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A STUDY ON GENITAL TUBERCULOSIS AMONG WOMEN WITH TUBAL FACTOR INFERTILITY

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ABSTRACT

Background- Female Genital tuberculosis (FGTB) is an important cause of infertility but the data of genital tuberculosis with the tubal factor infertility is still scattered. This study was designed to analyze the efficacy of different diagnostic methods for FGTB in different tubal pathology.

Materials and methods- A total of 43 endometrial samples of women with tubal factor infertility were taken for the study during April 2016 to March 2017. Samples were sent by OPD of Obstetrics and Gynecology for routine diagnosis. All 43 samples were subjected to different microbiological methods and Hysterosalpingographic finding were noted.

Results- Out of 43 women with tubal factor infertility, five were positive for TB by any of the method i.e. AFB smear, L-J culture, BACTEC culture and Genexpert. Women with tubal occlusion were found to be TB positive in 2 samples. One sample was positive in all four methods and also found resistant to Rifampicin.

Conclusion- Tubal factor infertility comprised of tubal occlusion is considered as high suspicion of having Genital Tuberculosis. Combination of HSG with other phenotypic/molecular methods can help to specify the diagnosis of FGTB in reproductive age of women.

KEYWORDS : Female Genital Tuberculosis, Infertility, Tubal occlusion, Diagnosis

INTRODUCTION

According to the Global TB report 2015, 3.2 billion women get infected and 480,000 die because of Tuberculosis every year[1]. Female genital tuberculosis (FGTB) accounts an important category of extra pulmonary TB that causes significant morbidity like infertility in reproductive age[2]. FGTB is regarded as chronic and asymptomatic or low symptomatic disease so it may be difficult to diagnose in women with infertility [3]. Fallopian tubes involve in almost 90-100% cases, uterus in 50-80%, ovaries in 20-30%, cervix (10-15%), vulva and vagina involves in 1 % of cases of infertility[4]. HSG is considered as primary investigation for infertility diagnosis5. However HSG findings are not specific for GTB infection. In this study we are combining the HSG finding with the Microbiological test to ease the diagnosis of FGTB.

MATERIALS & METHODS

A total of 43 women who underwent routine primary investigation for diagnosis of infertility were included in the study conducted from April 2016 to March 2017 at Sir Sunderlal Hospital, Banaras Hindu University,Varanasi, India.

Inclusion criteria: Women with Primary or secondary infertility and seeking treatment in OPD of Obstetrics and Gynecology. All women who had undergone HSG investigations prior to visit our Hospital were included in the study.

Exclusion criteria: Women who took anti tuberculosis therapy during the last 5 years and HIV positive women were not included in the study.

On the basis of pre history and clinical presentation endometrial biopsy were taken in premenstrual phase and sent by clinician to the Department of Microbiology. Endometrial biopsies were homogenized and gone through phenotypic methods i.e. Acid Fast Bacilli (AFB) Smear Microscopy, Liquid culture, solid culture and molecular test Cartridge Based Nucleic Acid Amplification Test (CB-NAAT). Homogenized sample were processed according to the manufacturer's instructions, AFB smear were stained by Ziehl-Neelson's (Z-N) staining technique and analyzed under Oil emersion Microscope [6], solid culture on Lowenstein-Jensen (L-J) egg media[7], liquid culture by BACTEC MGIT-960 system[8] and CB-NAAT by Genexpert[9]. Colony grew on solid and liquid culture were stained by Ziehl-Neelson's (Z-N) staining technique again and analyzed under oil emersion microscope to confirm MTB.

RESULTS

Out of 43 samples of endometrial biopsy, 24 samples have shown growth by both microbiological culture methods i. e. LJ culture and BACTEC culture (Table 1). [10] samples out of 14 of Tubal occlusion, 4 samples out of 9 samples of Tubal dilation, 4 out of 7 samples of Tubal adhesion, 3 out of 5 samples of calcifications and 3 out of 8 of tubal outline have shown growth in either solid or liquid culture. Six (13.9%) samples and four (9.3%) samples of having tubal occlusion have shown growth by BACTEC culture and LJ culture respectively. Four samples with tubal occlusion and one each of calcification, tubal outline, tubal dilation and peritubal adhesion have shown culture colonies by both LJ culture and BACTEC culture. Out of 43 samples , 19 (44.1%) were found to be negative by any of the method. By confirmatory tests as illustrated in Table 2, Only one sample showing tubal occlusion was found to be positive for MTB by all method and that was detected rifampicin resistant by Genexpert. Two samples of HSG finding with tubal occlusion and one sample each of tubal outline, tubal dilation and peritubal adhesion were found to be positive for MTB. Calcification showing samples were detected negative for FGTB by any of the methods.

Table 1: Correlation between Growth culture outcomes and HSG findings. (n=43)

Culture growth	HISTEROSALPINGOGRAM (HSG)				
	Calcifications	Tubal outline	Tubal occlusion	Tubal dilation	Peritubal adhesion
LJ culture	1	2	4	3	1
BACTEC culture	2	1	6	1	3
None of positive	2	5	4	5	3
Total (n=43)	5	8	14	9	7
LJ culture+ BACTEC culture	1	1	4	1	1
Only LJ culture	-	1	-	2	-
Only BACTEC culture	1	1	2	1	2
Genexpert	-	-	1	-	-

Table2: correlation between the HSG Findings and microbiol ogical tests out comes.

Confirmatory combinations tests for TB	HISTEROSALPINGOGRAM (HSG)				
	Calcifications	Tubal outline	Tubal occlusion	Tubal dilation	Peritubal adhesion
LJ culture+BACTEC culture+CB-NAAT+ AFB staining	-	-	1	-	-
LJ+BACTEC+AFB staining	-	1	1	-	1
LJ+AFB culture	-	-	-	-	-
BACTEC+AFB staining	-	-	-	1	-
Total	-	1	2	1	1

DISCUSSION

HSG is a helpful and gold standard for evaluation of tubal factor infertility. GTB give rise to different pathology to fallopian tubes which cause infertility. These changes of tubal appearance in HSG can agreement with the microbiological test to describe the diagnosis of genital tuberculosis.

Presence of calcification is usually seen as liner streaks laying in the course of fallopian tubes[10]. Caseous ulceration gives rise to fallopian tubes as irregular, ragged or diverticular appearance[11]. Tubal occlusion is most common finding that occurs between isthmus and ampulla with multiple constrictions[12]. Serous or clear fluid produced golf club like appearance gives rise to tubal dilation5. In peritubal adhesion, tubes become fixed vertically or horizontally and interfere the transport of ovum and cause infertility[13].

There are few studies that showed agreement among HSG, Microscopy, liquid-solid culture and CB-NAAT. In our study 4.6% samples of tubal occlusion were found to be positive for GTB diagnosis, early Sharma JB et.al. found the same but higher (8.6%) then our study[14]. In our investigation 11.6 % samples were detected positive by LJ Culture whereas Bhanothu V et.al. have 18% positive result of their total samples 6. 9.3% of total samples we found to be positive by LJ culture and BACTEC culture together which Goel et.al. analyzed 5.5% to be positive in the same type of study15.

CONCLUSION

HSG continues to be a gold standard in diagnosis of infertility lead by tubal factors but HSG can not specify Genital tuberculosis alone. HSG finding with liquid-solid cultures, microscopy, CB-NAAT and other microbiological lab methods can increase the credibility in the diagnosis of FGTB. This combination can enhance the degree of suspicion to provide early interventions and treatment for better results.

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