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ATYPICAL TUBERCULOSIS PRESENTING WITH PRIMARY INFERTILITY AND ENDOMETRIAL CALCIFICATION
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ATYPICAL TUBERCULOSIS PRESENTING WITH PRIMARY INFERTILITY AND ENDOMETRIAL CALCIFICATION

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SUMMARY

Tuberculosis (TB) is caused by *Mycobacterium tuberculosis*. It remains a public health concern especially in developing country. Pulmonary infection is the main presentation. However, genitourinary TB is common especially with the increase in Human Immunodeficiency virus (HIV) infection. Genitourinary TB is one of the most common causes of extrapulmonary tuberculosis which affects 12% patients with pulmonary tuberculosis. It is common in women less than 40 years of age and rarely occurs in post-menopausal. Therefore it is more likely to affect women in reproductive years leading to infertility. Fallopian tube involvement in genital TB is at least 95-100% of cases and is mainly from haematological spread and this leads to infertility. This is a case of a woman who presented a diagnosis of primary infertility and tuberculous endometritis with endometrial calcification.

INTRODUCTION

Tuberculosis (TB) is an important cause of mortality and morbidity and particularly in developing countries (1). Infertility is defined as inability to conceive after one year of unprotected coitus. Infertility remains a major clinical and a social problem affecting partial one couple in six (2).

Tuberculosis (TB) is the second leading cause of death worldwide among communicable disease and kills nearly two million each year particularly in the developing country (3). Genital tract tuberculosis usually shows no symptoms and it is diagnosed as such incidentally during infertility investigation. Infertility in the most common clinical manifestation of pelvic tuberculosis to the extent that it contributes to 40-60% of the patients major complains (4).

Female genital tuberculosis is a major cause of infertility however diagnosis is more often difficult (4, 5). Female reproductive system is vulnerable to this infection and clinical presentation of the disease in female reproductive tract is protean in nature and in a large majority of patients could be completely silent. This disease is an important cause of infertility, menstrual irregularity, pregnancy loss,

and in association with pregnancy, morbidity to both mother and baby increases, (6). Some of the effects of TB infection on female infertility could be remote in nature due to infection elsewhere.

Genitourinary tuberculosis is one of the most common forms of extra pulmonary tuberculosis (7)

CASE REPORT

Thirty three years old with failure to conceive for eight years. She has had no conception and therefore a diagnosis of primary infertility was made. She had had laparotomy tuboplasty and failed *in vitro* fertilisation procedure.

There was no significant symptoms or signs of systemic illness. Specifically there was no history of cough or weight loss.

On the gynaecological history the significant symptomatology was oligomenorrhoea. Patient was re-evaluated for infertility. Positive investigations were:

Pelvic Ultrasound – Non Gravid

- Uterus of normal size and shape measuring 90 x 48 x 36 mm = 81 grams.
- Outlines are normal.

- Myometrial echotexture was uniform.
- Endometrial was thick with bifocal endometrial calcifications.
- Right and left ovary were normal.

Conclusion: Endometrial Calcifications.

Hysterosalpingogram– showed filling defects with bilateral corneal fallopian tube blockage

Hormone profile:

Follicle stimulating hormone: 8 iu/ml

Luteinizing hormone: 4 iu/ml

Estrodiol: 230pg/ml

These were normal findings.

Hysteroscopic/Laparoscopy was advocated for the evaluation of the endometrial cavity, uterus, fallopian tubes and the ovaries.

The findings were:

Hysteroscopy: Endometrium was partially obliterated with synechiae which was calcified.

Adhesionalysis was done and calcified debris taken for histology.

Bilateral ostium visualised.

Laparoscopy: Uterus normal size and right and left ovaries normal with terminal blockage.

Dye insufflations was done and no dye outline nor spill was visualised. This reflected complete blockage of the fallopian tube bilateral.

Post operation she did well.

Endometrial histology – features in keeping with endometrial calcification and tuberculous endometritis. Subsequently she had chest X-ray which was normal.

She was referred to a specialist physician for tuberculosis treatment.

DISCUSSION

The cause of infertility in this woman was Genital TB. Female genital TB an important cause of infertility in developing country where TB is endemic (8). Genital tract tuberculosis usually shows no symptoms and it is diagnosed as such incidentally during infertility investigation. In this particular there was no symptomatology of TB and the diagnosis was made during routine investigation for infertility. Infertility in the most common clinical manifestation of pelvic tuberculosis to the extent that it contributes to 40-60% of the patients major complains (4). Symptomatic disease usually presents with infertility, pelvic pains and / or menstrual irregularities (9).

Worldwide the prevalence of infertile women with genital tuberculosis was 1 - 18% while incidence of genital TB varied from 10 - 85% (10-12).

Genital tuberculosis most commonly affects fallopian tube (92-100%), Endometrium (50%), ovaries (10-30%), Cervix (5%) and rarely vagina or vulva (<1%) (13). In this particular patient it affected both the endometrium and the fallopian tubes.

Therefore genital tuberculosis is more likely to cause menstrual disturbances leading to infertility. Samal *et al* showed Oligomenorrhoe in 54%, Menorrhagia in 19.0, and amenorrhoea in 14.3 % (13) Tuboovarian masses were found in 19.8 of cases (6). Uterine Synechiae is an important cause of secondary amenorrhoe associated with tuberculosis (14). Extra genital tuberculosis can cause amenorrhoe as it is associated with substantial weight loss and systemic inflammatory response and cachexia. This patient had presented with oligomenorrhoe.

TB damage to the fallopian tube is irreparably. TB also damages the endometrium, however if the diagnosis and treatment are made promptly, the uterus heals well, partly because the old uterus lining is shed every month and a new one regenerates. However in severe cases, the TB endometritis does not heal, and leads to scarring and severe fibrosis (Ashermans syndrome) (1).

Laparotomy tuboplasty had failed in this patient.

The mechanisms for TB causing infertility are: (10, 12, and 15)

1. Tubal obstruction.
2. Impairs implantation due to endometrial involvement and endometrial synechiae formation (Ashermans Syndrome).
3. Ovulatory failure due to ovarian involvement.
4. Extensive adhesion caused by abdominal TB also interferes with successful pregnancy.

The patient presented had both tubal obstruction and endometrial synechiae due to TB as the cause of infertility.

TB Diagnosis: Genital TB is always hard to diagnose, because of the fact that it is a silent invader of the genital tract and it is still a diagnostic dilemma.

Diagnosis of genital TB is established by cytology, histology and /or bacteriology. Though cultures for the TB remains gold standard of diagnosis, the results was negative in a third of cases (16). While curettage is easy to perform, actually growing the of TB bacteria in the laboratory even in the women with frank TB is difficult, as this is very temperamental bacillus. The most reliable is by making histological diagnosis of tubercles. It is therefore critical that the doctor actually biopsy suspicious lesions (tubercles) seen on laparoscopy to confirm they are really tuberculosis histologically.

Histological evidence from biopsies of menstrual endometrial tissue or demonstration of tuberculi bacilli in cultures of menstrual blood or endometrial curetting is necessary to reach a conclusive diagnosis of disease (8).

The diagnosis in this patient was by histology of the endometrium.

The endometrial tuberculosis, polymerase chain reaction (PCR) test is commonly employed for the diagnosis of female genital TB (17). The

detection of Mycobacterium tuberculosis DNA by TB-PCR has shown high sensitivity and specifically for the diagnosis of genital tuberculosis (15, 18, 19). The estimates of sensitivity and specificity for the diagnosis of GTB with a positive TB-PCR in the endometrial samples were 0.59 and 0.92, respectively (20).

Hysterosalpingogram and Hysteroscopy are two important investigations to evaluate anatomical abnormality of the female genital tract in infertility and suspected genital tuberculosis.

The mantoux test (tuberculin) is usually unreliable, as it tests for the presence of TB immunity and can similarly be misinterpreted.

Diagnostic endoscopy (Hysteroscopy/Laparoscopy) is the gold standard for confirmation of genital tuberculosis with its advantage of endometrial cavity, uterus, fallopian tube and ovarian evaluation (3). The patient presented had gynaecological endoscopy as a tool for the diagnosis.

TB Treatment: Successful pregnancy is still very low in patients with genital TB even with complete treatment of TB (21).

Infertile women without endometrial damage or tubal given early anti-tuberculosis treatment based on a positive endometrial TB-PCR test had an excellent chance of early spontaneous conception (17). Once TB is confirmed through PCR, Histology or culture, then Ant-TB must be commenced immediately to avoid further progression of the disease. Patient with TB endometritis, also have TB salpingitis and the damage caused to the fallopian tubes is irreversible. The only option for this patient is to undergo In Vitro Fertilization (IVF) and surgery to repair this damaged tubes is futile as the tubes never work properly after having been infected with TB (1). Tubes which have been severely damaged may form hydrosalpinx, and may need to be removed surgically, prior to IVF, to improve outcome. In severe Ashermans syndrome due to TB, the endometrial tissue becomes avascular, and the only option for this unfortunate women is surrogacy or adoption (14). Even latent genital TB may be a cause of repeated failure if the disease is not diagnosed beforehand and treated (22).

This patient had *In Vitro* Fertilisation Failure but was rescheduled for another attempt of IVF treatment after TB treatment.

In conclusion, TB is an important cause of infertility. Genital tract TB usually shows no symptoms and the diagnosis is made incidentally during investigation for infertility (4). Genital TB is responsible for infertility in 5-10 % of women. Gynecologists in developing countries must consider genital TB as an important cause of infertility (8). Gynecologist may neglect to perform diagnostic test for TB for a client

who is unable to conceive, but it may be the cause of infertility. So it could be good to test for TB and ensure the root cause for infertility.

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