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Original Research Article

Histopathological features of endometrium in those with symptoms suggestive of female genital tuberculosis

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ABSTRACT

Background: Histological characteristics of endometrial biopsy material as assessed by light microscopy remain the diagnostic standard for the clinical diagnosis of endometrial pathology. Management of female genital TB is not complete without tissue diagnosis. The aim of the present study was to find out the histopathological pattern of the endometrium in those with symptoms suggestive of genital tuberculosis.

Methods: A random sample of 200 female OPD patients with symptoms suggestive of FG TB attending to the Obstetrics and Gynaecology OPD in a tertiary care hospital at Ariyur, Puducherry were subjected to endometrial curettage and histological characteristics of endometrial biopsy material was assessed.

Results: Endometrial histopathology revealed proliferative endometrium (60.5%, n=121), secretory endometrium (25.5%, n=51) and menstrual endometrium (9%, n=18) in majority. Chronic endometritis (3%, n=6), Simple hyperplasia without atypia (1%, n=2), atrophic (0.5%, n=1) and inert endometrium (0.5%, n=1) were other abnormalities reported.

Conclusions: Histopathological features of endometrium in those with suggestive symptoms of female genital TB are variable and non-specific.

Keywords: Female genital TB, Endometrial biopsy, Histopathological pattern

INTRODUCTION

Female Genital Tract Tuberculosis (FGTB) is a disease showing an apparent low incidence as it is difficult to ascertain its existence due to under reported asymptomatic cases and lack of reliable confirmatory investigations.^{1,2} In India the incidence of genital tuberculosis is nearly about 18%.³ It is estimated that 1% of infertile women, aged between 20-40 years in United States and 18% in India suffer from genital TB.⁴

Frequency of involvement of genital organs is fallopian tubes 100%, endometrium 90%, ovaries 20%, cervix, vulva and vagina 1%.⁵ Early Diagnosis of FGTB is very difficult yet has a good prognostic value in terms of

preventing extensive genital damage.⁶ World Health Organization declared Genital Tuberculosis as a National Emergency in the year 1993 as mentioned in its Global Tuberculosis Control Report 2007.⁷

Tuberculosis is a major cause of infertility in developing countries. Predisposing factors include poverty, ill health, and immuno-suppression. FGTB involves mucosa of fallopian tube with or without involvement of uterus and ovaries. Spread is either haematogenous, lymphatic or direct spread from neighbouring viscera.

It is always secondary to tuberculosis elsewhere in the body usually the lungs. But FGTB can also manifest without any pulmonary symptoms.

The prevalence of genital tuberculosis is largely underestimated. In developed countries, such as USA, Australia and Western European countries, the incidence of genital tuberculosis (GTB) is less than 1%.^{8,9} but the incidence in some African countries is as high as 15-19%. Various Indian studies have shown that tuberculous endometritis and salpingitis account for 4-9% of all infertility cases.^{10,11,12}

FGTB can present with varied symptoms such as vague abdominal pain, dysmenorrhea, oligomenorrhoea, amenorrhoea, infertility, menorrhagia, vaginal discharge, dyspareunia, post-coital bleeding and abdominal swelling, but most of the cases are asymptomatic.

The majority of cases who are evaluated for FGTB are those who present with infertility.

The histopathological features of endometrium in FGTB can be very helpful in diagnosis of FGTB and more helpful when correlated with its suggestive symptoms to rightly identify who to evaluate for FGTB in any gynaecological OPD.

Hence this study aimed at finding out the histopathological pattern of the endometrium in those with symptoms suggestive of genital tuberculosis.

METHODS

Study Design

Cross Sectional Study

The study period was between January 2015 to June 2015

Sample size

The study included 200 female patients presenting with suggestive symptoms of genital tuberculosis in the reproductive age group to the Obstetrics and Gynaecology OPD, Sri Venkateshwara Medical College Hospital & Research Centre during the study period.

Inclusion criteria

Female patients in the reproductive age group presenting with following symptoms were included for the study:

- Infertility-primary or secondary,
- Menstrual disturbances-Amenorrhea, Dysmenorrhea, Oligomenorrhoea, menorrhagia, vague abdominal pain of one-month duration and more.
- Vaginal Discharge
- General malaise
- Abdominal mass, loss of weight and appetite, fever, cough with or without expectoration.

Exclusion criteria

Female patients in the reproductive age group presenting with following symptoms were excluded for the study:

- Acute abdominal pain
- Patients not willing for endometrial biopsy
- Unmarried women

Procedure

An initial interview about demographic details and symptoms suggestive of genital TB was carried out at the OPD followed by clinical examination. Those with symptoms suggestive of genital TB as defined by the inclusion criteria were included in the study after obtaining informed consent.

The details of the included participant were recorded in a semi-structured proforma by the investigator.

The included subjects were then subjected to basic laboratory investigations routine blood examinations like haemoglobin estimation, Total leucocyte count, Differential count, Mantoux test, chest X-ray, sputum AFB (in patients with cough with expectoration), Ultrasound abdomen & pelvis, urine routine, HIV screening (after obtaining informed consent of both the patient and her spouse-according to standard guidelines), gram stain and culture-vaginal discharge, PAP smear, followed by an endometrial curettage.

Laparoscopy was done in indicated cases to rule out other genital pathologies. All patients included in the study were evaluated by our hospital pulmonologist to rule out co-existing active or old healed pulmonary TB. Clinical examination was followed by Tuberculin (Mantoux) skin testing, Sputum AFB examination (only in patients with cough with expectoration) and Chest X-ray.

Specimen collection: Endometrial Curettage was done (between Day 15-Day 25 of the menstrual cycle). It was cross-checked with ultra-sonogram to ensure all included subjects had an endometrial thickness of 10mm or more. Endometrial curettage was done using pipelle endometrial curette under aseptic precautions. They were transferred into a sterile leak proof container containing sterile saline and transported to laboratory immediately.

Endometrial curette samples were sent to Intermediate Reference Laboratory (IRL) Government Hospital for Chest Diseases, Puducherry for all the investigations for Mycobacterium tuberculosis and histopathological analysis was done at the hospital pathology lab after proving a negative pregnancy test and HIV screening.

Data Analysis

Data entry was done in Excel 2010 and analysis was done in SPSS version 19. Mean and standard deviation

was estimated for quantitative variables. Proportion (%) with 95% confidence interval was estimated for qualitative variables. Description of secondary data was done using tables and graphs. Chi square test was used to test association between two categorical data. For all tests a 'p' value of 0.05 or less was considered for statistical significance.

RESULTS

Majority (94.5%) of the subjects belonged to the age group of 21 to 40 years coming from Pondicherry (38.5%), Villupuram (36.5%) and Cuddalore (19%). Half of the study participants (52%) belonged to Class III Socio-economic status, majority of them (76.5%) being home-makers and educated up to high school level (46.5%). Only 5 (2.5%) subjects had previous history of treatment for TB (Table 1).

Table 1: Socio-demographic characteristics of the study participants.

Characteristics	Frequency n=200	%
Age groups		
<20 years	8	4
21-30 years	95	47.5
31-40 years	89	44.5
>40 years	8	4
Residence		
Pondicherry	77	38.5
Villupuram	73	36.5
Cuddalore	38	19
Others	12	6
Occupation		
Home maker	153	76.5
Working women	21	10.5
Daily-waged workers	15	7.5
Others	11	5.5
Education		
Illiterate	35	17.5
Graduate	18	9
Primary school	27	13.5
High school	93	46.5
Post High school	27	13.5
SES		
Class I	0	0
Class II	10	5
Class III	104	52
Class IV	75	37.5
Class V	11	5.5

Of the symptoms suggestive of FG TB, vaginal discharge was reported by 50.5% of the women interviewed. Menorrhagia (25%), infertility (32.5%), amenorrhoea (8.5%), oligomenorrhoea (24%), hypomenorrhoea (16.5%), dysmenorrhoea (32.5%), abdominal pain (35.5%), malaise (9.5%), loss of weight (10%), loss of appetite (8.5%), fever (3%), cough (4.5%) were the other

suggestive symptoms identified among the participants (Figure 1).

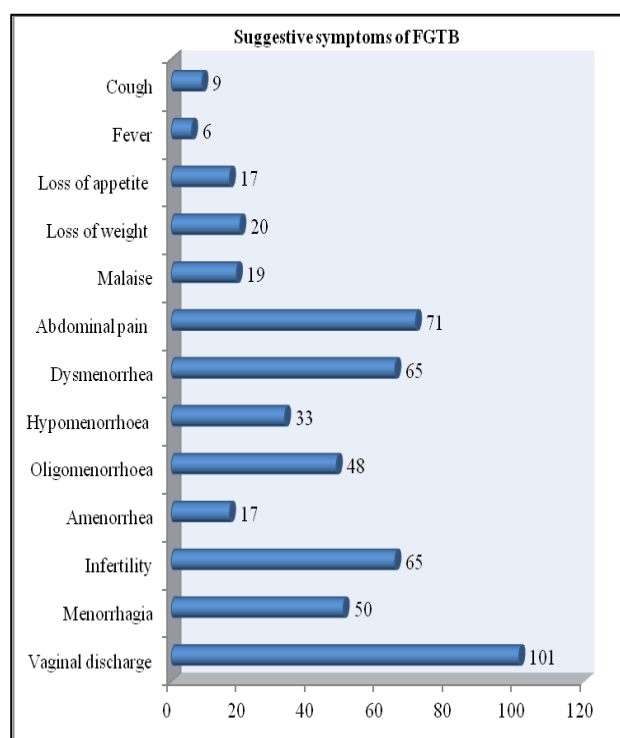


Figure 1: Symptoms suggestive of FG TB among study participants.

The characteristics of endometrium studied by histopathological examination HPE following endometrial curettage showed a normal proliferative (60.5%, n=121), secretory endometrium (25.5%, n=51) and menstrual endometrium (9%, n=18) in majority. Chronic endometritis (3%, n=6), Simple hyperplasia without atypia (1%, n=2), atrophic (0.5%, n=1) and inert endometrium (0.5%, n=1) were other abnormalities reported (Table 2).

Table 2: Characteristics of endometrium in HPE of endometrial curettage.

Characteristics of the endometrium	Number (N=200)	%
Proliferative endometrium	121	60.5
Secretory endometrium	51	25.5
Menstrual endometrium	18	9
Chronic endometritis	6	3
Simple hyperplasia of endometrium	2	1
Atrophic endometrium	1	0.5
Inert endometrium	1	0.5

DISCUSSION

The endometrial characteristics as studied by histopathological examination (HPE) forms an important clue to diagnosis of genital tuberculosis. In investigating the possibility of genital tract TB (FGTB), the most

accessible tissue for study with a high frequency of involvement is the endometrium. The histologic examination of endometrial tissues removed by biopsy or curettage, especially from the cornual area, affords a rapid method of diagnosing genital TB in at least 50% of cases. The optimal time for sampling is at the end of the menstrual cycle or within 12 hours after the onset of menstrual flow to allow the endometrial granulomata maximal time to develop. In the present study, the phase at which the endometrium was extracted was initially assessed with Ultrasonography and in most of the patients, it revealed more than 10 mm thickness.

The symptomatic correlation of the GTB suspects with HPE will be of immense help as to find out which symptom can be given prime importance while initiating a diagnostic flow towards FG TB in the suspects (for eg. as Chronic cough for more than 2 weeks duration for pulmonary TB). In the present study, vaginal discharge, abdominal pain, dysmenorrhoea and infertility were the common symptoms reported. But the corresponding HPE revealed non-specific findings not pertaining to FG TB. Endometrial curettage and HPE can be very helpful if granulomata are found or if smears or cultures are positive for *M. tuberculosis*.^{13,14}

In the present study, none of the patients had granulomata in HPE. There were some bizarre findings like simple hyperplasia of endometrium without atypia (n=2) and atrophic endometrium (n=1) which questioned if they were manifestations of FG TB. But on later AFB-PCR and AFB culture they were proved negative for FG TB.

Thus, the diagnosis of FG TB requires more suspicion beyond the deep insight into the symptoms suggestive of FG TB as most of the time they remain non-specific as depicted in the study.

CONCLUSION

Histopathological features of endometrium in those with suggestive symptoms of female genital TB are variable and non-specific. The symptoms suggestive of FG TB cannot be used as a lead to subject patients to HPE as it showed non-specific and variable findings.

Screening of female FG TB suspects should rely on further sensitive routine testing and not on symptomatic assessment.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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