

# Neglected Disease; Genital Tuberculosis

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## Abstract

**Objective:** The aim of this study is to emphasize the importance of genital tuberculosis on infertility.

**Materials and Methods:** One hundred and eighteen patients had laparotomy with various indications who applied to the Infertility Unit of Obstetrics and Gynecology Outpatients Clinic of the University of Çukurova in a period between 1st January 1984 to 1st January 1999.

**Results:** Genital tuberculosis has been diagnosed incidentally in 16 out of 118 patients. 11 of them had primary and 5 of them had secondary infertility. The incidence of genital tuberculosis was 13.5%. The mean age of patients was 27.8.

**Discussion:** Since nowadays genital tuberculosis is neglected, it seems that because of immigration atypical forms of tuberculosis will be reborn both in developed and also in developing countries.

**Keywords:** genital tuberculosis, infertility, gynecologic surgery

## Özet

### Unutulmuş Hastalık: Genital Tüberküloz

**Amaç:** Bu çalışmanın amacı genital tüberkülozun infertilitedeki rolünün vurgulanmasıdır.

**Materyal ve Metot:** Bu çalışmaya Çukurova Üniversitesi Tıp Fakültesi, Kadın Hastalıkları ve Doğum Anabilim Dalı, İnfertilite Ünitesine 1.1.1984 ile 1.1.1999 tarihleri arasında müracaat eden ve değişik nedenlerle laparotomi yapılan 118 infertil olgu alındı.

**Sonuç:** Genital tüberküloz, 118 olgunun 16'sında saptandı. Bu olgulardan 11'i primer, 5'i ise sekonder infertil idi. Genital tüberküloz sıklığı %13.5 idi. Hastaların yaş ortalaması ise 27.8 idi.

**Tartışma:** Genital tüberküloz günümüzde ihmal edilmesine rağmen, ülke içindeki ve ülkeler arasındaki göçler nedeniyle tüberkülozun özellikle atipik formlarının gelişmiş ve gelişmekte olan ülkelerde yeniden artacağı görülmektedir.

**Anahtar sözcükler:** genital tüberküloz, infertilite, jinekolojik cerrahi

## Introduction

Although Tuberculosis after the Second World War has been almost eradicated in the well developed countries due to vaccination, early diagnosis, proper antibiotics and increase in the life standards (1,2), it still seems one of the major problems in the underdeveloped countries and also in the developing countries such as that of Turkey. Because immigration both from one country to another and also to cities, it seems that genital tuberculosis will reborn in many countries and areas where it is thought to be eradicated. Genital tuberculosis is generally secondary to a primary lesion within the body. In most cases primary lesions are pulmo-

nary or pleural and rarely gastrointestinal or renal (3,4). Tuberculosis spreads through the blood stream and major sites affected in the genital tract is fallopian tubes by the invasion of peritoneum than uterus, especially endometrium is affected.

In the past, Mycobacterium tuberculosis and Mycobacterium bovis were the organisms responsible for genital tuberculosis but now atypical varieties of Mycobacterium are being isolated (5). In contrast to the Mycobacterium bovis and Mycobacterium tuberculosis, the other varieties of tuberculosis are not transmitted from person to person but from the environment with the mechanisms which are not fully understood (5). Furthermore the tuberculosis caused by these varieties had no typical tuberculosis symptoms. As a result, there is technical deficiency in the diagnosis and failure in the physician's decision making.

Genital tuberculosis is an important cause of infertility and the cases with genital tuberculosis present with abdominal

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and pelvic pain and underwent laparotomy for abdominal mass or tubo-ovarian abscess (6). The diagnosis is generally done during the operation. In this study we planned to evaluate genital Tuberculosis retrospectively among the infertile patients and to emphasize the role of tuberculosis in infertility.

### Materials and Methods

Between the 1<sup>st</sup> January 1984 to the 1<sup>st</sup> January 1999, 118 infertile patients were operated by explorative laparotomy for a pelvic mass at the Department of Obstetrics and Gynecology, Faculty of Medicine, Çukurova University. These patients records were evaluated retrospectively and genital tuberculosis cases were selected (n=16). For confirming the diagnosis ascites fluid and the biopsy material taken from the suspected area were sent again for histopathological/biochemical examination. In only 2 patients, tuberculosis bacilli were isolated and these were atypical bacilli. In patients where bacteriologically tuberculosis bacillus could not be isolated histopathologic diagnosis was accepted to be sufficient for the diagnosis of tuberculosis. Adenosin deaminase levels were measured in the ascites fluid for biochemical diagnosis. As this was a retrospective study, most of the patients were not examined by PCR (polymerase chain reaction) for tuberculosis at the time of operation, as this is a new method.

After confirmation of the diagnosis of tuberculosis, the primary lesion was searched. For this reason; Chest X-ray, culture of sputum, urine culture, inoculation in animals, urography (I.V.P.), PPD, erythrocyte sedimentation rate (ESR), endometrial biopsy and hysterosalpingography was performed. The patients' husbands were also examined for tuberculosis.

### Results

Most of the cases (n=11, 68.7%) were between 20 to 30 years and mean age was 27.8. The remaining 5 (31.3%) patients were between 30 to 40 years.

Eleven of the patients had primary and 5 of them had secondary infertility. The indications for laparotomy of the cases were adnexal mass in 6, ascites and abdominal mass of undefined border in the other 10. The primary complaint was infertility in 11 cases (68.7%) and menometrorrhagia in 5 cases (31.3%). Most of the cases (68.7%) were from rural areas and low socioeconomic class, so they did not have proper infertility research. They were consulted for an abdominal mass because they had a desire for getting pregnant, they were evaluated in our Infertility Outpatients Unit. Ten out of 16 cases that underwent laparotomy had ascites in abdomen and 3 cases had adhesions between intestines and genital tract, yellowish lobular sacs and there were also thickening of the parietal peritoneum

**Table 1.** Laboratory results of the patients

Patient number	Histopathologic positivity	Bacteriologic results	PCR	ADA	ESR	PPD	Primary focus
1	+	Atypical Mycobacterium tuberculosis	-	30	High	+	Pulmonary
2	+	Atypical Mycobacterium tuberculosis	-	30	High	+	Pulmonary
3	+	-	-	102	High	+	Pulmonary
4	+	-	-	94	High	+	-
5	+	-	-	15	High	+	-
6	+	-	-	15	High	+	-
7	+	-	-	4	High	-	-
8	+	-	-	3	High	-	-
9	+	-	-	-	High	-	-
10	+	-	-	-	Normal	-	-
11	+	-	-	20	Normal	-	-
12	+	-	-	15	Normal	-	-
13	+	-	-	20	Normal	-	-
14	+	-	-*	-	Normal	-	-
15	+	-	+*	-	Normal	-	-
16	+	-	+*	20	Normal	-	-

PCR: polymerase chain reaction; ADA: adenosin deaminase; ESR: erythrocyte sedimentation rate; PPD: purified protein derivate

\*PCR (Polymerase chain reaction was performed in only 3 cases and it was positive in 2 of them)

and omentum. In most of the cases, on the parietal peritoneum and visceral peritoneum of fallopian tubes, yellowish vesiculous tubercles existed and anatomy of the tubes were abnormal and oedematous.

In the biochemical examination of the ascites fluid, adenosin deaminase levels were found above the normal values in 4 cases. In 3 out of the 16 cases the primary tuberculosis lesion was in the lung. In 9 cases ESR was high. PPD was positive in 6 out of 16 cases.

The medical history of the patients showed that 5 patients had a complaint of metrorrhagy. These 5 patients had endometrial biopsies after the operation and in 4 cases there were features of tuberculosis in the biopsies. We also examined our patients' husbands for tuberculosis but could not find any lesions.

## Discussion

The actual incidence of genital tuberculosis can not be determined accurately in any population, since some of patients are asymptomatic, symptoms of the patients are not typical and especially in the well developed countries it is thought to be eradicated and the disease is discovered incidentally (2).

Tuberculosis was diagnosed unexpectedly in our patients during the laparotomy performed for different indications. Although normally our contemporary first line approach is laparoscopy for infertile cases, because of the retrospective nature of the presented study all mentioned infertile cases were administered to laparotomy for their pelvic masses.

Schaefer estimated that 5-10% of infertile females the world over have genital tuberculosis, although this varies from less than 1% in the USA to nearly 13% in India (2). The reproductive period is thought to be the most risky time to be infected by genital tuberculosis. In recent studies it was noticed that the mean age rose. According to Sutherland the mean age was 28.2 years in a time period from 1970 to 1980. Falk's series in Sweden also gave similar results (1,2). Contrary to these results in Saudi Arabia between 1979 and 1983 Chadtopadhyay et al. noticed the mean age to be 24.8 (7). In the presented series the mean age was 27.8.

In a study from Pakistan, the majority of cases were between 25-45 years. The most common presenting symptoms were infertility (42.5%) and abdominal pain (42%). Others included fever, ascites, irregular vaginal bleeding, oligomenorrhea, chest pain and pain in the flanks (8).

Genital tuberculosis is the disease of fourth decade in well developed countries, but it is encountered almost a decade ago in developing countries like Turkey and Saudi Arabia. This happening was tried to be explained with early marriage (7).

With the classical knowledge, we know that genital tuberculosis is always secondary to a primary lesion elsewhere in the body and is spread by the hematogenous route. In recent years, genital tuberculosis is caused by the typical tuberculosis bacilli other than *Mycobacterium tuberculosis bovis* and *hominis*. The atypical forms of bacilli do not show typical tuberculosis symptoms and are spread by environmental factors which predispose the genital tuberculosis. Genital tuberculosis is generally higher in the rural areas where the hygienic and economical status is lower, and vaccination can not completely be performed.

In a study from Tunisia, patients with genital tuberculosis living in rural areas accounted 69% of all the study population, which was a very similar rate with the presented series (68.7%) (4).

The main complaint of patients with genital tuberculosis is infertility, which ranges between 56 to 77% (2,9,10) and menometrorrhagia which ranges between 3-36% (9,10). In the presented series the rates of infertility (68.7%) and metrorrhagia (31.2%) was parallel to the previous data. In the near past, genital Tuberculosis accounted as a disease where the rate of pregnancy was 0%, and when an intrauterine pregnancy was demonstrated the diagnosis of tuberculosis was excluded (1). But after development in assisted reproductive technologies, it was found that although the cases with genital tuberculosis are poor responders for *in-vitro* fertilization cycles they are not totally sterile (11).

As mentioned before, the main transmission of tuberculosis is hematogenous. Although, it is known that sexually transmission of the infection is rare, Sutherland showed out of 128 genital tuberculosis cases, 5 patient's partners had active genitourinary tuberculosis (2). In the presented series, we could not find any Tuberculosis focus in the husbands of our patients.

As shown previously, among the pulmonary tuberculosis patients 12.3% were diagnosed as genital tuberculosis and infertility was present in 71.4% of these patients (12). With retrospective evaluation of the presented cases, we believe that each infertile patient, especially the ones from the poor socioeconomic population and immigrants should be thoroughly evaluated for tuberculosis. It should be noticed that all the diagnostic methods other than biopsy have high percentage of false negative findings. Therefore, laparoscopic or laparotomic biopsies must not be neglected if it a clinical suspicion exists. According to the experience collected from our own series, there isn't any clear cut diagnostic value of the methods other than biopsy. Recently, the PCR method is known to have an important diagnostic value.

In conclusion, we believe that genital tuberculosis should be kept in mind, especially in infertile cases even in the countries where it is thought to be eradicated. It is necessary to make the research and vaccination from time to time in the regions where the population of immigrants from underdeveloped countries is higher. Only with these precautions, atypical cases can be diagnosed and treated.

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