

A mature cystic teratoma adherent to the vaginal wall: a case report

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Abstract

We present the case of a woman diagnosed with a teratoma adherent to the vaginal wall. The patient had been misdiagnosed with an ovarian teratoma 8 years previously at her local hospital, but no mass was found in the pelvic cavity during cesarean section. She therefore attended our institution for further examination. Transvaginal ultrasonography, magnetic resonance imaging (MRI), and computed tomography (CT) revealed a large mass on the left side at the bottom of the pelvis, near the side of the vagina, mainly composed of greasy and cystic elements. Gynecological examination showed the mass protruding into the left side of the vaginal wall. The patient therefore underwent vaginal wall incision. During surgery, we found a mass adherent to the vaginal wall, located on the left front of the rectum. Surgery was completed successfully with no complications. This case highlights the need for careful preoperative evaluation of teratomas with unusual locations. MRI and CT may be useful for identifying the origin of the tumor and determining its relationship with the surrounding tissues. Surgery should be based on the characteristics and anatomical location of the tumor to minimize damage to other tissues and organs.

Keywords

Teratoma, germ cell tumor, ovarian tumor, magnetic resonance imaging, computed tomography, misdiagnosis

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Introduction

Teratomas are congenital or developmental neoplasms mainly derived from two or more germ layers (ectoderm, mesoderm, and/or endoderm), which can thus differentiate into diverse types of tissues, including hair, sebaceous glands, and teeth.¹ Teratomas are commonly benign and are typically located in the sacrococcygeal region or in the gonads in 57% and 29% of cases, respectively.² Teratomas have also recently been reported in extragonadal sites, including intracranial, cervical, mediastinal, retroperitoneal, intrapulmonary regions and in the nasal septum.^{1,3-6} However, there have been no reported cases of teratomas adherent to the vaginal wall. We provide the first report of a rare case of a 35-year-old woman with a mature teratoma located near the vaginal wall. We present the clinical details and imaging findings, and discuss the treatment strategies.

Case presentation

A 35-year-old woman was found to have an asymptomatic pelvic mass (about 7-cm diameter) during a pregnancy 8 years previously. However, no mass was detected in the pelvic cavity during a cesarean section

performed at a local hospital, after careful exploration. She underwent regular follow-ups after hospital discharge. The mass did not increase significantly in size during follow-up, but she subsequently developed slight pain and swelling at the bottom of her pelvis for 1 month and attended our hospital for further treatment. Transvaginal ultrasonography, magnetic resonance imaging (MRI), and computed tomography (CT) scan showed a large mass on the left side at the bottom of the pelvis, mainly composed of greasy and cystic elements (Figures 1, 2). Physical examination revealed slight prurption of the left wall of the vagina, but no abnormality in the anus. The results of gastroscopy, colonoscopy, and tumor marker detection were also normal. Based on her history combined with the results of related examinations, we considered that the mass was most likely to be a teratoma originating from the retroperitoneum, vaginal wall, or recto-vaginal septum. After discussion of the specific nature of her disease, as well as the possible benefits and risks of treatment, she underwent transvaginal mass resection and laparoscopic exploration. A large mass was completely removed from the vaginal wall incision and a drainage tube was placed in the cavity to facilitate blood

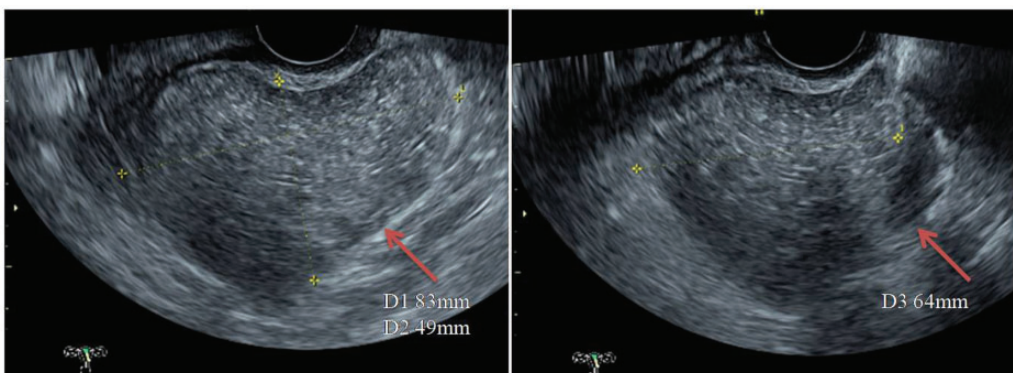


Figure 1. Three-dimensional transvaginal ultrasound image showed a cystic mass (arrow) measuring 83 × 49 × 64 mm in the bottom of the pelvis, near the left side wall of the vagina.

drainage (Figure 3). She underwent simultaneous laparoscopy to explore the pelvic cavity, but no further abnormalities were detected. Rectal examination also found no injuries. Histopathological examination of the removed mass confirmed a mature cystic teratoma (Figure 4). The timeline of the diagnosis is shown in Figure 5. The patient recovered well after surgery and was discharged on the sixth postoperative day. She was followed up for 12 months

with no complications or evidence of disease recurrence.

Discussion

Teratomas are common germ cell tumors that mainly originate from pluripotent embryonic cells and are often derived from two or more germ layers, including the ectoderm, mesoderm, and endoderm.² Teratomas are typically located in either

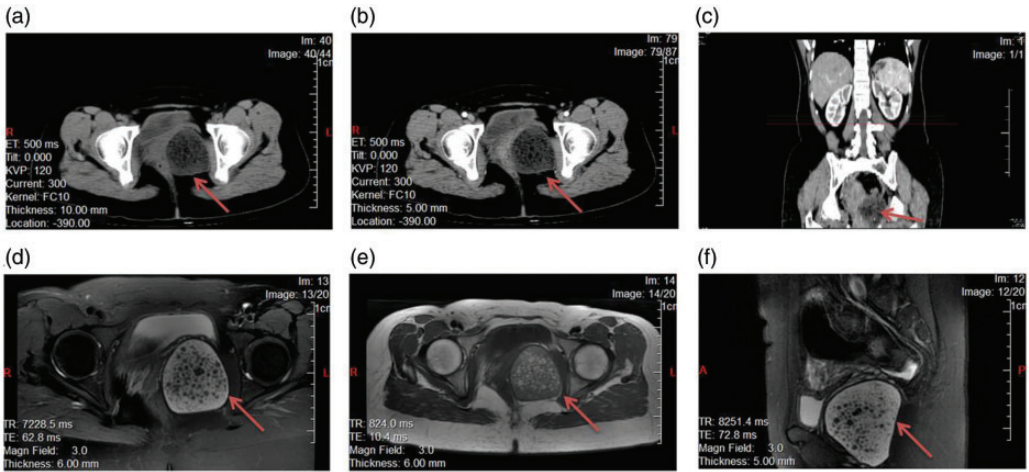


Figure 2. Computed tomography (CT) and magnetic resonance imaging (MRI) scans of the teratoma (arrows). (a) CT scan of teratoma in transverse plane; (b) CT enhancement scan of teratoma in transverse plane; (c) CT enhancement scan of teratoma in coronal plane; (d) MRI of teratoma with increased signal on T2W in transverse plane; (e) MRI of teratoma with decreased signal on T1W in transverse plane; and (f) MRI of teratoma with increased signal on T2W in sagittal plane.

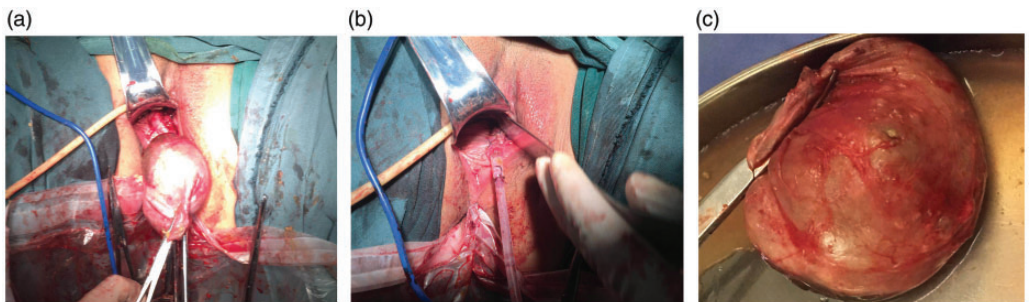


Figure 3. Views of the tumor during surgery. (a) Teratoma revealed after incision of the left vaginal wall; (b) drainage tube placed in the cavity after removal of the teratoma; and (c) photograph of gross specimen.

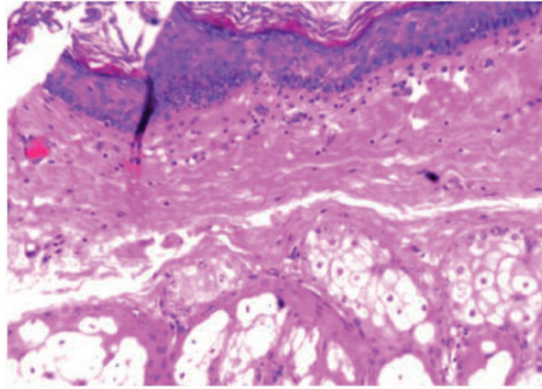


Figure 4. Histopathological image of teratoma (hematoxylin and eosin, original magnification 40×).

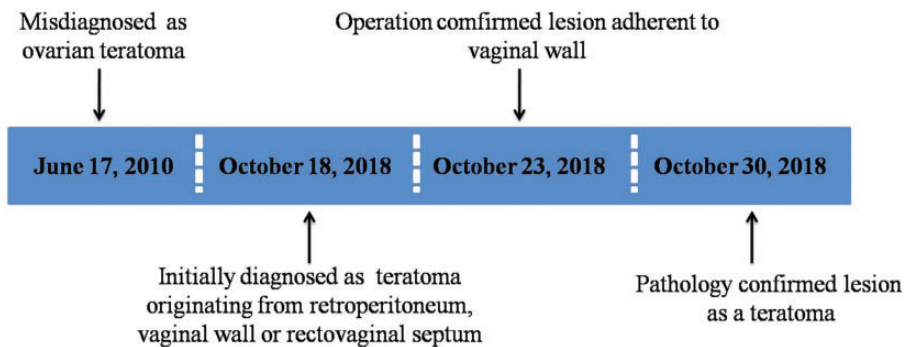


Figure 5. Timeline of diagnosis.

the sacrococcygeal region or in the gonads, and are considered to originate from primordial germ cells that fail to migrate properly during the initial weeks of embryonic development.⁷ Although a few cases of teratomas located in unusual places have been reported, there have been no reports of teratomas arising from the vaginal wall. Here, we provide the first report of a teratoma adherent to the vaginal wall.

Teratomas are usually composed of complex components, such as bone, hair, and teeth,⁸ and are thus relatively easy to diagnose. Ultrasound is a common and valuable diagnostic choice because of its simplicity, safety, and relatively low cost. Teratomas are typically characterized by a round

mixed echogenic mass with no obvious blood flow signal, often with a clear boundary. Light spots may be seen if the lesion includes hard substances such as bone and teeth. However, alternative techniques may be needed to diagnose, locate, and characterize teratomas in atypical locations. CT is a useful method for diagnosing pelvic tumors. It is relatively rapid and convenient, and can distinguish between primary and secondary tumors, as well as detecting peritoneal or lymph node metastasis. However, CT has some disadvantages, including being limited to transverse images, making it difficult to distinguish the type of tumor.⁹ MRI may thus be needed to assist the diagnosis. In addition

to having better and more obvious soft tissue contrast, MRI also has a high spatial resolution rate and is capable of 360° imaging in any orientation, making it easier to locate ovarian tumors and display their internal structure and composition.¹⁰ The reported detection rate of tumors based on CT is 97.2%, with an accurate diagnosis rate of 66.66% to 88.88%, whereas the sensitivity, specificity, and accuracy of MRI detection for pelvic tumors are 78% to 91%, 90% to 93%, and 83% to 100%, respectively.^{11,12} In the case of some rare tumors, it may thus be better to use MRI or MRI combined with CT for diagnosis and assessment.

Although teratomas have a low rate of malignant transformation, distant metastasis may occur if the tumor becomes malignant.¹³ Surgical treatment is therefore recommended once the tumor has been diagnosed. However, careful preoperative assessment is required for teratomas in unusual locations. First, the characteristics and location of the tumor need to be determined, followed by an assessment of its anatomical location and its relationship with the surrounding tissue. The surgical approach should be based on the size of the tumor, and its location, growth direction, and relationship with adjacent organs, while aiming to minimize damage to other organs and tissues.

In our case, the teratoma was located in a very unusual location. Based on the patient's history and the results of related examinations, we considered that the mass may not be derived from the pelvic cavity. Given that the mass partly protruded into the left wall of the vagina, according to the gynecological examination, we chose a left vaginal wall incision as the surgical approach, to minimize impact to the patient. Because the mass had existed for at least 8 years, malignant transformation could not be excluded, even though the patient's tumor markers were normal.

In addition, the mass was also very near the rectum, which could result in damage to the surrounding tissues or organs during surgical resection. Adequate preoperative bowel preparation was therefore required, together with careful laparoscopic exploration of the abdominal cavity. The operation was relatively straightforward, with meticulous dissection of the mass, with no complications. Although the mass was closely related to the rectum, there was no parenchymal involvement. The patient accordingly recovered well during follow-up, with no evidence of recurrence.

Conclusions

Teratomas adhering to the vaginal wall are uncommon in adults, and MRI and CT may be useful methods for assessing the characteristics and the anatomical location of these tumors, as well as determining their relationship with the surrounding tissues. Surgical resection is the primary treatment for this disease, and the surgical approach should be based on the size of the tumor, and its location, growth direction, and relationship with adjacent organs, to minimize damage to other tissues and organs. A definitive diagnosis is based on histologic assessment, and long-term follow-up is warranted.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

Ethical statement and informed consent


This study was approved by the ethics committee of Huzhou Central Hospital (No. 20190403-02) and signed informed consent for publication of the report was obtained from the patient.

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