

Guest Article

Endometrial Receptivity & Genital Tuberculosis

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Introduction

Impaired tubal function is one of the important causes of female infertility (Sorenson 1980). For many years, the standard treatment for tubal factor of infertility used to be surgery. The birth of Louise Brown in 1978 by IVF-ET started a new era in the treatment of infertility. The assisted reproductive technology was originally meant only for women with irreparably blocked tubes or women with history of failed tuboplasty or bilateral salpingectomy. Over a period of last 2 decades the ART technology has become less invasive, more popular and the indication for its use have expanded to include male subfertility, unexplained infertility, infertility due to endometriosis etc. It is therefore now possible to compare pregnancy rates of ART in women with tubal factor of infertility Vs. women with other factors of infertility.

Templeton et al in 1996 reported that women with tubal factor of infertility had lower implantation rates than women undergoing ART for unexplained infertility.

Many factors affects the IVF success rate in tubal infertility viz. the age of the woman, the quality of controlled ovarian stimulation, the quality and number of embryos transferred, endometrial receptivity and most important of all the cause of the tubal damage and presence of hydrosalpinx. Genital tuberculosis is one such cause of tubal damage, which besides affecting the fallopian tubes also affects the endometrial receptivity in some cases. The endometrial damage occurs simultaneously with acute phase of tubal damage.

Incidence

Tuberculosis is endemic in India even though there is widespread use of vaccination for its prevention as well as ready availability of multidrug therapy for control of disease. The disease is rare in developed countries. However, in recent years the incidence of the disease is rising in the western world due to increasing migration from the Asian subcontinent as well as due to emergence of strains of mycobacterium TB which are resistant to multidrug therapy (Ashurst 1996).

When tuberculosis affects genital organs in a woman it produces devastating effects resulting in infertility, which is difficult to treat with medical or surgical therapy. Merchant in 1989 reported incidence of genital TB to be 14.7% in infertile women undergoing diagnostic laparoscopy. Genital TB is a major pelvic factor causing tubal infertility in Indian women (Parikh et al 1997). We also found that amongst women referred to us for treatment of infertility due to irreparably blocked fallopian tubes, genital TB is the causative factor in 39% of cases. (Desai 1995).

Diagnosis

The fallopian tube is the initial site of involvement with secondary extension to the

endometrium in 50 to 90% of cases, (Sutherland 1979 and Schaefer 1976) thus compounding the problem of management of associated infertility. Diagnosis of early TB is difficult. Histological examination of the endometrium or surgical biopsy from the genital organs for granuloma is the most useful means of establishing the diagnosis. Culture of the menstrual secretion or of the endometrium is another method to establish early diagnosis; especially a repeat sample will offer a higher yield and establish the diagnosis even if the histological examination of endometrium is negative for genital TB (Oosthuizen et al 1990). In our series of 297 cases of histologically proved cases of genital TB and tubal infertility in 150 cases (50%) endometrium was affected by the disease as confirmed from endometrial biopsy report.

Endometriosis & Genital TB

When the endometrium gets extensively damaged, it may cause intrauterine adhesions or extensive fibrosis, it may also cause atrophy of basal layer of endometrium leading to scanty periods or amenorrhoea not responding to oestrogen therapy. Literature review also shows that following medical or surgical therapy of genital TB, pregnancies are rare and if pregnancy occurs, there is increased incidence of abortions due to poor endometrial receptivity. (Saracolqu et al 1992).

Intrauterine Adhesions

Intrauterine adhesions can be diagnosed by hysterosalpingography (Charles 1980) or by hysteroscopy (Bordt et al 1984). The presence of blocked fallopian tubes at ampullary ends with thinning of tubes or beaded appearance due to multiple obstructions and uterus with obliterated uterine cavity or filling defects in uterine cavity in absence of history of curettage or abortions are typical hysterosalpingography findings of genital TB. Many times intrauterine adhesions are mistakenly reported as small uterus or malformation of uterus. Therefore, the best way to detect intrauterine adhesions is by hysteroscopy. Analysis of 271 hysteroscopies done in 448 cases of genital TB in our series showed intrauterine adhesions were present in 30% cases and one third of the adhesions seen were severe and not amenable to surgical approach.

Frydman (1985) was first to demonstrate the usefulness of in vitro fertilization in management of tubal factor of infertility due to TB in 1985. Out of 13 women with genital TB treatment with IVF/ET, 6 became pregnant.

Frydman (1985) performed laparoscopy and hysteroscopy in 7 patients who did not conceive. He found intrauterine adhesions in all the seven unsuccessful women. Gurgan T et al in 1996 reported that total corporeal synechiae due to tuberculosis carries a very poor prognosis. Synechiae reoccurred in 3-4 months. According to him surrogacy is the only option in this group of women.

Destruction and Atrophy of basal layer of endometrium

Menstrual history

Out of 448 women of genital TB in infertility in our series, the disease had affected the endometrial receptivity in 30% of the cases by causing scanty period ((n=114) or amenorrhoea (n=24) not responding to exogenous oestrogen therapy. While in women with histologically proved endometrial Koch's, 40% of patients had scanty period or amenorrhoea not responding to hormone therapy.

Endometrial receptivity & ultrasound

A transvaginal scan of the endometrium in the periovular period for endometrial thickness as well as color Doppler study of the endometrium at that time are useful parameters to assess the physiological function of the endometrium. Steer & Coworkers have studied the function of the endometrium by color Doppler study in women undergoing IVF-ET for studying endometrial receptivity (Steer et al 1992). We use both the above parameters to study the endometrial receptivity. In our experience, patients undergoing IVF-ET for genital TB do not conceive if the endometrial thickness at the time of hCG injection prior to ovum pick up is less than 8mm.

Gurgan et al (1996) have divided endometrium of patients with genital TB into two types, atrophic and trophic endometrium. The authors found poor pregnancy rate when atrophic endometrium was detected.

Genital TB and abortions

Since early diagnosis of genital TB is difficult, by the time a patient presents as a case of infertility, the fallopian tubes are already blocked or tubal functions are already affected. The pregnancies following medical and surgical treatment of TB are rare. Most pregnancies end up as ectopic pregnancies (Durkan et al 1990) or abortions (Saracolqu et al 1992). Schaefer reviewed the post therapy fertility of 7000 cases with genital TB from literature and found 125 extrauterine pregnancies, 67

abortions and only 31 term pregnancies. (Schaefer 1976).

In our series of women with healed genital TB referred for treatment of infertility after medical and surgical treatment, the past obstetric records of these women showed 36 ectopic pregnancies, 54 abortions and only 14 live births amongst 448 women.

Since genital TB causes irreparable damage to fallopian tube, we believe that in vitro fertilization and embryo transfer probably represent the only treatment for women with genital TB in infertility.

Gurgan et al (1996) reported 16.3% clinical pregnancy rate in 44 cases treated with IVF-ET. The authors found less oocytes, poor pregnancy rate and higher abortion rate in cases with genital TB. According to Gurgan (1996) patients with genital TB are a less favourable subset among other tubal factors of infertility in patients undergoing IVF-ET. However, in our study of 83 cases of genital TB undergoing IVF-ET, we found no such differences in pregnancy rate or abortion rate.

Endometrial TB and IVF-ET

At Fertility Clinic, Mumbai our first IVF-ET baby was born in 1986 to a woman with genital TB having healed endometrial tuberculosis. Since then upto December 1999, we have done IVF-ET in 42 women with histologically proved healed endometrial tuberculosis between age group of 25 and 40 years. 41 of these patients had primary infertility; all had irreparably blocked tubes, 12 patients had frozen pelvis, 11 had bilateral TO masses and one patient had undergone unilateral salpingo-oophorectomy for tuberculous abscess. Five women had undergone hysteroscopic adhesiolysis prior to IVF-ET; three patients got cancelled during ovarian stimulation as there was no adequate response. 39 patients had 53 ovum pick ups. There were 11 pregnancies. The pregnancy rate was 20% per ovum pick up (11 pregnancies out of 53 cycles), and 28% per patient undergoing ovum pick up (11 pregnancies out of 39 patients). There was one ectopic pregnancy and one 2nd trimester abortion of twin gestation.

Recommended specific investigations prior to IVF-ET for endometrial Koch's

We observed strict criteria for selection of all patients:

Besides other pre IVF evaluation procedures we routinely perform hysteroscopy, endometrial biopsy for histopathology and culture for TB. Transvaginal sonography for endometrial thickness and color Doppler

study of endometrial spiral vessels during periovulatory phase to assess the endometrial receptivity is also carried out.

Exclusive criteria for IVF-ET

Women with grade III to grade IV intrauterine adhesions or atrophy of basal layer of endometrium not responding to oestrogen and endometrial thickness less than 8mm with high resistant endometrial blood flow during periovulatory phase of menstrual cycle are usually excluded from IVF-ET programme.

Conclusion

ART offers a hope to women with healed genital TB and encouraging success rate can be obtained even when there is history of endometrial Koch's provided patients are carefully selected.

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