

Case Report

Genital Tract and Peritoneal Tuberculosis Presented With Primary Subfertility

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Abstract

Tuberculosis is an emerging medical challenge in each and every part of the world which affects all most all parts of the body even though the commonest presentation is pulmonary tuberculosis. Genital tract and peritoneal tuberculosis will lead to fibrosis and scarring of the fallopian tubes which ended up in tubal factor infertility. This is a case of peritoneal and genital tract tuberculosis which was incidentally found during the investigation for primary subfertility.

Keywords: Genital tract tuberculosis, peritoneal tuberculosis and subfertility

1. Introduction

Failure to conceive after one year of regular unprotected vaginal sexual intercourse in a couple who never had pregnancies before is considered as primary subfertility. Prevalence of subfertility among married couples (age 15-49 years) is 15% in Sri Lanka [1, 2]. Thus, it is an important medical and social problem in the country as it affects the psychological wellbeing of the couple while disturbing the marital harmony [3]. Early detection of vulnerable couples, appropriate counselling, proper investigations and treatment will reduce the psychological, social and physical stress to the affected couples.

According to the World health organization (WHO), 60 to 80 million couples suffer from subfertility across the globe. Contribution of female factor infertility for this is 40-55% while male factor infertility contribution is 30-40%. Ten percent of cases involves both partners while 10% cases remain unexplained [4].

Tuberculosis (TB) is a major health challenge with 10.6 million affected people across the globe in 2021. This is an increment of 4.5% compare to 2020 [5]. Highest prevalence of TB was reported from India (28%), Indonesia (9.2%), China (7.4%), the Philippines (7.0%) and Pakistan (5.8%) [6]. Even though the pulmonary TB is the commonest form, prevalence of extra-pulmonary TB is rising through out the world making a significant challenge to health sector. This is more common among females compare to males while the genital tract is being more vulnerable to the infection [7, 8]. Genital tract TB ultimately lead to scarring due to fibrosis of tube which ended up with tubal factor subfertility [9].

Miliary tuberculosis (MTB) is a result of wide spread dissemination of the mycobacteria throughout the body which accounts for 1-2% of all extra pulmonary TB [10]. Poor socio-economic status, female gender, immunosuppressed state, alcoholism and extremes of age are the risk factors for the MTB [11-13]. Bacilli enters into the peritoneal cavity through hematogenous spread from a lung focus or rarely through the diseased bowel to cause peritoneal tuberculosis (PTB) [14]. Risk factors for PTB are HIV infection, diabetes mellitus, and treatment with anti-tumor necrosis factor (TNF) agents, ongoing peritoneal dialysis and hepatic cirrhosis. Patient may present with pyrexia of unknown origin (PUO), abdominal distention due to ascites and abdominal pain [10].

Case History

25-year-old nulliparous lady presented with primary subfertility for 2 years. She got married 2 years ago and had tried for a baby from there onwards. She was otherwise healthy and had regular menstrual cycles without dysmenorrhea or menorrhagia. Her husband was a healthy person and they had regular vaginal sexual intercourse throughout their marriage life. She denied any history of dyspareunia, erectile dysfunction or premature ejaculation.

On examination she was a small built lady with a body mass index of 19kg/m². She was afebrile. Her abdominal examination was unremarkable [15]. Speculum examination revealed edematous and inflamed cervix. Bimanual examination was unremarkable. Retrospective questioning revealed that she had one episode of intermenstrual bleeding and post coital bleeding in last week which she neglected. She never had cervical screening before and denied any past history of sexual promiscuity.

Her husband's seminal fluid analysis was normal. She had undergone three cycles of ovulation induction with timed sexual intercourse without any success. As she never had previous tubal patency assessment, she was agreed to undergo laparoscopy and dye test.

Laparoscopy revealed edematous and inflamed uterus and tubes with whitish papular plaques which suggestive of miliary tubercles. These miliary tubercles were present all over the pelvic organ surfaces, pouch of Douglas, bowel surfaces, liver surface, under surface of the diaphragm and parietal peritoneum. Small amount of straw-colored free fluid noted in pouch of Douglas. Dye test was not performed. Peritoneal fluid and multiple biopsies were taken from the miliary deposits. They were sent to TB PCR (polymerase chain reaction), culture, histology and direct smears for acid fast bacilli (AFB). Multiple punch biopsies were taken from the cervix and endometrial sampling was done. She had uneventful recovery following the surgery.

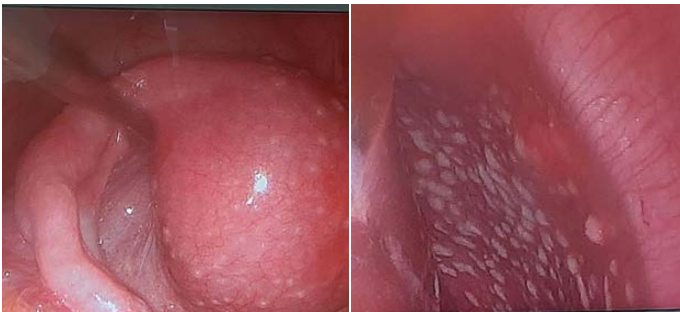


Figure 1: laparoscopic view of the uterus (left) and liver surface (right)

Retrospective inquiry revealed that she had generalize body weakness, lethargy, feverish feeling towards the latter part of the day and loss of appetite which she attributed for her stressful status due to recent changes in life style as a result of change in the job. She denied any past history suggestive of pulmonary TB or expose to a patient who had pulmonary TB. Examination did not elicit any signs of pulmonary TB.

Her chest X-ray was normal and three samples of sputum for AFB were negative. Her ESR (erythrocytes sedimentation rate) was 85mm for the first hour. Her Mantoux test was strongly positive. TB PCR came positive from all samples taken during the surgery. Histology revealed granuloma formation with caseous necrosis which suggestive of TB. Peritoneal fluid was negative for AFB. Her culture reports came later as positive for TB.

She was counselled regarding the findings and investigation results and she was started on anti-TB treatment. She had significant clinical improvement there after and she was advised to delay the pregnancy until she finishes the treatment course.

2. Discussion

PTB contributes to 4.9% of extra pulmonary TB cases while being in the sixth commonest site to have extrapulmonary TB [16]. This case shows the importance of taking a compre-

hensive history and examination in a patient with out limiting to common possible diagnosis. Sametime it shows the importance of considering tuberculosis as a cause for subfertility in a setting where the prevalence is high.

This could have been diagnosed earlier if this patient was more conscious about the symptoms she had. Even though she didn't show typical features of PTB like gross ascites, abdominal distention and abdominal pain she had features suggestive of cervicitis which could have alert the physician [10].

Generally speaking, as this was an incidental finding during laparoscopy, all suitable specimens should be taken. There after all the other supportive investigations should be done. As only one third of PTB patients shows clinical and radiological signs of pulmonary TB (even though it is the commonest site), it becomes a diagnostic challenge to the physicians [17]. Even though it was not done in this patient, peritoneal fluid analysis can support in the diagnosis of PTB as 68% of the patients are having lymphocytic predominant WBC containing (500-1500/mm³) ascites with protein contain >2.5g/dl [18]. Radiological findings of these PTB patients are lymphadenopathy (14-47%), loculated or localized ascites (36-67%) and peritoneal thickening (23-32%) [19]. Sensitivity of Ziehl-Neelsen stain of ascetic fluid (0-6%) and culture of the ascetic fluid (16-58%) can be increased by centrifuging the sample [14].

TB PCR from ascetic fluid has high specificity and low sensitivity. But Adenosine deaminase level in peritoneal fluid (>30 iu/L) is highly suggestive of TB (sensitivity close to 100% and specificity 95%) [18]. Even though supporting in diagnosis, performing Mantoux test will not differentiate between latent TB and active TB. Even though the culture is the gold standard in diagnosing TB, negative culture will not exclude the disease. Consumption of prolong time for the reporting is the most problematic thing in culture. Value of laparoscopy come into the picture in these occasions which allows the physician to directly visualize the peritoneal cavity while allowing to obtain samples. Three different characteristic laparoscopic appearances are as follows [20].

1. Substantial peritoneal thickening with dense adhesions that may extend to adjacent organs
2. Thickened peritoneum with yellow-white tubercles
3. Thickened peritoneum without tubercles

If the diagnosis is not obvious with the available investigation results and clinical findings, trial of anti-TB therapy is justifiable in a case with high index of suspicion. In this case it was not so and anti TB therapy for twelve months will settle the problem. There after she need re-arrangement of the tubal patency test and re-start the fertility treatments.

3. Conclusion

Even though rare, peritoneal TB and genital tract TB should be born in mind when dealing with subfertility due to the tubal factor as early diagnosis and proper treatment reduce the morbidity and mortality.

Consent: Informed written consent obtained from the patient.

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