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Benign Serous Cystadenofibroma Masquerading as Malignant Ovarian Cyst: A Case Report and Literature Review

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Abstract

Ovarian cystadenofibroma is a benign neoplasm that accounts for approximately 1.7% of all benign ovarian tumours. It develops at ages 15-65 and bilaterally in 6-30 % of cases. In most instances, the patients present with abdominal pain or genital bleeding, but sometimes it may be detected as an incidental mass. Despite being a benign neoplasm, ovarian cystadenofibroma can have radiological features suggestive of malignancy, making it difficult to differentiate between the two conditions. When deciding to take a conservative approach (ovarian cystectomy only) or oophorectomy, prudence is needed, especially for young patients.

Here we report a case of a 17-year girl who arrived at the urgent care unit with an acute abdomen. We suspect ovarian torsion based on clinical findings. Radiological features suggest a large neoplastic right ovarian cystic mass lesion with a small enhanced solid component which indicates the possibility of cystadenocarcinoma. Tumour markers were within normal limits. After discussion and informed consent with the parent and the patient, laparotomy and right ovarian cystectomy were performed. Histopathological examination reported the cyst as an ovarian cystadenofibroma. Thus both ovaries were preserved.

Categories: *Obstetrics, Gynecology, Radiology, Oncology*

Keywords: *torsion, tubo-ovarian pedicle, benign neoplasm, ovarian tumour, conservative surgery, recurrence, serous cystadenofibroma*

Introduction

Ovarian Cystadenofibroma accounts for around 1.7% of benign ovarian tumor cases and typically develops between ages 15 and 65 [1-2]. Bilateral development occurs in 6-30% of cases [3]. Common symptoms include abdominal pain and vaginal bleeding. Occasionally, these tumors are incidentally discovered during imaging for unrelated issues.

These tumors are categorized based on the types of epithelial cells, such as serous, endometrioid, mucinous, clear cell and mixed. Their classification as benign, borderline, or malignant tumors is determined by the extent of epithelial proliferation and its relationship to the stromal component, although most ovarian cystadenofibromas reported are usually benign.

Benign serous cystadenofibroma of the ovary typically manifests as a combination of cystic and solid masses within the ovary. In most cases, the tumor appears as a single mass in one ovary, although rare instances involve multiple masses in a single ovary or affect both ovaries. Histopathological examination classifies these tumors as serous based on their distinctive appearance [3].

Ovarian cystadenofibroma can present as a multilocular cystic mass with solid nodular components that mimic malignant ovarian tumors. Characteristic magnetic resonance imaging (MRI) findings on T2-weighted images reveal very low intensity of the solid components, accompanied by the presence of highly intensetiny cysts. These findings indicate dense fibrous stromal proliferation with scattered small cystic glandular structures [4].

Case Presentation

A 17-year-old girl presented to the urgent care unit with acute pain in her lower right abdomen. Upon further investigation using abdominal ultrasound, a prominent cystic structure with internal echoes was observed, along with a small polypoidal soft tissue mass on its dependent wall. Additionally, several echogenic nodules were detected (Figure 1).

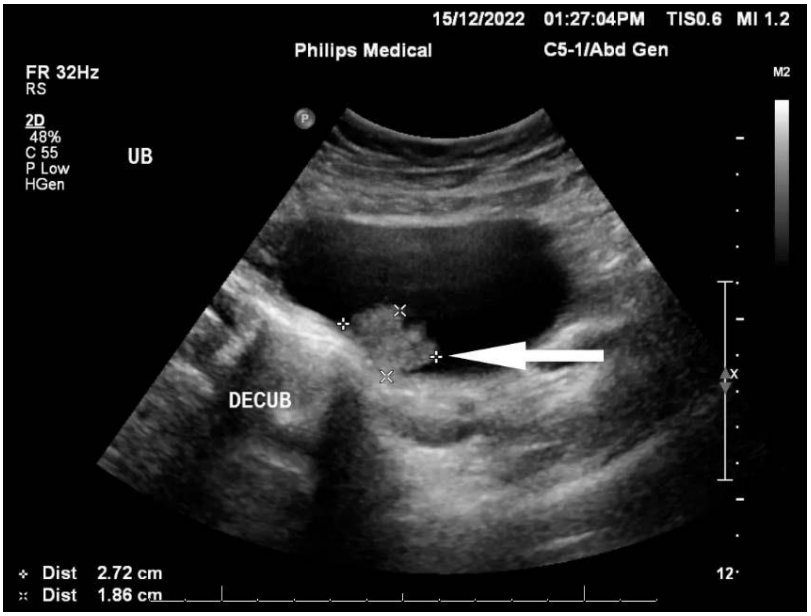

FIGURE 1: Ultrasound image

A prominent cystic structure with internal echoes and a small polypoidal soft tissue mass (arrowhead) along its dependent wall and few echogenic nodules

The pelvic Magnetic Resonance Imaging (MRI) study with contrast revealed a substantial midline cystic mass extending into the lower abdomen, measuring 12.7 cm craniocaudal, 9.2 cm anteroposterior, and 10.5 cm in transverse dimensions. Additionally, a frond-like polypoidal solid component measuring 2 cm x 2.1 cm was observed on the superior aspect of the neoplasm. The mass appeared hypointense on T1 and hyperintense on the T2 sequence. The imaging failed to distinguish the right ovary as a distinct entity. Furthermore, the mass caused anterior indentation on the bladder dome and posterior displacement of the uterus. Notably, a bulky left ovary and a streak of fluid in the cul-de-sac were present (Figures 2-4).

The MRI findings raise suspicion of cystadenocarcinoma.

FIGURE 2: MRI with contrast image: Sagittal view

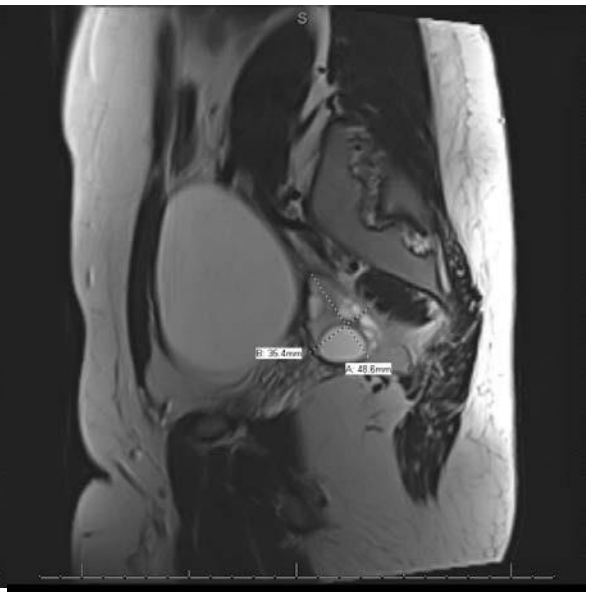

FIGURE 3: MRI with contrast image: Sagittal viewLeft ovary was seen separately measuring 35.4 mm x 48.6 mm

The full blood count, liver function, and renal function tests yielded normal results. Additionally, the tumor markers, including CA 125 (7.2 U/ml), AFP (3.5 ng/ml), CEA (less than 0.50 ng/ml), and CA 19-9 (2.43 U/ml), were within the normal range. Due to concerning radiological findings, an oncosurgeon was consulted for a second opinion. After thorough consideration and extensive discussion, it was decided to proceed with a right ovarian cystectomy, considering the normal tumor markers and the potential impact on the teenager's fertility. The patient and her parents provided their consent for the procedure, understanding that a staging laparotomy may be required in the future if malignancy is confirmed.

During the laparotomy and right ovarian cystectomy, torsion was encountered in the right tubo-ovarian pedicle. A 12 cm cyst was found in the right ovary, which was untwisted and carefully removed from the abdomen. Following that, the ovarian cystectomy was performed. The cyst contained approximately 500 ml of serous fluid and displayed a solid, nodular papillary growth at its base (Figure 5).

FIGURE 4: MRI with contrast image: Coronal view

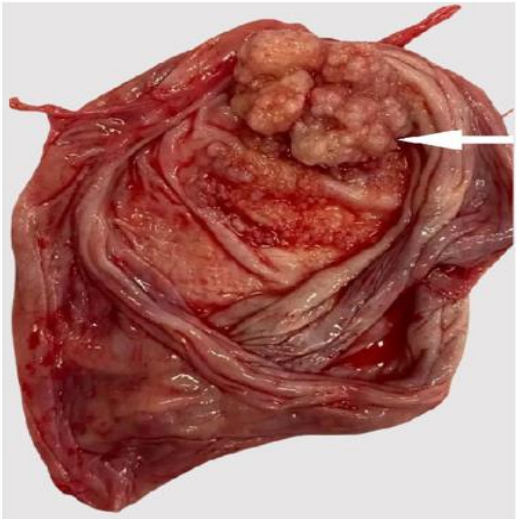

FIGURE 5: Opened Ovarian Cyst
Showing solid papillary-like growth at the base (arrowhead)

Cytology analysis of the cyst fluid and peritoneal fluid revealed no signs of malignancy. The histopathology report indicated a diagnosis of Serous Cystadenofibroma with focal epithelial proliferation.

Discussion

Ovarian Serous Cystadenofibroma is a relatively rare subtype of benign epithelial ovarian tumor, although it closely resembles malignancy. Some reported cases have shown scattered lesions in the pelvic cavity, resembling malignant dissemination, particularly in young women [2].

This type of tumor may be discovered incidentally or present as an abdominal lump or acute abdominal pain due to ovarian pedicle torsion. In our case, torsion of the tubo-ovarian pedicle resulted in acute abdominal pain. Although ovarian cystadenofibroma is a benign condition, its radiological characteristics can mimic malignancy, leading to a challenging decision regarding the appropriate surgical approach. We thoroughly discussed all available options with the patient and her parents, considering the risks and benefits associated with ovarian cystectomy, salpingo-oophorectomy, or more extensive surgery.

In serous cystadenofibroma, the tumor is characterized by a predominance of interstitial fibrous components, along with cystic components in varying ratios. This unique composition leads to a distinct appearance on T2-weighted MRI images, where small cysts with punctate high intensities are scattered around a low-intensity solid mass, often referred to as a "black sponge-like appearance." The challenge lies in differentiating between benign and malignant lesions based solely on preoperative imaging, leading to occasional misdiagnosis [4-9].

In cases where disseminated lesions are encountered during surgery, ruling out malignancy becomes particularly difficult. There have been reports of bilateral ovarian serous cystadenofibroma associated with low-grade serous carcinoma or borderline serous tumor of the peritoneum [9]. In such situations, intraoperative frozen section analysis plays a crucial role in establishing an accurate diagnosis, especially when disseminated lesions make it challenging to determine malignancy based on visual examination alone. However, caution must be exercised, as the presence of papillary architecture on frozen section analysis can potentially mislead pathologists into diagnosing a borderline serous tumor.

Overdiagnosis may lead to unnecessarily aggressive surgical interventions, underscoring the importance of extensive tissue sampling and careful consideration of this entity to avoid such errors [10].

During the surgery, we observed a smooth ovarian cyst wall without evidence of surface or peritoneal involvement. Consequently, we opted to remove the cyst while preserving the healthy ovary. Both peritoneal and cyst fluid cytology tests yielded negative results for cancer cells. The histopathology report confirmed the diagnosis of serous cystadenofibroma with focal epithelial proliferation. Given the potential for bilateral involvement, a wedge biopsy of the contralateral ovary could have been considered to ensure accuracy and exclude the possibility of bilateral occurrence. The patient was advised to undergo regular follow-ups every three months to monitor for early signs of recurrence.

Conclusions

The prognosis for benign serous cystadenofibroma of the ovary is excellent with appropriate treatment. Complete surgical removal is the most effective approach, offering a low risk of recurrence. However, in cases where young patients desire future fertility, options such as cystectomy or unilateral salpingo-oophorectomy can be considered. The use of intraoperative frozen section analysis can assist in making informed decisions during the surgery, avoiding unnecessary extensive procedures.

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