



ORIGINAL RESEARCH PAPER

OBGY & Laparoscopic Surgery

SPECTRUM OF FEMALE GENITAL TUBERCULOSIS DIAGNOSED BY GYNECOLOGICAL ENDOSCOPY: A TWO-CASE SERIES HIGHLIGHTING DISTINCT ENDOSCOPIC FINDINGS AND FAVORABLE REPRODUCTIVE OUTCOME

KEY WORDS: Female genital tuberculosis, Infertility, Laparoscopy, Hysteroscopy, Micropolyps, Pelvic adhesions

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ABSTRACT

Background : Female genital tuberculosis (FGTB) remains an important yet underdiagnosed cause of infertility in tuberculosis-endemic countries. The disease often presents with nonspecific clinical features, making endoscopic evaluation invaluable for diagnosis. Laparoscopy and hysteroscopy reveal characteristic but variable manifestations depending on the stage and site of disease. **Case Series** We report two women presenting with infertility who demonstrated different endoscopic manifestations of FGTB. The first patient underwent diagnostic laparoscopy for suspected tubal factor infertility, which revealed extensive pelvic adhesions, violin-string adhesions, peritoneal fibrosis, distorted tubo-ovarian anatomy, and thickened fallopian tubes suggestive of chronic genital tuberculosis. Histopathological evaluation confirmed the diagnosis. The second patient underwent hysteroscopy for unexplained infertility, which demonstrated diffuse endometrial micropolyps suggestive of chronic endometritis. Endometrial biopsy confirmed genital tuberculosis. Following completion of anti-tubercular therapy, she conceived spontaneously and currently has a healthy ongoing singleton pregnancy at 14 weeks' gestation. **Conclusion** These two cases demonstrate the diverse endoscopic spectrum of female genital tuberculosis. Early recognition of characteristic laparoscopic and hysteroscopic findings allows prompt diagnosis and treatment, improving reproductive outcomes.

INTRODUCTION

Tuberculosis continues to be a major public health challenge in developing countries. Female genital tuberculosis is an important cause of infertility, accounting for 5–19% of infertility cases in endemic regions. The fallopian tubes are involved in nearly all patients, followed by the endometrium, ovaries, and pelvic peritoneum.

Clinical symptoms are often subtle or absent. Therefore, diagnosis frequently requires endoscopic evaluation with histopathological confirmation.

Diagnostic laparoscopy demonstrates pelvic pathology including adhesions, tubal distortion, hydrosalpinx, and peritoneal tubercles, whereas hysteroscopy may reveal pale endometrium, fibrosis, intrauterine adhesions, or diffuse micropolypoid changes suggestive of chronic endometritis.

This report highlights two distinct endoscopic presentations of FGTB encountered during infertility evaluation.

Case 1

A 28-year-old nulligravida presented with primary infertility of five years. Menstrual cycles were regular with no constitutional symptoms suggestive of tuberculosis. Routine infertility evaluation demonstrated normal hormonal profile and normal semen analysis. Hysterosalpingography suggested bilateral tubal block.

Diagnostic laparoscopy revealed extensive chronic inflammatory pelvic disease characterized by:

- Dense filmy pelvic adhesion
- Multiple translucent violin-string adhesions
- Thickened and beaded fallopian tubes
- Distorted tubo-ovarian anatomy
- Diffuse pelvic peritoneal fibrosis
- Absent bilateral tubal spill on chromoperturbation

Careful laparoscopic adhesiolysis was performed using bipolar energy and blunt dissection. Representative peritoneal biopsies were obtained.

Histopathological examination demonstrated granulomatous inflammation consistent with tuberculosis, and molecular testing confirmed *Mycobacterium tuberculosis*.

The patient was started on standard anti-tubercular therapy under National Tuberculosis Elimination Programme guidelines.

Case 2

A 29-year-old woman presented with primary infertility of four years. Clinical examination, ultrasonography, endocrine profile, and partner evaluation were normal.

Diagnostic hysteroscopy demonstrated numerous diffuse endometrial micropolyps measuring approximately 1–2 mm distributed throughout the uterine cavity with focal hyperemia and irregular endometrial surface. Both tubal ostia were visualized.

Because hysteroscopic micropolypoid changes were suggestive of chronic endometritis, targeted endometrial biopsy was performed.

Histopathology demonstrated granulomatous inflammation, and GeneXpert confirmed genital tuberculosis.

The patient completed six months of anti-tubercular therapy.

Six months after completion of treatment, she conceived spontaneously.

At the time of writing, she has an uncomplicated singleton pregnancy with a healthy live fetus at 14 weeks' gestation.

DISCUSSION

Female genital tuberculosis represents one of the most challenging causes of infertility because of its varied presentation and delayed diagnosis.

The present case series demonstrates two entirely different manifestations of the same disease.

The first patient exhibited advanced pelvic tuberculosis involving the fallopian tubes and peritoneum. Laparoscopy demonstrated classical findings including extensive adhesions, pelvic fibrosis, distorted tubo-ovarian anatomy, and striking violin-string adhesions. Such findings reflect chronic inflammation leading to irreversible tubal damage and infertility.

The second patient had predominantly endometrial involvement without gross pelvic disease. The only endoscopic abnormality was diffuse endometrial micropolypoid changes. Although micropolyps are recognized as a hysteroscopic marker of chronic endometritis, tuberculosis should always be considered in endemic regions. Timely biopsy established the diagnosis before permanent endometrial destruction occurred.

These two patients illustrate different stages of disease progression-from advanced pelvic tuberculosis with structural damage to early endometrial disease amenable to treatment with preservation of fertility.

The spontaneous conception and ongoing healthy pregnancy after anti-tubercular therapy in the second patient reinforce the importance of early diagnosis and appropriate management.

CONCLUSION

Female genital tuberculosis has a broad spectrum of endoscopic manifestations. Diagnostic laparoscopy identifies advanced pelvic disease characterized by adhesions, fibrosis, and tubal destruction, whereas hysteroscopy facilitates recognition of subtle endometrial lesions such as micropolyps.

Gynecological endoscopy not only enables accurate diagnosis through targeted biopsy but also guides timely treatment. Early recognition may significantly improve reproductive outcomes, as demonstrated by the successful ongoing pregnancy in one of our patients.

Learning Points

- Female genital tuberculosis should be considered in women with unexplained infertility in tuberculosis-endemic regions.
- Violin-string adhesions, extensive pelvic fibrosis, and tubo-ovarian distortion are highly suggestive laparoscopic findings.
- Diffuse endometrial micropolyps on hysteroscopy should prompt biopsy to exclude tuberculosis.
- Histopathological and molecular confirmation remain essential for diagnosis.
- Early anti-tubercular treatment can restore fertility and result in successful pregnancy before irreversible endometrial damage occurs.

1) Extensive flimsy adhesions with caseous depositions at anterior abdominal wall

