

GYNAECOLOGICAL TUBERCULOSIS - AN UPDATE

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INTRODUCTION

Tuberculosis is as old as human civilisation and was mentioned in the Rig Veda.¹ It was in the middle of 18th Century that tuberculous gynaecological manifestations received attention when Morgagni (the famous morbid anatomist) described the signs of genital tuberculosis in women. Ramymond was the first to report a case of tuberculous cervicitis, while in 1847, Kiwish first described a case of tuberculosis of uterus. The manifestations of tuberculosis in gynaecology were published as a monograph by Hagar in 1886².

The clinical interest of gynaecologists was aroused after the accidental finding of tuberculous lesions, by Sutherland in 1943², in specimens of endometrium, obtained during routine investigations for sterility and menstria disorders. But, unlike pulmonary tuberculosis, gynaecological tuberculosis is difficult to diagnose as most cases are asymptomatic. Some have only non-specific complaints, like infertility, menstrual disorder, pelvic pain, etc. Hence, a high degree of suspicion in patients from a high risk group will help in clinching the diagnosis.

The prevalence of genital tuberculosis, in general, has never been estimated since it is not practicable. However, 0.2 to 2.0% of all gynaecological admissions are due to tuberculosis. Various workers, including ourselves, have estimated the proportions with evidence of genital tuberculosis in patients admitted for conditions like infertility, dysfunctional uterine bleeding, secondary amenorrhoea as well as in hysterectomy specimens and in ectopic gestation sacs. We have also studied the association of genital tuberculosis with pulmonary tuberculosis in fresh, untreated bacillary cases and have found the association to be as high as 24% (Table I)^{3,4}.

PATHOGENESIS AND PATHOPHYSIOLOGY

Tuberculosis of the genital tract is almost

invariably secondary to a primary lesion elsewhere in the body, the latter usually being quiescent by the time pelvic involvement is diagnosed. In the majority, the infection reaches the genital tract (mostly fallopian tubes) by the haematogenous route. From the tubes, the infection reaches the endometrium where it either persists in the basal layer, which is not shed during menstruation, or it gets reinfected from the tubes following menstruation. Thus, tubercles in the endometrium are always young. There may be retrograde spread of infection to the ovaries and peritoneum. In a minority of cases, tubes, ovaries and the serosal surface of uterus become involved from the peritoneal spread which occurs from an intra-abdominal lesion. Rarely, direct involvement of vulva and cervix occurs from an infected male sexual partner.

The tubal pathology varies according to the mode of infection. If infection is lymphatic borne, the tubercles are formed on the surface, with adhesions all around. In haematogenous spread, the tubercles are deeper and look red, oedematous and swollen in the acute infection phase and fibrosed in the chronic cases. In 50% of the cases, the tubes get blocked; blockages being multiple and the tubes thickened and shotty. Sometimes, a localised blockage at the outer end results in the formation of hydrosalpinx or pyosalpinx with thick fibrous walls

Table 1. Frequency of Genital Tuberculosis among Ob/Gynae disorders

Disorder	Percent
Infertility	5.3
Secondary amenorrhoea	9.3
Oligomenorrhoea	2.0
Dysfunctional uterine bleeding	1.5
Hysterectomy specimens	1.0
Ectopic pregnancy sacs	1.5
Pulmonary tuberculosis	24.0

which may become calcified or even ossified. Often, the ovaries have normal macroscopic appearance and the diagnosis is made only on histopathological study. But ovaries may have tubercles, adhesions, thickening of the capsule and sometimes even caseating abscess/cavities in the ovarian substance.

The tuberculous uterus usually looks normal to the naked eye even though typical tubercles may be present in the endometrium.⁵ Adhesions and partial obliteration of the uterine cavity may also be present. In cervix, the tuberculous lesion can be ulcerative or proliferative. Rarer forms like miliary and interstitial tuberculosis have also been described. In the ulcerative form, the ulcers have serpiginous outline, clean cut edges and a yellow base. Early ulcers are often seen near the external os. The proliferative lesion has papillary formations which may be pedunculated or sessile. Finally, caseation occurs which leads to progressive destruction of the cervix (Fig 1)⁶

In vagina, tuberculous ulcers are very rare (Fig 2)⁷. In vulva, the lesions can be ulcerative or hyperplastic.

Regarding frequency of involvement of the different parts of the genital tract, the tubes are



Fig. 1 Showing an ulcerative lesion of the os cervix with irregular edges and yellow base. A portion of the external os is thickened and oedematous.



Fig. 2. Labia are pulled apart to reveal a serpiginous ulcer on the posterior vaginal wall. External os cervix can be seen in the background.

involved in 90 to 100% cases, uterus in 50 to 60%, ovaries in 20 to 30%, cervix in 5 to 10%, vagina and vulva in 1 to 2% of the cases. Myometrium gets involved very rarely. We have seen only one case of myometrial tuberculosis.

SIGNS AND SYMPTOMS

Till date, we have analysed 270 histopathologically proved cases of genital tuberculosis. A majority belonged to the third decade of life. The disease was more common in nulliparous women followed by women having more than 3 children with the last

Table 2. Common presentations

Presentation	No.	Percent
		452
Primary infertility	122	
Secondary infertility	35	132
Pelvic pain	49	180
Leucorrhoea	70	260

Some had multiple presentations

Table 3. Associated tuberculosis lesions

Pulmonary	31	116
Abdominal	12	4.4%
Skeletal	4	1.2%
Glandular	2	0.8%

child birth within the previous year.

As regards presentations, some cases may not have any symptom at all while in others symptoms may be nonspecific (Table 2). Non-specific symptoms, like primary and secondary infertility are complained of by 58% cases, pelvic pain by 18% and leucorrhoea by 26% of cases.

The predominant symptom (43%) is secondary amenorrhoea. Among other common symptoms are oligomenorrhoea (11%), menorrhagia (17%) etc.

Palpation of the abdomen may reveal a doughy sensation due to tubercle formation on the intestinal and parietal peritoneum. On pressure palpation, a dull pain is elicited. The most significant signs are a pelvic mass and an unhealthy cervix, 21% of the former and 17% of the latter, in our series.

Tuberculous lesions elsewhere in the body were seen in about 18% of cases in our series (Table 3). The association was perhaps low because such lesions may have become quiescent by the time genital manifestation occurred.

From our different studies, it was noted that tuberculosis of the genital tract is comparatively common in a certain class of women, the so called high risk group. Women who have a family history of tuberculosis, chronic pelvic pain associated with infertility, past history of tuberculosis, secondary amenorrhoea associated with infertility, and women having an adnexal lump, alone or associated with infertility should be taken as the high risk group and investigated thoroughly.

About 20% of patients with genital tuberculosis give a history of tuberculosis in their immediate family. On careful questioning, about 30 to 40% might admit that they had had pleurisy, peritonitis, osseous or pulmonary tuberculosis in the past. Infertility associated with an adnexal lump is due to tuberculosis in about 44% of cases. Tuberculin test and ESR have diagnostic role to play in looking for the association. A careful evaluation of the chest roentgenogram by a trained chest physician is important for locating small or healed lesion, a

negative chest X-ray does not rule out the possibility of genital tuberculosis.

Endometrial curettage

A thorough curettage is a must for diagnosis. The curettage material is divided into 3 portions : One portion is sent for histopathological study, another for culture and sensitivity test and the third portion should be sent for guinea-pig inoculation. However, animal inoculation is seldom done as in most places this facility is not available.

A typical tubercle found in the histopathological examination is diagnostic. Endometrial aspiration cytology is characterised by the presence of epithelioid cells, giant cells, and plenty of histiocytes in the smear. **Of course, aspiration cytology examination has many advantages : it can be done in the O.P.D; it is inexpensive and permits direct inoculation on the culture medium.** In one of our studies, out of 250 gynaecological cases, 15 were cytology positive as corroborated by histopathology⁸. Aspiration cytology can serve as a good screening procedure.

Examination of menstrual blood by direct smear for mycobacterium tuberculosis gives very poor results.

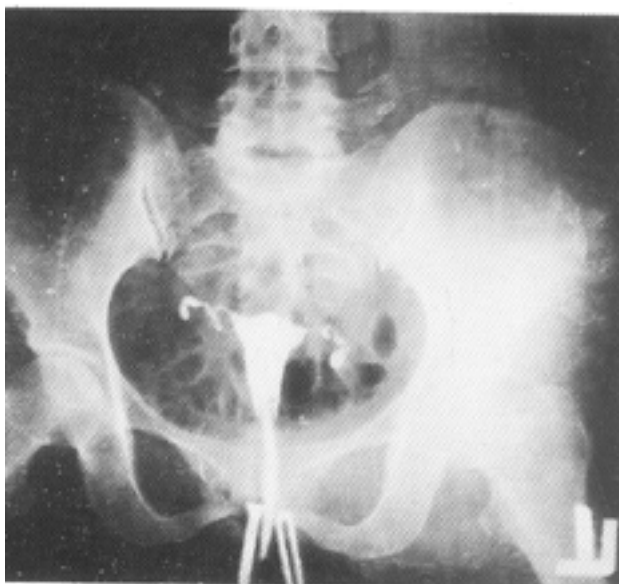


Fig. 3. Showing beaded fallopian tubes on both the sides and tobacco pouch appearance on left side on hysterosalpingography Uterus appears to be normal

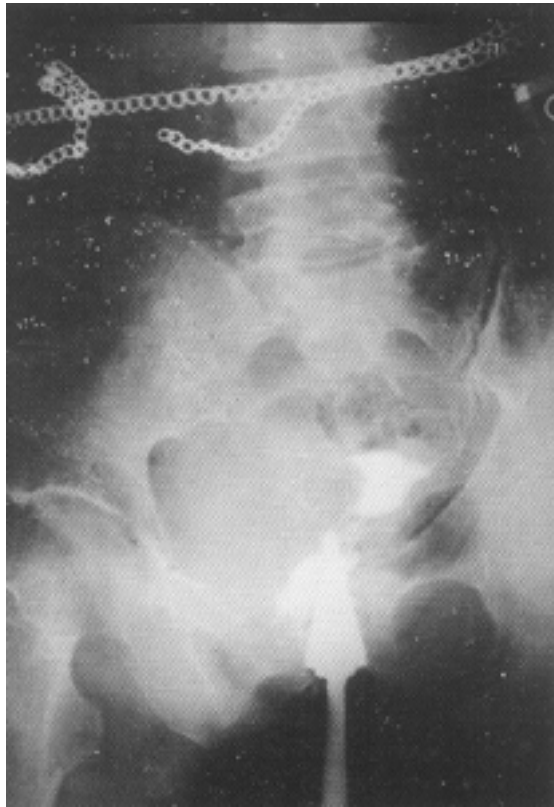


Fig. 4. Hysterosalpingography shows tobacco pouch appearance on left tube and serrated endometrium of Uterus

Hysterosalpingography

When ovaries or the tubal walls are calcified, we get a good picture but the classical picture of tuberculosis is beaded tubes or lead pipe and tobacco pouch appearance of the tube. The uterine cavity is distorted in some cases but in others there is serrated endometrium (Figs 3 and 4)

Laparoscopy and Laparoscopic Biopsy

The most frequently used tool for the diagnosis of genital tuberculosis is laparoscopy. The diagnosis is quite obvious when tubercles are present. A biopsy taken from the site will confirm the diagnosis. What is commonly encountered is salpingitis, oophoritis or a tubo-ovarian mass. The signs that may help clinch the diagnosis are presence of free peritoneal fluid (looking like blood), inflamed uterus, blue uterus, caseation (mainly in the pouch of Douglas), peritonitis, and on chromopertubation, the dye does not flow

freely but drips. And sometimes, omentum is found completely adherent to the abdominal organs, which calls for great caution in proceeding further.

Hysteroscopy

Tubercles, microcaseation, distorted ostium, caseous material coming through the ostium, distorted uterine cavity, are some of the findings on hysteroscopy. Biopsy material can also be obtained. Endosonography is of not much help.

A positive histopathological report or isolation of the *Mycobacterium tuberculosis* or definite positive findings in hysterosalpingography only should be used before treating a case as one of genital tuberculosis.

TREATMENT

Treatment is usually chemotherapy. A chest physician should always be consulted for planning and continuation of treatment. Nowadays short course chemotherapy is preferable for its shorter duration and better patient compliance. The 2 EHRZ, 4 HR or 2 EHR, 7 HR regimens, with variation here and there could be used. We add steroids, if the patient has infertility and there is no active lesion in the lungs.

After 6 or 9 months of treatment, a dilatation and curettage is carried out to check up endometrial conversion. In a majority, menstrual symptoms return to normal. **If the patient does not conceive after one year of completion of therapy, hysterosalpingography and laparoscopy are performed again. Though tubal patency may have been restored, the tubes remain rigid and beaded in most. The conception rate in genital tuberculosis is very poor.** Sutherland, in his series of 709 cases reported conception occurring in 13% only.⁹ Schaffer, in a review of 7000 cases, found that only 155 cases had full term normal deliveries, 67 cases had abortion and 125 had ectopic gestation. In 31 of the 155 cases, the management of tuberculosis was well documented.¹⁰ From our 270 cases, 7 had full term normal delivery, three had ectopic pregnancy and 8 had abortions. Based on the reports in the literature and from our own experience, we feel that successful pregnancy is unlikely after tuboplasty, so such patients could go in for *in vitro* fertilisation and embryo transfer.

Before the chemotherapeutic era, surgery was the mainstay for treatment of gynaecological tuberculosis but now surgery has no role to play except where recurrent pelvic pain, persistence of the pelvic lump, recurrence of endometrial tuberculosis, excessive bleeding and persistence of tuberculous sinus are present.

Total hysterectomy with bilateral salpingo-oophorectomy is the operation of choice, under proper chemotherapy, both prior to and after the operation. Sutherland operated on 91 cases without any complications⁹. In our series, surgery was resorted to in 30 cases, only laparotomy was done in 21 and radical surgery in 9 cases.

To conclude, genital tuberculosis among females is fairly common. With the advent of HIV epidemic, tuberculosis as such has increased the world over. This is likely to have an impact on genital tuberculosis too. This calls for a more diligent and persistent search for genital tuberculosis in the high risk group.

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