

Case Report

Uterine endosalpingiosis: Case report and review of the literature

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ABSTRACT

Objective: Endosalpingiosis rarely occurs in the uterus. We report a case and review literature to explore its current clinical diagnosis and treatment.**Case report:** A 31-year-old woman was admitted to the hospital for suspected uterine leiomyoma with cystic degeneration based on ultrasound and magnetic resonance imaging and surgical treatment. Laparoscopy revealed a large cystic mass protruding from the posterior uterine wall. The mass was resected, and a histologic examination showed that the cyst wall was lined with benign fallopian tube-type ciliated epithelium surrounded by normal myometrium, consistent with the diagnosis of endosalpingiosis of the uterus (also known as a Müllerian cyst). Currently, there are 18 cases (including ours) in the literature. Of these, two had a uterine malignancy, one endometrioid endometrial carcinoma, and another cervical adenocarcinoma. The age at diagnosis varied from 31 to 73, with a mean of 47 ± 8 . The typical clinical manifestations were a palpable low abdominal mass, abnormal menstrual bleeding, and pelvic pain. Overall, 75% (12 of 16) of patients underwent a total hysterectomy, while 62.5% (10 in 16) had a concomitant bilateral salpingo-oophorectomy for nonmalignancy. No recurrence was reported.**Conclusion:** We describe the youngest patient with tumor-like uterine endosalpingiosis. The preoperative diagnosis is challenging because of its rarity. Most patients had a hysterectomy with castration, which may have resulted in overtreatment. Awareness of this lesion is necessary for the differential diagnosis of uterine and adnexal tumors. Review of relevant literature has shown a relationship between endosalpingiosis progression and cancer development, indicating an uncertain and complicated pathology.© 2019 Taiwan Association of Obstetrics & Gynecology. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Endosalpingiosis is a benign condition characterized by the presence of cysts with columnar ciliated epithelium resembling tubal-type epithelium. Since it is often concurrent with endometriosis or endocervicosis, some experts have recommended the term “Müllerianosis” to describe their co-occurrence [1]. The prevalence of endosalpingiosis varies from 7.6% to 12.5% [2]. Endosalpingiosis usually presents with a multicystic or multilobular mass in female reproductive organs, bladder, vermiform appendix, colon, lymph nodes, and skin [3]. Tumor-like florid cystic endosalpingiosis of the uterus, without any endometrial stromal or endocervical-type mucinous epithelium, is exceedingly rare. We report a rare case of endosalpingiosis involving the uterus that was

diagnosed on laparoscopy and histopathological examination and review the relevant literature.

Case report

A 31-year-old woman, gravida 6 para 3 abortion 3, was referred to our clinic for an incidental finding of a pelvic mass on sonography. The patient had no symptoms of pelvic pain, vaginal bleeding, or menstrual disorder. There was no contributory information in her medical history. A pelvic examination revealed a large tender mass fixed behind the uterus. The transvaginal sonography and pelvic magnetic resonance imaging showed a single, round trilobular mass ($7.7 \times 6.4 \times 7.6$ cm) with homogeneous cystic content located in the cul-de-sac, which was suspected to be leiomyoma with cystic degeneration (Fig. 1). Serum CA199 was slightly increased to 39.3 U/mL, while HE4 and CA125 were within normal limits.

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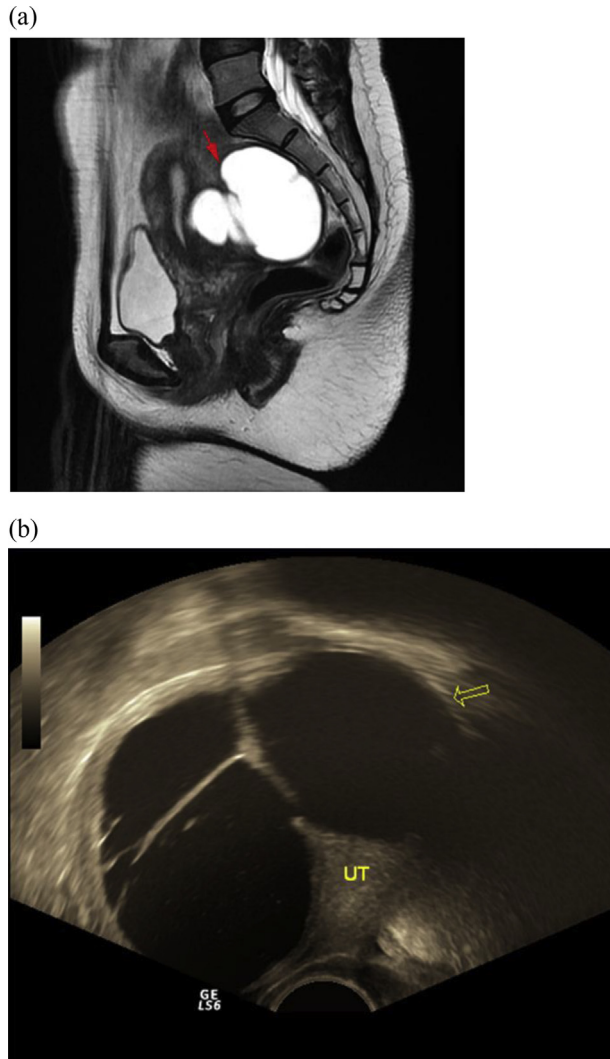


Fig. 1. (a) Sagittal T2-weighted magnetic resonance imaging shows a $7.7 \times 6.4 \times 7.6$ -cm trilobular cyst (arrow) in the vesicouterine pouch. (b) Transvaginal sonography of the cyst in Fig. 1(a).

During laparoscopic surgery, one cystic, regular, round, and well-encapsulated tumor on the posterior uterine wall without any other connection or adhesion, which resembled a type 6 subserous myoma was found (Fig. 2a). Both ovaries and fallopian tubes appeared normal. No endometriotic lesions were found in the pelvis. The mass was resected via a laparoscopic myomectomy, without abdominal spillage. A frozen section was performed, in which the diagnosis was a benign uterine cyst. The patient had a typical postoperative course and was discharged home 3 days after surgery without any complication.

On gross examination, the trilobular cyst contained clear serous fluid and had a smooth inner surface. The histological analysis showed that the cyst wall was lined with serous, cuboidal ciliated epithelium without atypical appearance, like that found in fallopian tubes (Fig. 2b). The cyst was surrounded by normal smooth muscle bundles (Fig. 2b). No papillary structure or endometrial stroma was observed in the mass. The histopathologic examination confirmed the diagnosis of endosalpingiosis.

Literature review

Table 1 lists the reported cases of endosalpingiosis confined within the uterus and observed as a pelvic mass before surgery.

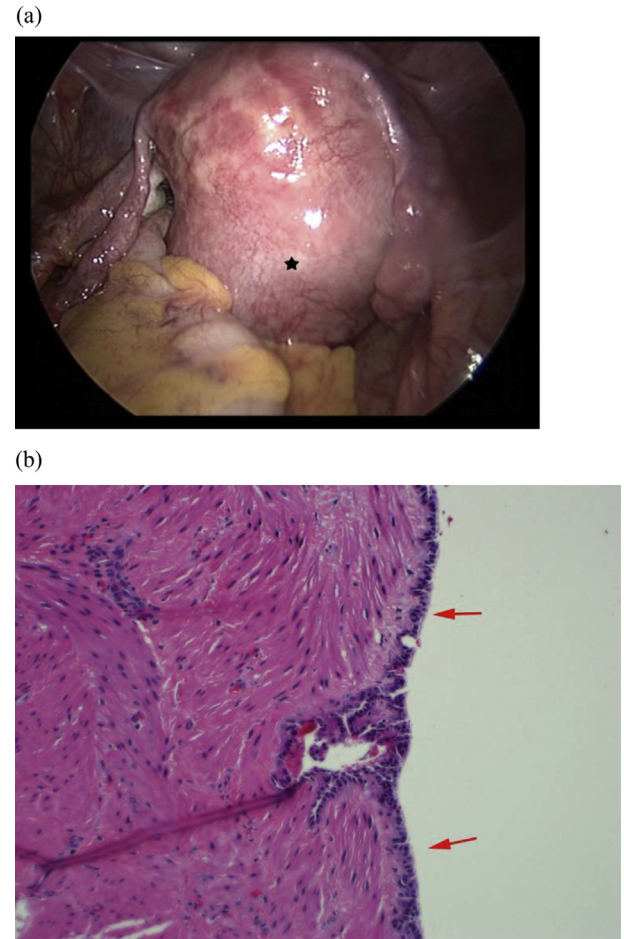


Fig. 2. (a) Laparoscopic view of the uterine cyst (★) arising from the posterior uterine wall and resembling a type 6 subserous myoma. (b) Photomicrograph of cyst wall shows a layer of ciliated cuboidal epithelium (arrowhead) (hematoxylin and eosin $\times 100$).

Eighteen cases (including ours) were retrieved from the literature. Of them, two patients had a main diagnosis of either endometrial adenocarcinoma or cervical adenocarcinoma and underwent surgery, including a hysterectomy and bilateral salpingo-oophorectomy. Patient age varied from 31 to 73 years, with a mean of 47 ± 8 years. The patient in our report is the youngest. The common clinical manifestations were abnormal uterine bleeding and pelvic pain (70.6%) and palpable lower abdominal mass (23.5%). Of the 16 patients with nonmalignant disease, 12 (75%) underwent a total hysterectomy, and 10 (62.5%) had a concomitant salpingo-oophorectomy. There was no report of recurrence among the patients with nonmalignant disease.

Discussion

Many reports on endosalpingiosis have been published since it was introduced by Sampson in the 1930s [4]. Because the term 'endosalpingiosis' does not imply an origin from the tubal mucosa, some experts have proposed a secondary Müllerian system to describe the glandular epithelial cells, which are derived from peritoneal mesothelial cells with metaplastic capacity in contrast to primary Müllerian epithelial cells [5]. Researchers and clinicians have reached a consensus on the definition of this disease, which is the presence of ectopic fallopian tube-type ciliated epithelium outside the fallopian tubes. Nonetheless, the pathogenesis remains

Table 1
Summary of literature on tumor-like endosalpingiosis of the uterus.

| Case | Age | Clinical manifestation | Clinical history | Gross findings and localization | Surgery | Author |
|------|-----|--|----------------------------------|---|--|---------------------------|
| 1 | 50 | Palpable mass | Invasive ductal breast carcinoma | Mass (4.5 cm) in the left part of the uterine fundus with multiple subserosal and intramural cysts (8–9 mm in diameter) | TH + BSO | Karol K et al. [3] |
| 2 | 50 | Palpable mass | Extrasystole | Pedunculated tumor (9.5 × 7.0 × 6.0 cm) with multilobular surface originated from the posterior wall of the uterus. Pelvic adhesions. | Mass resection | Rosenberg et al. [7] |
| 3 | 45 | Palpable mass | None | Unilocular pedunculated tumor (7.5 × 6.5 cm) originated from the center of the uterine fundus | Mass resection | Nakae et al. [8] |
| 4 | 43 | Metrorrhagia | None | Mass (4.0 × 3.8 cm) with multiple cysts located in the lower uterine segment. | TH | Im et al. [9] |
| 5 | 44 | Menorrhagia | None | Intramural biloculate cyst (8 cm) in the uterine fundus. | TH + BSO | Yigit et al. [10] |
| 6 | 41 | Menorrhagia and dyspareunia | Pelvic inflammatory disease | Multiple cysts located in the lower uterine segment and cervix. The mass size not recorded. | TH | Clement et al. [10] |
| 7 | 43 | Menorrhagia and Pelvic pain | None | Multiple cysts (up to 3.2 cm) located in the lower uterine segment and cervix. | TH + BSO + Pelvic lymphadenectomy ^a | Clement et al. [10] |
| 8 | 52 | Palpable mass | None | Two cystic and solid masses (13 × 12 × 11 cm and 9 × 7 × 7 cm, respectively) with short stalks originate from the right and left posterior fundal wall of the uterus. | TH + BSO | Lee et al. [11] |
| 9 | 40 | Pelvic pain and dysfunctional uterine bleeding | Uterine ablation | No apparent cystic mass (possibly collapsed) and grayish white tissue remained involving uterus, cervix, and Douglas pouch. The mass size was not recorded. | TH + BSO | Taneja S et al. [12] |
| 10 | 51 | Pelvic pain | None | A subserosal sessile polypoid mass (12 × 6.5 × 5.5 cm) with cysts measuring up to 4 cm located in the anterior uterine fundus. | TH + BSO | Fukunaga et al. [13] |
| 11 | 51 | Persistent metrorrhagia | None | Mass (5.0 × 3.0 cm) inside a uterine leiomyoma. | TH + BSO ^b | Suarez-Vilela et al. [14] |
| 12 | 45 | Menorrhagia and pelvic pain | None | Unilocular intramural mass (3.5 cm in diameter) located at uterine fundus (extending to endometrium). Small multiple cysts in the cervix and both ovaries. | TH + BSO | Cil et al. [15] |
| 13 | 49 | Menorrhagia | None | Pedunculated cystic mass (size not recorded) arising from the anterolateral surface of the uterus. Multiple cysts measuring up to 2.0 cm in maximum dimension covered uterine serosa and the surface of both ovaries. | TH + BSO | Youssef et al. [16] |
| 14 | 45 | Pelvic pain and irregular menstruation | None | Pedunculated multilobular cyst (8.2 × 7.5 × 6.0 cm) arising from the posterior uterine wall | TH | Chang et al. [17] |
| 15 | 73 | Abdominal swelling | None | Multiple subserosal nodules aggregated along the right side of the uterus and in the adjacent parametrial tissue and broad ligament. | TH + BSO | Heatley et al. [18] |
| 16 | 54 | Vaginal bleeding | None | Multiple subserosal cystic polypoid masses (up to 6 × 4.5 × 4.5 cm) in the bilateral uterine horns and posterior fundus of the uterus. | TH + BSO | Shim et al. [19] |

TH: total hysterectomy; BSO: bilateral salpingo-oophorectomy.

^a Cervical adenocarcinoma was diagnosed.

^b Endometrioid adenocarcinoma was diagnosed.

uncertain. In analogy with endometriosis, most researchers attribute endosalpingiosis lesions to ectopic transport. Therefore, any previous surgical intervention on the fallopian tubes or ovaries with whatever is the main reason for surgery may contribute to endosalpingiosis [6]. In one series of 838 patients with endosalpingiosis, up to 78.3% of women reported a surgical history, including tubal ligation, cesarean section, uterine surgery, and abdominal surgery [2]. According to this theory, the mass in our patient should have been located in the uterine mucosa rather than the uterine serosa because of three vacuum curettage procedures. Interestingly, a few cases are reported in the absence of recollection of gynecological diseases or surgical history [7,8], which were more like metaplasia of multipotential peritoneal cells or a congenital lesion originating from the fusion of bilateral Müllerian ducts.

Macroscopically, endosalpingiosis often appears as multiple cysts of different sizes, and rarely results in a visible mass or symptoms. Since tumor-like, florid cystic endosalpingiosis of the uterus is infrequently seen in the clinic, we summarized the previously reported cases in Table 1 [3,7–19]. Masses in most reported cases usually displayed a reddish, sarcoma-like appearance. Only two cases described by Nakae et al. [8] and Lui et al. [20], respectively, were large unilocular cysts with smooth surfaces. The masses in both cases were serosal and were linked to the uterus by a short stalk. Among the studies of all cases of intramural endosalpingiosis masses, only the case reported by Yigit et al. [10] shared similarity

with ours. The only difference was that the mass in their case was a biloculate uterine cyst, whereas our case was trilobular.

The clinical features of endosalpingiosis vary wildly depending on the invaded organs. For example, urinary symptoms occur in women with endosalpingiosis involving the bladder. As with endometriosis, some patients with endosalpingiosis have a history of infertility [6,21]. Additionally, patients with tumor-like endosalpingiosis of the uterus are almost all middle-aged women and multiparous. However, the patient in our case was only 31 years of age, indicating that uterine endosalpingiosis is not limited to middle-aged women. Pelvic pain, menorrhagia, vaginal bleeding, abdominal swelling are common clinical manifestations. Two patients (including ours) were asymptomatic but had a palpable mass. Uterine endosalpingiosis is seldom reported with accuracy preoperatively since there is little specificity regarding clinical manifestation. The differential diagnosis should consider the endometriosis, leiomyoma, adenocarcinoma, peritoneal inclusion cysts, peritoneal borderline serous tumors, low-grade serous ovarian tumors, and mesothelioma.

Until now, there have been few data to guide the management of intrauterine endosalpingiosis. Endosalpingiosis mimics a neoplastic process leading to an incorrect preoperative impression and hence possible overtreatment. Up to 75% of patients with nonmalignant disease listed in Table 1 underwent a total hysterectomy, and 62.5% underwent bilateral salpingo-oophorectomy

(BSO) at the same time, except for two patients who had concurrent cancer. Three patients underwent mass resection probably due to the short stalks the tumor that could be easily removed. Nowadays, the concept of fallopian tube epithelium as a precursor of high-grade serous carcinomas has been widely accepted [22]. Considering endosalpingiosis lesions are similar to normal fallopian tube epithelium, even expressing the same biomarkers, some experts presume and describe endosalpingiosis as an origin of low-grade or borderline serous lesions [2]. Recently, a large survey has demonstrated that the prevalence of both uterine and ovarian cancer were significantly increased when the women had endosalpingiosis. Except for serous tumors, an interesting association between endosalpingiosis with clear cell and invasive mucinous tumors has been noted. The authors attributed this to the capacity for metaplastic change of Müllerian system cells. Nevertheless, the study had limitations due to its retrospective nature and proved only the relevance of endosalpingiosis and gynecologic cancer rather than causality [2]. Thus, endosalpingiosis is still considered a non-neoplastic process and based on this, we decided on conservative treatment instead of a total hysterectomy. However, in the largest mass reported at present, with some papillary infolding, atypical mucosal changes were notable findings [11]. We are curious about whether such lesions advance to tumors while the patient after the patients undergoes TH + BSO. Perhaps conservative management when the patient resolutely refuses hysterectomy will be shown to be effective after the collection of more clinical information to elucidate the mechanisms of endosalpingiosis.

Endosalpingiosis can occur in various organs in the body. It is interesting to note that benign endosalpingiosis lesions in the lymph nodes of patients with prostatic adenocarcinoma or urothelial carcinoma were identical to endosalpingiosis in women. The investigators announced no hormonal therapy in these male patients [23]. This phenomenon is probably the result of Müllerian metaplasia.

Conclusions

We report a 31-year-old patient who was the youngest with tumor-like uterine endosalpingiosis in the recorded literature. This disease is sparsely documented and difficult to diagnose at first glance. The prognosis after surgical treatment is favorable for those patients whose disease is not associated with uterine malignancy. More recognition of this non-neoplastic condition helps clinicians making decisions to preserve uterine function. However, the worrisome fact is that endosalpingiosis is, to some degree combined with gynecologic malignant neoplasms, which calls for further elucidation of its nature in the near future.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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