Short Communication

Hysteroscopy Role for Female Genital Tuberculosis

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Abstract

Female genital tuberculosis affects the quality of women's lives. One of the symptoms is amenorrhea. In our country, it is still underdiagnosed due to limited resources. Hysteroscopy is known as one of the diagnostic tools for this condition. We performed hysteroscopy and endometrial biopsy in four cases. Hysteroscopy findings show various signs. Histopathological examination showed typical features of tuberculosis in some cases. We also learned that hysteroscopy could evaluate the condition of the endometrium when ongoing and after treatment is accomplished. It is useful for further explanation to the client. Hysteroscopy can be utilized as a diagnostic tool for endometrial sampling, evaluate intracavity condition after treatment, and prognostic tool for future reproductive function.

Keywords: Amenorrhea, caseous necrosis, genital tuberculosis, hysteroscopy

Introduction

In 2016, in Southeast Asia, there were almost three million cases of tuberculosis (TB), and 15% manifest as extrapulmonary.[1] TB can emerge multi-organ, including the female genital tract. The latter one is the iceberg phenomenon that would affect women's life quality. The incidence of female genital tuberculosis (FGTB) varies from 1% to 21%.[2] Mostly, the complaint of FGTB are about menstrual disturbance and infertility.[2,3] The most involved organ in FGTB is the Fallopian tube, continued with the endometrium.[4] Sometimes, it was inconclusive to diagnose FGTB merely from history taking and physical examination. Hysteroscopy is considered a tool to obtain FGTB signs and biopsy. We conducted four cases related to this issue.

Subjects and Methods

We report four cases of FGTB in 2017, tertiary level, and national referral hospital. Most of the patients are in the fourth decade of age (14–35 years). All of the chief complaints were amenorrhea: three cases with secondary amenorrhea in reproductive age and one teenage patient with primary amenorrhea. The first case had a history of TB from her sister. The second case had no contact history. The third case had a history of spondylitis TB and went laparotomy biopsy due to massive peritoneal 2 years before. Internal genital organs were not explored due to no genital organ enlargement and the risk of injury. Moreover, the last case also had no contact history. All of the patients did not have proof of lung primary TB infection. Regarding secondary amenorrhea, only one patient (second case) had performed P (progestin) and EP (estrogen-progestin) test (with negative results) and hormonal laboratory of follicle-stimulating hormone, estradiol, and prolactin within normal limit.

All of the patients were performed the ultrasound, hysteroscopy, and endometrial biopsy. Various clinical features of FGTB from ultrasound and hysteroscopy view are described in Table 1. We diagnosed the FGTB based on the specific result

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of the histopathologic examination. Histopathologic findings include caseous necrosis, granulomatous inflammation, fibrotic endometrium, and chronic inflammation. Three of them received 9 months of anti-TB regimen. One patient with a history of spondylitis TB underwent 24 months of treatment. After treatment completion, the only teenage patient had normal menstruation.

Discussion

Amenorrhea as the clinical finding in female genital tuberculosis

Until now, there is no report about the incidence of FGTB in our country, although lung TB is an endemic disease in Indonesia. Perhaps, the FGTB did not give severe or disturbing symptoms to the patient daily acitivities. Even though, FGTB can affect the reproductive guality and function. In our finding, the symptom that brings the patients came to the hospital is amenorrhea.

It is quite interesting because menstrual disturbance symptom is not as frequent as infertility problem (14% vs. 43%–74%).[5,6] Many studies reveal that infertility is the most common symptom of FGTB.[2,7] In our health system era nowadays, the infertility case is not covered by insurance instead of the menstrual disturbance problem. The symptom of amenorrhea occurs due to chronic inflammation of the endometrium, atrophy, and synechia formation that will disturb the receptivity of estrogen to the endometrium.[5] Chronic granulomatous inflammation and endometrial stromal scarring were confirmed on histopathological examination. The caseation process and ulceration will continue to form adhesion until complete obliteration which will end as endometrium failure into Asherman syndrome.[4]

FGTB mostly is secondary from the extragenital origin, such as lungs, lymphatic node, or musculoskeletal. The spread methods can be hematogenous, lymphomatous, directly from the gastrointestinal tract or peritoneum, or ascending infection from the vulva and vagina.[6] The latter one is the least pathway ever observed. In this case series, we only had one case that was proven from the musculoskeletal system which is spondylitis TB (case 3).

Meanwhile, in cases 1 and 2, we thought from an unknown origin. Even though in case 1, the patient had risk from her sister TB infection, proof of primary infection in herself was not found. In case 4, we found internal genital adhesion and multiple beading in the abdominal cavity with Curtis's sign. The probability of direct transmission from the gastrointestinal or peritoneum cannot be excluded yet.

Hysteroscopy finding associated with the pathology

We found several signs from hysteroscopy. Most of them are thin endometrium due to the destruction of the endometrium caused by chronic inflammation of TB.[4] The thickening of the endometrium in the child case was interesting, and we still cannot conclude this finding, probably due to subacute inflammation on the progressivity of the disease.

The characteristic morphological features of TB inflammation in the endometrium hardly be found because the endometrium

Table 1: Clinical characteristics of the patients

Characteristics	Case 1	Case 2	Case 3	Case 4
Age (years old)	35	32	32	14
Parity	Nulliparity	Nulliparity	Nulliparity	Nulliparity
Chief complaint	Secondary amenorrhea 3 years	Secondary amenorrhea 4 years	Secondary amenorrhea 2 years	Primary amenorrhea
Marital status	Married 9 years	Married 4 years	Not married	Not married
Risk factor	TB on sister	Unknown	Spondylitis TB	Unknown
Lung TB	Not proven	Not proven	Not proven	Not proven
US finding	EL 4 mm, irregular stratum basalis corresponds due to endometritis	EL 2 mm, regular stratum basalis	Massive inflammation mass at adnexa until uterine cavity	Thick endometrium, adnexal mass
OH result	Thin endometrium with fibrotic part and caseous~endometritis TB [Figure 1]	Thin endometrium, synechia on fundal and some part of the corpus. Severe synechia due to suspect TB [Figure 2]	Fibrotic endometrium and intrauterine adhesion Grade IIIA with part of caseous necrosis [Figure 3]	Thickened endometrium with sign of inflammation and caseous parts in the uterine cavity [Figure 4]
Histopathology examination	Partially fibrotic endometrial tissue accompanied by extensive caseous necrosis and epithelioid cells. ZN: Acid-fast bacilli (+)	Granulomatous inflammation with Langhans giant cells and patchy caseous necrosis lying in fibrotic endometrium containing many lymphocytes and plasma cells. ZN: Acid-fast bacilli (−) [Figure 2]	Typical tuberculosis inflammation in peritoneal tissue Fibrotic endometrium with many lymphocytes and plasma cells (2 years later) [Figure 3]	Caseous necrosis and chronic inflammation due to tuberculosis
Follow-up	Still amenorrhea	Still amenorrhea	Still amenorrhea	Normal menstruation

TB: Tuberculosis, ZN: Ziehl–Neelsen, OH: office hysteroscopy, US: Ultrasound

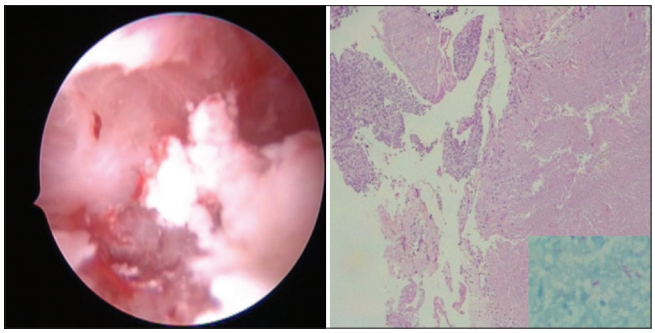

Figure 1: Case 1: Caseous part in the endometrium (left). Fibrotic endometrial tissue with caseous necrosis and (inset) acid-fast bacilli (right)

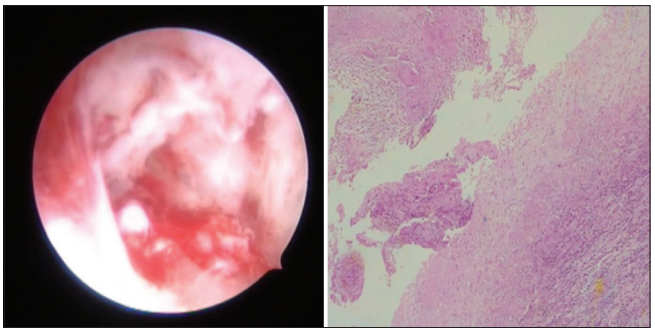

Figure 2: Case 2: Suspicious lesion of tuberculosis (left). Fibrotic endometrial tissue with specific granulomatous inflammation (right)

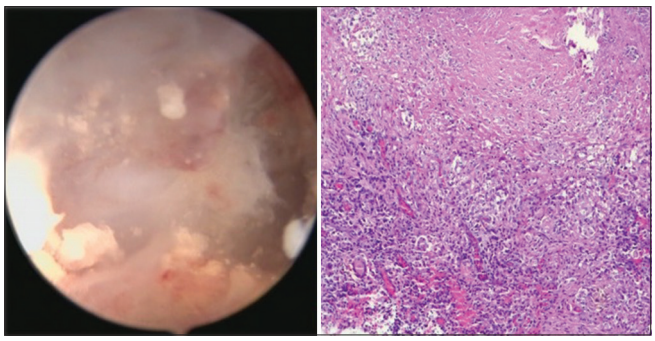

Figure 3: Case 3: Fibrotic endometrium and suspected tuberculosis lesion (left). Typical tuberculosis inflammation in peritoneal tissue (right)

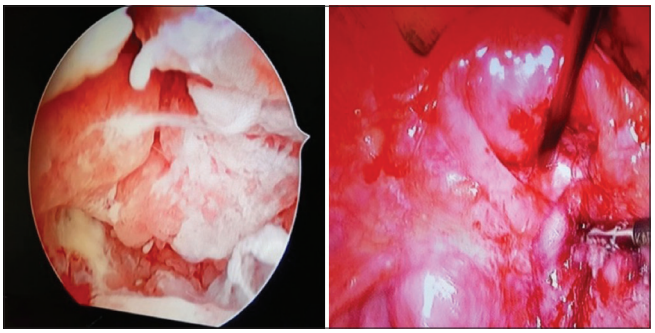

Figure 4: Case 4: Thickened endometrium and some caseous part (left). The laparoscopic view showed the bilateral adnexal mass with many tubercles (right)

is shed every month due to menstruation. It leads to inadequate granulomas formation and acid-resistant bacilli on the Ziehl–Neelsen examination rarely found. Hence, the absence of the typical histopathological features does not necessarily exclude the possibility of a TB inflammation in the appropriate clinical setting. For maximizing the yield in a histopathological examination, specimens should be collected from multiple sites because the infecting organism area scarce in genital TB.[7]

Caseation finding is due to the caseous necrosis process and quite specific in TB. Due to the partial inability of the macrophage to phagocyte the mycobacteria, the macrophage will develop giant cells with epithelioid (so-called granuloma) and attract more inflammatory cells, cytokine production, and slow degradation of microorganism. The term caseous or "cheese like" is descriptive of the mycobacterial cell wall which consists of mycolic acid and other lipids.[8]

The fibrotic and synechia finding can be part of the adhesion formation. The adhesion was thought due to low-grade chronic endometritis by genital TB. In one of our cases with Asherman syndrome, we also performed lysis adhesion of scarred tissue using hysteroscopy as it was already suggested even severe intrauterine adhesion could be treated in a massive scarring condition.[9] Severe adhesion made the hysteroscopy procedure more difficult due to the limitation of distending capacity inside the cavity. Even the adhesion completely released after hysteroscopy, it should be informed to the client that menstrual regularity and future fertility function is poor.[4]

Minimal invasive procedure benefits in female genital tuberculosis

In the case of primary amenorrhea, we performed diagnostic hysteroscopy and laparoscopy and we found the periovarian adhesion, ovarian mass, and Curtis's sign in the liver. By combining hysteroscopy and laparoscopy in FGTB cases, these procedures could inform us of the involvement not only from intracavity but also adnexal condition and organ biopsy as needed.[7] Until now, no study explains the risk of ascending TB infection in hysteroscopy procedures. In endometrial cancer, a hysteroscopic procedure can increase the probability of peritoneal dissemination, but this is not an absolute contraindication as long as the intracavity pressure can be maintained in a low range.[10] Endometrial cancer is not similar with FGTB because FGTB is infection disease, not malignancy. Peritoneal dissemination of FGTB is low because after diagnosis was established, the treatment was given, so further infection spreading will be prevented. Subsequently, after diagnosis was established, the treatment was given, so further infection spreading will be prevented.

The role of hysteroscopy is not only for diagnostic. In cases 1 and 3, we use hysteroscopy as a part of treatment evaluation. In case 1, the client is in ongoing treatment in the 4th month, and we still can see the finding of TB pathology still exists. In case 3, even the treatment of TB already finished (2 years of medication), we also still can see the fibrotic and synechiae. These cases (Case 1 and 3) are some examples of end stage condition endometrial TB. Even the treatment already finished, fibrotic and synechia still remain. This is the end of the progressivity of the disease, although the histopathology did not correspond to TB rather than the chronic inflammation of the endometrium. In case 4, probably this is in subacute condition and early detection was performed. Therefore, the treatment can be established earlier and the response after treatment is good. Now, the patient has a regular cycle. We learned that the role of hysteroscopy can also as a tool for treatment evaluation in FGTB conditions. From this finding, we can inform the client of the condition of internal genital condition after treatment and future reproductive function including menstrual and fertility issues. Moreover, if the condition is detected earlier, the chance for the patient to have normal menstruation will be better.

Conclusion

In amenorrhea cases, FGTB should be considered as one of the etiologies. Hysteroscopy can be utilized as a diagnostic tool for endometrial sampling in diagnosing FGTB. It also can be performed to evaluate the intracavity, the severity condition after treatment, and prognostic tools for future reproductive function. Further larger studies can be compiled with previous studies to address higher quality of evidence hysteroscopy role in diagnosis and evaluation after treatment in FGTB.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed**.**

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Conflicts of interest

There are no conflicts of interest.

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