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PROPORTION OF GENITAL TUBERCULOSIS IN CASES OF INFERTILITY, ABNORMAL UTERINE BLEEDING AND PELVIC INFLAMMATORY DISEASE

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ABSTRACT

BACKGROUND: Genital TB may cause menstrual irregularities, pelvic pain and infertility. The true incidence of genital TB, however, is unknown as there is usually a paucity of symptoms and varying presentations causing a challenge in its detection **AIM AND OBJECTIVE:** To evaluate the clinical presentations in females for genital tuberculosis. To find out the causes of genital tuberculosis in females. To find out the proportion of genital tuberculosis in cases of infertility.To find out the proportion of genital tuberculosis in cases of abnormal uterine bleeding. To find out the proportion of genital tuberculosis in cases of pelvic inflammatory disease. To calculate the percentage of genital tuberculosis patients who respond to anti tubercular drugs.**MATERIAL AND METHODS:** The study has been conducted on the 156 women complaining of infertility, symptoms of pelvic pain, menstrual abnormalities, pelvic mass or per vaginal discharge, attending the department of Obstetrics and Gynaecology, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh in association of Department of pathology and department of Radiology and microbiology over a period of February 2019 to August 2020. The study was done on 156 patients. Out of which 43 patients were included in group I (Infertility), 62 patients were included in group II (Abnormal uterine bleeding) and 51 patients were included in group III (Pelvic inflammatory disease).**RESULT:** In our study genital tuberculosis patients who presented with complain (90%) belonged to age group 18-39 years which was comparable to study by Sharma et JB al (2008)[11] in which age of presentation in 80% of women is 20-40 years. ESR was raised in 66.67% cases. Abnormal HSG was seen in 45% of patients. genital tuberculosis in case of abnormal uterine bleeding is 12.90%.6% of patients of pelvic inflammatory disease were genital tuberculosis positive. The patient were follower up and given full course of anti tubercular drugs for 6 months and response was observed. 1 out of 6 infertility patients in our study conceived after ATT course by assisted reproductive technique amounting to response rate of 16.66%.**CONCLUSION:** So the result of our study shows that the incidence of female genital tuberculosis in increasing, so gynaecologist will be increasingly faced with cases of tuberculosis and its consequences. Genital tuberculosis may be asymptomatic or may present with atypical symptoms or mimic other conditions. It is imperative to consider the possibility of tuberculosis in women in reproductive age group who presents with the symptoms of infertility, chronic pelvic pain and menstrual dysfunction, where other causes have been excluded. Failing to consider the possibility of tuberculosis may result in unnecessary and ineffective intervention. To increase the chance of identifying TB bacilli, immunological, bacteriological and nucleic acid amplification tests should be employed.

KEYWORDS

Conception, genital tuberculosis, infertility.

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INTRODUCTION

In developing countries like India Genital tract tuberculosis is identified as an important cause of infertility. Most often, hysterosalpingograms (HSG) remain the primary method of diagnosis for understanding various tubal and peritoneal factors that might lead to cases of infertility[1]. This method has been identified as a unique procedure for ascertaining the internal architecture of female genital tract which is essential for ascertaining the changes associated with tuberculosis infection[2].

It has been found that around 0.75% to 1% of total gynecological complaints are associated with genital tuberculosis in India although this number varies from place to place[3]. Around 5% of all pelvic infections are cases of genital tuberculosis and further it accounts for 10% of all cases of pulmonary tuberculosis also[3,4]. Although most of the cases are from females of reproductive ages only, it has also bene reported in post menopausal individuals also[5].

Infertility is defined as the inability to conceive by at least one year of unprotected intercourse. Treatment may be started earlier in case of an obvious cause or advanced age of the couple. Genital tuberculosis is an important cause of sub fertility, more so in endemic zones such as South India, Still, the true epidemiology of this disease remains unknown due to lack of highly sensitive and specific tests. Genital tuberculosis not only causes tubal obstruction and dysfunction but also impairs implantation due to endometrial involvement and ovulatory failure from ovarian involvement[6].

The prevalence of infertility is about 10-20% among couples (with somewhat equal prevalence among men and women). There are many factors that can affect female fertility. Some, such as tubal or age factor, are completely known and some are in debate (e.g. endometriosis, cervical or immunologic factors[7].

Female genital tuberculosis (FGTB) is still a major cause of infertility in India in spite of the availability of specific therapy. The prevalence of FGTB in infertility clinics shows marked variations in different countries ranging between 15 and 25%7. In 80-90% of cases, FGTB affects young women between 18 and 38 years of age and is an important cause of infertility[8-9]. Genital tuberculosis (TB) predominantly affects individuals below 40 years of age and peak age frequency ranges between 21 to 30 year of age[10].

AIM AND OBJECTIVES:

- To evaluate the clinical presentations in females for genital tuberculosis.
- To find out the causes of genital tuberculosis in females.
- To find out the proportion of genital tuberculosis in cases of infertility.
- To find out the proportion of genital tuberculosis in cases of abnormal uterine bleeding.
- To find out the proportion of genital tuberculosis in cases of pelvic inflammatory disease.
- To calculate the percentage of genital tuberculosis patients who respond to anti tubercular drugs.

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MATERIAL AND METHODS

Source of Data:

The study has been conducted on the 156 women complaining of infertility, symptoms of pelvic pain, menstrual abnormalities, pelvic mass or per vaginal discharge, attending the department of Obstetrics and Gynaecology, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh in association of Department of pathology and department of Radiology and microbiology over a period of February 2019 to August 2020.

The study was done on 156 patients. Out of which 43 patients were included in group I (Infertility), 62 patients were included in group II (Abnormal uterine bleeding) and 51 patients were included in group III (Pelvic inflammatory disease).

INCLUSION CRITERIA:

- Age group of 18-49 years.
- Complaining of infertility
- Symptoms of menstrual abnormalities like irregular menstrual bleeding, scanty menstruation or amenorrhea or increased menstrual flow.
- A complain of pelvic mass, pelvic pain or discharge per vaginum.

EXCLUSION CRITERIA:

- Below age of 18 years.
- Over 50 years of age.
- Unmarried females.
- Patients with proven diagnosis of other cause of infertility, abnormal uterine bleeding or pelvic inflammatory disease.

All subjects will be approved by the Ethics Committee of Maharani Laxmi Medical College, Jhansi, Uttar Pradesh. Patients fulfilling inclusion and exclusion criteria were tested for tuberculosis via CB-NAAT or culture using menstrual blood or premenstrual endometrial biopsies as samples. Each patient was subjected to through history taking and gynecological examination. Information regarding patients demographic profile obstetric performance, family history and personal history of tuberculosis and symptomatic and personal details were recorded. Thorough investigations using modalities like ultrasonography and hysterosalpingography done.

CB-NAAT:

Rapid nucleic acid amplification test such as polymerase chain reaction allow direct identification of M. tuberculosis in clinical specimens. Such methods can detect fewer than 10 organisms in clinical specimens compared with 10000 necessary for smears positivity, an important feature because genital tuberculosis is paucibacillary with culture and smears usually being negative. Although PCR is more sensitive (85-95%) than microscopy and bacteriological culture on pulmonary and extrapulmonary specimens, it does not distinguish live from killed bacilli.

HSG:

HSG is performed frequently as an investigation for infertility, this being a common presentation of genital tuberculosis. It should not be performed where tuberculosis is diagnosed by other means as it may result in dissemination and flare up of disease, tubal occlusion is the most common HSG finding in genital tuberculosis. Occlusion occurs most commonly between the isthmus and ampulla. Tube may have leaded appearance or 'Rigid" pipe system appearance tubal dilation, hydrosalpinx, irregular tubal outline and calcification are other features.

Full course of anti tubercular drugs were given which included 4 drugs in initial phase (Rifampicin, Isoniazid, pyrazinamide and ethambutol) followed by isoniazid and rifampicin in continuation phase was given to the genital tuberculosis positive patient and response was observed.

RESULT

Table 1: Total number of patient in study group

Group	Total number of patients
Infertility [Group I]	43
Abnormal uterine bleeding [Group II]	62
Pelvic inflammatory disease (Group III)	51
Total patients	156

Table 2: Age distribution in study group

Age (in years)	Group I (Infertility)		Group II (Abnormal uterine bleeding)		Group III (Pelvic inflammatory disease)	
	No of pts	Positive (%)	No of pts	Positive (%)	No of pts	Positive (%)
18-29	26	4 (15.38%)	21	3 (14.28%)	15	3 (20.00%)
30-39	16	2 (12.5%)	21	3 (14.28%)	25	3 (25.00%)
40-49	1	0 (0.0%)	17	2 (11.76%)	11	0 (0.0%)
≥50	0	0 (0.0%)	3	0 (0.0%)	0	0 (0.0%)
Total	43	13	62	8	51	6

Table 3: General clinical symptom distribution in study group

General clinical symptom	Group I (Infertility)		Group II (Abnormal uterine bleeding)		Group III (Pelvic inflammatory disease)	
	No of pts	Positive (%)	No of pts	Positive (%)	No of pts	Positive (%)
Loss of weight	21	5 (23.80%)	17	4 (23.52%)	23	7 (30.43%)
Loss of appetite	17	5 (29.41%)	22	2 (9.09%)	14	4 (28.57%)
Fever	1	0 (0.0%)	6	1 (16.67%)	17	3 (17.64%)

Table 4: Distribution of gynaecological complains in study group

Gynaecological complains	Group I (Infertility)		Group II (Abnormal uterine bleeding)		Group III (Pelvic inflammatory disease)	
	No of pts	Positive (%)	No of pts	Positive (%)	No of pts	Positive (%)
Menstrual complains	33	5 (15.15%)	62	8 (12.9%)	27	6 (22.22%)
Vaginal discharge	6	2 (33.33%)	1	0 (0.00%)	22	2 (9.09%)
Pelvic pain	2	0 (0.00%)	6	1 (16.66%)	8	1 (12.5%)
Pelvic mass	1	0 (0.00%)	3	0 (0.00%)	2	0 (0.00%)

Table 5: Menstrual complaints distribution in study group

Menstrual complains	Group I (Infertility)		Group II (Abnormal uterine bleeding)		Group III (Pelvic inflammatory disease)	
	No of pts	Positive (%)	No of pts	Positive (%)	No of pts	Positive (%)
Oligomenorrhea	19	2 (10.5%)	18	3 (16.67%)	6	1 (16.67%)
Menorrhagia	6	1 (16.66%)	28	3 (10.71%)	13	3 (23.08%)
Polymenorrhea	6	0 (0%)	11	1 (9.09%)	5	1 (20.00%)
Hypomenorrhoea/ Amenorrhoea	6	2 (33.33%)	5	1 (20.00%)	2	1 (50.00%)
Total	37	5 (13.5%)	62	8(12.90%)	26	6 (23.08%)

Table 6: Investigation distribution in study group

Investigation	Group I (Infertility) [n=6]		Group II (Abnormal uterine bleeding)[n=8]		Group III (Pelvicinflammatorydisease)[n=6]	
	No of pts	%	No of pts	%	No of pts	%
Lymphocytosis	3	50%	3	37.50%	5	83.33%
Risid ESR	4	66.67%	4	50.00%	5	83.33%
Mantoux test	3	50%	4	50.00%	4	66.67%
Sputum AFB	1	16.67%	1	12.50%	1	16.67%
Culture for AFB	6	100%	7	87.50%	5	83.33%

Table 7: Radiological investigation distribution in study group

Radiological investigation	Group I (Infertility) [n=6]		Group II (Abnormal uterine bleeding) [n=8]		Group III (Pelvic inflammatory disease)[n=6]	
	No of pts	%	No of pts	%	No of pts	%
Chest x-ray	4	30.76%	2	25.00%	2	33.33%
Ultrasonography	5	83.33%	1	12.50%	1	16.67%
Hysterosalpingography	6	100%	3	37.50%	1	16.67%

Table 8: Duration of infertility (in years)

Duration of infertility (in years)	Number of patients	Percentage
<5 year	3	50%

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2-10 years	2	33.33%
>10 years	1	16.67%

Table 9: USG in patients of genital tuberculosis

USG findings	Number of patients [N=20]	Percentage
Normal scan	4	20.00%
Interruptions in endometrium	3	50.00%
Endometrial fluid	1	5.00%
Cornual obliteration	3	15.00%
Hydrosalpinx	6	30.00%
Free and loculated peritoneal fluid	6	30.00%

Table 10: Abnormal HSG findings in patients of infertility with genital tuberculosis

Abnormal HSG findings	Number of patients	Percentage
Cornual block	2	33.33%
Fimbrial block	1	16.66%
Beaded tubes	1	16.66%
Hydrosalpinx	1	16.66%
Filling defects in uterine cavity	1	16.66%

Table 11: Proportion of tuberculosis distribution in study group

Group	Total	Tuberculosis patient	
	Number of patients	Number of patients	Percentage
Group I (Infertility)	43	6	13.95%
Group II (Abnormal uterine bleeding)	62	8	12.90%
Group III (Pelvic inflammatory disease)	51	6	11.76%

Table 12: Outcome after treatment with ATT

Group	Outcome aftertreatment with ATT (Totalpositive patients)	Patient who responded to ATT	
		Number of patients	Percentage
Infertility	6	1	16.66%
Abnormal uterine bleeding	8	3	37.05%
Pelvic inflammatory disease	6	5	83.33%

DISCUSSION

In the most common form of extrapulmonary tuberculosis genitourinary disease, accounts for 27% (range from 14 to 41%) worldwide. In India the incidence of genital tuberculosis is nearly about 18%. Genital tract tuberculosis is a chronic disease that often presents with low grade symptomatology and very few specific complains. Presenting symptoms are generally varied, infertility being the most frequent clinical presentation. Other clinical presentation include oligomenorrhea, amenorrhoea, menorrhagia, abdominal pain, dyspareunia and dysmenorrhea.

Female genital tuberculosis affects the females of reproductive age group. The disease manifest itself as pelvic inflammatory disease in its acute form with menstrual irregularities and late infertility and is almost always secondary to primary lesion elsewhere. The disease frequently remain unnoticed even in most of the tertiary health care set ups particularly in developing counties. The true incidence of this is relatively ignored form of extra pulmonary tuberculosis, as the disease posses unconquered diagnostics challenges mainly because the primary symptoms are usually non characteristic. Infertility is well known sequelae. Early diagnosis invariably helps to speed up the decision making process and markedly reduce the time lag in starting anti-tubercular therapy.

The incidence also varies greatly, according to the socioeconomic and public health conditions, therefore, there is wide variation in figures published from various studies.

In our study genital tuberculosis patients who presented with complain (90%) belonged to age group 18-39 years which was comparable to study by Sharma et JB al (2008)[11] in which age of presentation in 80% of women is 20-40 years. The reason for maximum cases in this age group maybe because after puberty the blood supply to the pelvic organ is increased and as a result more bacilli could reach this site and infect the reproductive organ.

Patients of genital tuberculosis may present with various menstrual abnormalities which can be hypomenorrhoea, amenorrhoea, menorrhagia or polymenorrhea depending upon whether the genital tuberculosis is in acute or chronic stage. In acute genital tuberculosis, there is increased vascularity in endometrium due to infection leading to menorrhagia whereas in chronic stage where there may be fibrosis in endometrium, patient may present with hypomenorrhoea or amenorrhoea. In our study patient presented with hypomenorrhoea amounting to 33% of total genital tuberculosis patients which was comparable to result by Kaur S et al (2019)[12] where 37% patients presented with hypomenorrhoea. 16.66% patients presented with menrrhagia comparable to a study by Alwani et al[13] were 14.34% of genital Tuberculosis patients presented with menorrhagia which was most common menstrual disorder.

ESR was raised in 66.67% cases, the result was comparable to Alwani et al[13] Mantoux test was positive in 50% patients of genital tuberculosis which was comparable to results by David K Gatonge et al (2005)[15] where 55% of genital tuberculosis patients were montoux test positive. Chest x-ray was found positive in 30.76% of patients which was higher than the study by Alwani et al[13].

Abnormal HSG was seen in 45% of patients and the result was comparable to Alwani et al[13] and was lower than the result in study conducted by Klien et al[14]. 83.33% of genital tuberculosis patient with infertility showed tubal blockage on HSG which was comparable to the study by David K Gratongi et al (2005)[15] where 81.88% patients had tubal blockage as evident in HSG.

Now coming to the gist of the study and talking about proportion of genital tuberculosis in cases of infertility, abnormal uterine bleeding and pelvic inflammatory disease, In our study 13.95% % of patients of patients of infertility were genital tuberculosis positive. This result was lower compared to study by P. Kumar[16] where 39% of patients of infertility were genital tuberculosis positive. Also according to the study conducted by Sharma JB et al (2008)[11], prevalence of genital tuberculosis in women of infertility was 26% in AIIMS, New Delhi.

In our study proportion of genital tuberculosis in case of abnormal uterine bleeding is 12.90% which is comparable to study by P Kumar et al according to which 11.3% patients of AUB were genital TB positive.

While in the same study 6% of patients of pelvic inflammatory disease were genital tuberculosis positive which is lower compared to our study where percentage is 11.76% which might be due to increased prevalence of genital tuberculosis in Bundelkhand region.

The patient were follower up and given full course of anti tubercular drugs for 6 months and response was observed. 1 out of 6 infertility patients in our study conceived after ATT course by assisted reproductive technique amounting to response rate of 16.66%. This is comparable to study by Sharma JB et al (2008)[11] where conception rate after ATT course was 19.2%. Also according to Sarita S. Nadgouda et al (2010)[17], 2 out of 17 conceived amounting to conception rate of 11.76% which was comparable to our study.

CONCLUSION

Our study focuses on the fact that the incidence of female genital tuberculosis in increasing, so gynaecologist will be increasingly faced with cases of tuberculosis and its consequences. Genital tuberculosis may be asymptomatic or may present with atypical symptoms or mimic other conditions. It is imperative to consider the possibility of tuberculosis in women in reproductive age group who presents with the symptoms of infertility, chronic pelvic pain and menstrual dysfunction, where other causes have been excluded.

Failing to consider the possibility of tuberculosis may result in unnecessary and ineffective intervention. To increase the chance of identifying TB bacilli, immunological, bacteriological and nucleic acid amplification tests should be employed.

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