^2_{1-\alpha}P(1-P)/d^2$

Where n = Required sample size

P = Prevalence of the cause

d = Precision

Data collection:

Demographic data regarding age, menstrual pattern, type of infertility, past-history of TB in any part of the body or history of TB contact were noted and BMI was calculated using the formula weight in Kg divided by height in metre square.

In PID patients, common causes of PID other than M. Tuberculosis include Chlamydia, N. Gonorrhea was ruled out by Nucleic acid amplification test. Mantoux test using PPD 23 (5 TU), Erythrocyte sedimentation rate (ESR), Histopathology (HPE) examination of endometrial aspirate(EA performed in all the subjects. According to clinical situation, cases were subjected to one or more of the following examination with aseptic Precaution-Endometrial biopsy (EB), Hysterosalpingography (HSG), Hysteroscopy and laparoscopy. Patient with clinical features of genital TB, supported with TB suggestive test like mantoux/ ESR / Hysterosalpingography/

laparoscopy/ hysteroscopy were diagnosed as high suspicious genital TB (GTB+) and remaining were diagnosed as Low suspicious GTB (GTB-) cases. Sputum for AFB examination and Chest X- ray was done in all GTB+ cases to rule out pulmonary Koch.

STATISTICAL ANALYSIS: Statistical analysis of the data will be performed using the statistical package for social sciences for window SPSS Inc. Microsoft word and Excel have been used to generate graphs and tables. Sensitivity and specificity was calculated.

RESULTS: We included a total 200 subjects suspected of Genital Tuberculosis in the age group of 21-40 years, out of which 110 women were suffering from infertility and 90 women had PID.

Table 1: Shows Distribution of subjects according to demographic profile

Demographic Characteristics	Number of patients	Percentage
Age group (in years)		
21-25	60	30
26-30	54	27
31-35	46	23
36-40	40	20
Parity		
Nullipara	110	55
Primipara	44	22
Multipara	46	23
History of TB		
Past history	14	7
Family history	8	4
No history	178	89

Table 2: Shows Distribution of subjects according to presenting symptoms

Presenting symptoms	Number of patients	Percentage
Amenorrhea	12	6

Menorrhagia	44	22
Oligomenorrhea	42	21
Primary infertility	54	27
Secondary infertility	48	24

Table 3: Shows the positive results of various investigations among infertility subjects

Investigations	Number of patients	Positive results
Chest radiograph PA view	200	Nil (0%)
Ultrasonography	200	158 (79%)
Culture for AFB	200	32 (16%)

Table 4: Shows histopathology findings of the endometrium among infertility subjects

Histopathology findings of the endometrium	**Number of patients**	**Percentage**
Endometrial hyperplasia	9	8.18
Nonspecific endometritis	16	14.5
Proliferative epithelium	34	30.9
Secretary epithelium	38	34.5
Tubercular endometritis	13	11.8

All the subjects with positive culture for AFB referred to Dept. of Respiratory medicine and were subjected to treatment regimen that involves the WHO recommended treatment scheme (PZA= 1500 mg/day + INH (300 mg/day) + Rifampicin (450 mg/day) + Ethambutol (800 mg/day) for 4 months and Rifampicin + INH = 450:300 for 5 months respectively. Post treatment all the subjects were referred for IVF treatment to Dept. of OBG.

DISCUSSION

In our study, we included a total of 200 subjects in the age group of 21-40 years as per the inclusion and exclusion criteria after taking voluntary consent from the subjects for their

participation in the study. Out of the 200 subjects participated in the study, 110 were suffering from infertility and 90 had PID (pelvic inflammatory disease). Out of 200, 60, 54, 46 and 40 subjects were in the age group of 21-25, 25-30, 31-35 and 36-40 respectively and the mean age was found to be 29.4 years. We further divided the study subjects based on parity status, we found that out of 200 subjects 110 were nulliapara, 44 were primi and 46 were multi para. 14 women had history of tuberculosis in the past, 8 had family history of TB and 178 had no history of TB.

Based on the symptoms the study subjects were classified as 12 women had amenorrhea, 44 had menorrhagia, 42 had oligomenorrhea, 54 had primary infertility and 48 had secondary infertility.

We performed various investigations which include CXR, USG, CBNAAT and CS for AFB, we found that all the subjects had normal CXR, 158 had tubo-ovarian mass on USG, and culture for AFB was positive in 32 subjects. We further evaluated endometrial involvement in 110 infertility subjects we found that tubercular endometritis was found in 13 subjects accounting for 11.8 % prevalence, 9 women had endometrial hyperplasia, 16 had nonspecific endometritis, 34 had proliferative epithelium, and 38 had secretary epithelium.

Infertility is defined as the inability of a sexually active, non contracepting couple to achieve pregnancy in one year. It can be primary or secondary. Infertility is classified as primary when women has never been able to bear a child ever either due to inability to become pregnant or ability to carry a pregnancy to a live birth. When a woman is unable to bear, a child following either a previous pregnancy or a previous ability to do so, it is referred as secondary infertility. Genital tuberculosis which affects the fallopian tubes and endometrium significantly contributes to infertility in developing countries. Mycobacterium tuberculosis may cause irreversible damage to fallopian tube which may not get corrected by medical and surgical methods. Therefore, early diagnosis and treatment of genital tuberculosis is important as it may improve fertility outcome [10-12].

CONCLUSION:

In our study, we found the prevalence of 11.8% endometrial tuberculosis in subjects suffering from infertility. Female genital tuberculosis is an underestimated disease mainly due to its asymptomatic nature and lack of sensitive tests. It is detected most frequently when a woman

presents to with unexplained infertility. Therefore, screening for genital TB should be routinely done for the evaluation of infertility.

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