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Case Report

# Diagnostic dilemma in female genital tract tuberculosis: A case report ☆

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ABSTRACT

Female genital tract tuberculosis presents a diagnostic challenge because of its variable clinical presentation and radiological manifestation. Most patients are present with history of infertility, pain in the abdomen, vaginal discharge, and bleeding. These symptoms mimic those of gynecological cancer, such as endometrial carcinoma. Endometrial cancer typically manifests with vaginal bleeding in the post-menopausal age group; however, in less than 10% to 20% patients, it can occur in perimenopausal age groups, which makes it difficult to distinguish between malignancy and tuberculosis. We present a case report of a 40-year-old woman who complained of vaginal bleeding and lower abdominal pain. Her imaging findings favored the diagnosis of endometrial carcinoma but histopathology revealed tuberculosis.



## Background

As a strong mimic of gynecological malignancy, tuberculosis can cause diagnostic dilemma which delays the treatment for patient. Genital tract tuberculosis is a type of extra-pulmonary tuberculosis caused by secondary bacterial shedding from implicated tubercular lymph nodes from the lung or gastrointestinal tract into the vaginal tract via the lymphatic system [1]. The patient usually complains of abdominal pain and infertility. Even a negative chest X-ray and sputum examination don't rule out extrapulmonary tuberculosis [1]. Thickened endometrium, tubo-ovarian lesions such as hydrosalpinx or pyosalpinx, tubo-ovarian abscess, necrotic mesenteric lymphadenopathy, and diffusely thickened omentum on imaging are all possible signs of gynecological tuberculosis [1]. The majority of female genital tract tuberculosis involves the fallopian tube; in the acute stage, this results in hydrosalpinx and pyosalpinx; in the chronic stage, it thickens and becomes nodular with dense adhesion to

*Abbreviation:* MRI, Magnetic resonance imaging; TB, Tuberculosis; CXR, Chest X-ray; ADA, Adenosine deaminase; T1W, T1 weighted MRI images.

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surrounding structures. Both endometrial tuberculosis and endometrial cancer manifest with diffusely thickened endometrium, which can make the diagnosis of endometrial carcinoma more difficult. In addition, diffusely thickened omentum is observed in genital tract TB and peritoneal carcinomatosis of ovarian carcinoma. The typical MRI finding of endometrial carcinoma [2] is a diffusely thickened endometrium with an irregular outline demonstrating diffusion restriction and hypoenhancement compared to normal myometrium. However, in our case, even with the presence of these typical imaging findings, the histopathological report revealed endometrial tuberculosis.

## Case presentation

This case study features a 40-year-old woman with a history of secondary amenorrhea of five years duration, who complained of abdominal pain and whitish vaginal discharge for approximately six months. There was no significant family history and her physical examination was unremarkable with an edematous cervix on per-speculum inspection. Her blood examinations revealed raised ESR and chest X- ray was normal. Thickened endometrium was noted in sonography. Contrast-enhanced MRI showed hypoenhancing diffusely thickened endometrium and endocervix with an irregular outline and restricted diffusion, with minimal intrauterine collection and preserved stromal hypointensity (Figs. 1 and 2) (Fig. 1B) (Fig. 2). Similarly, enhancing diffuse thickening of the vaginal fornices was present. Findings were suspicious for malignancy. Mild ascites (Fig. 1A), hazy omentum, and mesentery were present without any significant lymphadenopathy (Fig. 3A). An imaging diagnosis of endometrial malignancy involving endocervix was made. Endometrial biopsy showed Langhan's giant cell and granulomatous lesion (Fig. 3B) suggestive of tubercular pathology. Based on biopsy report diagnosis of genital tract tuberculosis was made and patient was started on anti-tubercular therapy to which she showed good response.

We did not consider tuberculosis an imaging differential because of absence of necrotic lymph nodes, the involvement of mesentery, and omentum. However, gynecological tuberculosis presents with a variety of clinical and radiological manifestations and might be difficult to diagnose. Histopathological and microbiological examinations ought to be carried out whenever possible in cases where diagnostic conundrums arise.

## Discussion

The incidence and prevalence of tuberculosis in Nepal are around 245/100,000 and 416/100,000, respectively [2]. It can be a strong mimic of gynecological cancer and can be difficult to diagnose in both radiological imaging and laboratory testing. Infertility, oligomenorrhea, vaginal bleeding, and abdominal discomfort are all signs of gynecological tuberculosis (TB). However, endometrial cancer can also present with similar symptoms, including vaginal bleeding and abdominal pain [3]. Both show thickened endometrial on radiological examination. While post-menopausal age groups are more likely to experience endometrial cancer, 14%-20% of cases can occur in pre-menopausal age groups [4]. Thickened endometrium that is hyperintense to the myometrium and hypointense to

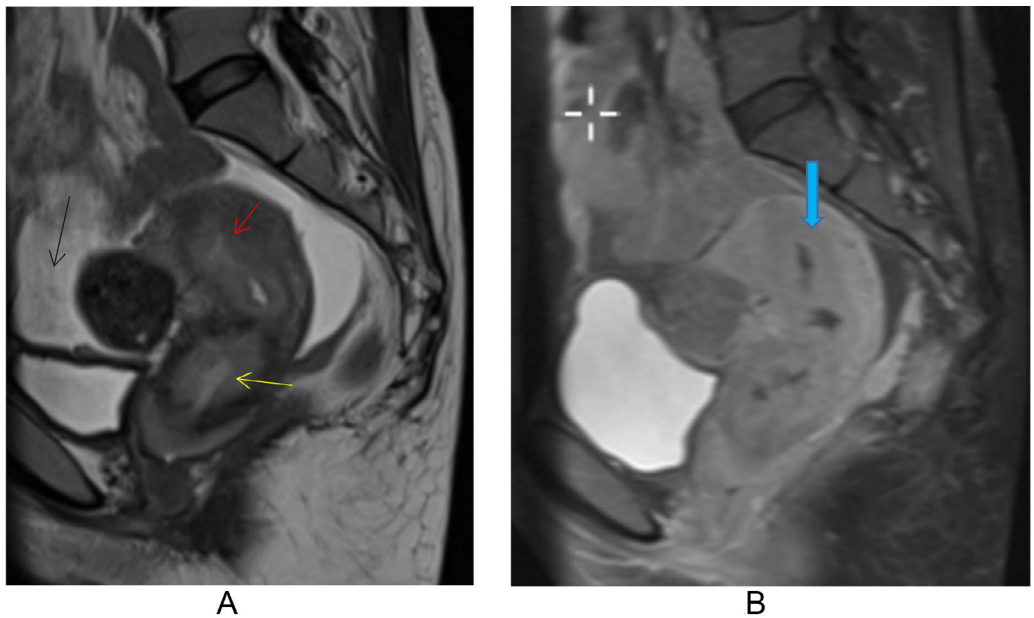


**Fig. 1 – (A): T2 weighted and (B): Contrast enhanced T1 weighted sagittal images of pelvis showing diffusely thickened endometrium (red arrow), endocervix (yellow arrow), and vaginal fornices showing diffuse hypoenhancement of endometrium (light blue arrow) with preserved hypointense cervical stroma. Anterior wall subserosal fibroid with pelvic ascites (black arrow) is also seen.**

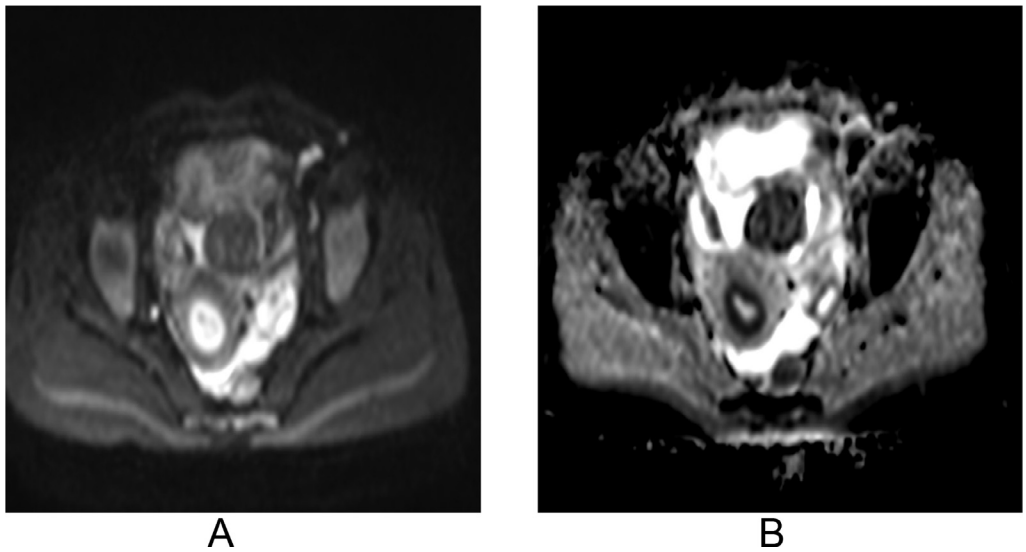


**Fig. 2 – (A): DWI and (B): ADC images showing restricted diffusion in areas of endometrial thickening.**

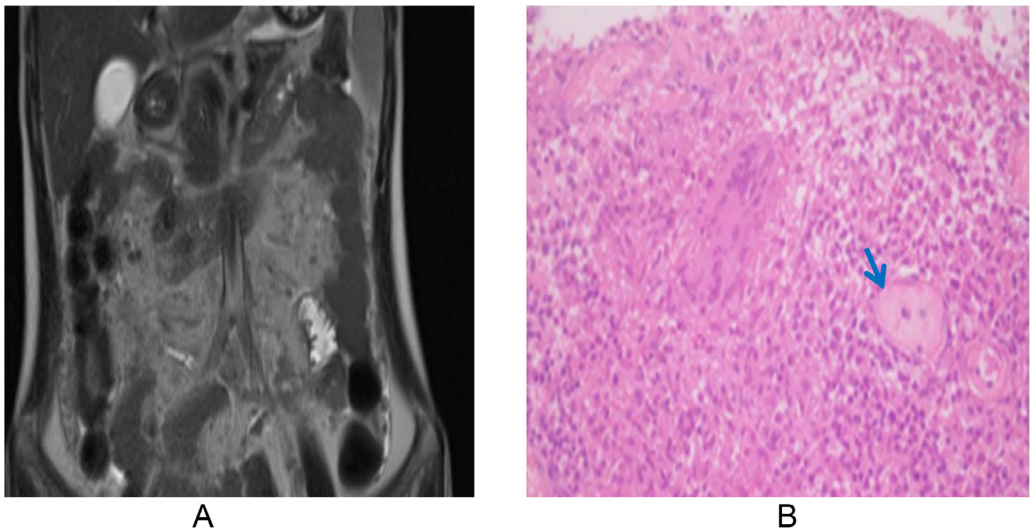


**Fig. 3 – (A) T2 weighted coronal image showing thickened omentum and mesentry. Note: normal liver, no perihepatic collection or necrotic mesentric lymphnode. (B) Showing H and E stain of endometrial biopsy with Langhan's giant cells (blue arrow) with surrounding chronic inflammatory lymphocytic cells suggestive of granulomatous inflammation.**

normal endometrium is the hallmark of endometrial cancer on magnetic resonance imaging (MRI). On DWI images it shows diffusion restriction and in post-contrast T1 W fat-suppressed image it shows hypo-enhancement relative to myometrium [5]. Our case had these typical characteristics, leading to the diagnosis of endometrial carcinoma. The differentiating findings in favor of gynecological TB like hydrosalpinx, pyosalpinx, tubo-ovarian abscess, peritoneal nodularity, omental caking, perihepatitis, and mesenteric necrotic lymph node [1] were not present in this case. More interestingly, although gynecological TB is secondary to pulmonary tuberculosis, negative CXR, and sputum analysis doesn't rule out it [1]. Also, CA-125 level may be increased in gynecological TB which along with omental caking can mimic ovarian carcinoma [6], complicating the diagnosis. When a diagnosis of tuberculosis is unclear, a full body examination should be conducted to search for supporting evidence. Examples of these tests include the Mantoux test, a pleural and ascitic fluid ADA level, spine MRI for evidence of spondylodiscitis, and a chest X-ray for pulmonary tuberculosis. Malignancy should be suspected whenever there are family history of carcinoma, post-menopaual age group, history of significant weight loss, pervaginal bleeding and no signs of tuberculosis in radiological and laboratory evaluation. One

radiological clue in our case is presence of ascites, which is less common in endometrial carcinoma without myometrial invasion. Ascitic fluid analysis with ADA level was not done in our case because minimal ascitic fluid was present which was not amenable to aspirate. Mantoux tuberculin skin test was also not done in our case . Ascitic fluid analysis with ADA level and Mantoux test could have assisted in this case for diagnosis of endometrial TB, but was not done due to lack of suspicion of endometrial tuberculosis.

## Conclusion

Endometrial tuberculosis should be kept in the differential diagnosis of a diffuse homogenous edematous enhancing endometrium with ascites especially in developing countries where TB is endemic [7]. The definitive diagnosis needs an endometrial biopsy and histopathological examination.

## Patient consent

Written informed consent for publication of this case report was obtained from parent of patient.

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