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## Case Report

## Painless ovarian tumor mimics ovarian cancer with all ligaments spontaneously detached: A case report

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## ABSTRACT

**Objective:** Ovarian tumor is a frequently encountered gynecological disease. The tumor is usually anchored by a pedicle. In rare cases, it may detach and derive nourishment from other abdominal structures to which it adheres. Even rarer is for the tumor to be freely mobile, with no ligamentous attachment.

**Case report:** A 21-year-old woman with delayed menstruation and chronic low abdominal pain for months, had a well-defined cystic lesion of approximately  $9 \times 9$  cm in the middle of the pelvis, identified on transabdominal sonography and abdominal computed tomography. During an exploratory laparotomy, we found an ovarian tumor on the left side of the pelvis, in which the pedicle had spontaneously detached; it was removed without dissection or resection. The tumor was well-encapsulated and suspended without any ligament attachments.

**Conclusion:** Freely mobile ovarian tumors with all ligaments spontaneously detached may be misdiagnosed because there is no pain caused by torsion. The absence of blood flow leads to internal necrosis, easily mistaken for malignancy or other diseases. Also, the location may change from the time images are captured until surgery. Surgery is the best option, regardless of the final diagnosis.

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## Introduction

An ovarian cyst is a sac filled with fluid, or a semisolid material, which develops on or within the ovary. However, many pathologic conditions might have clinical and imaging manifestations similar to that of an ovarian tumor or cyst, and the only way to diagnose an ovarian tumor with certainty is through surgery [1]. Exploratory laparotomy is typically recommended when ovarian cancer is suspected. A laparoscopy may be considered in cases with a smaller ovarian mass [2]. An open laparotomy is generally preferred because it allows the surgeon to more easily and completely visualize the abdominal contents and removes any suspicious masses [3]. Torsion of the pedicle is serious and is one of the most common complications of ovarian tumor. Axial rotation is common in tumors of moderate size, especially those with a round contour, of moderate weight, with free mobility, and a long pedicle. Partial torsion may often untwist spontaneously, but if complete torsion

occurs, there is obstruction of both the veins and the arteries [4]. As a result, there is intense venous congestion with extravasation of blood inside the cyst. When the cyst becomes distended, necrosis and other substantial changes start to occur, which will mostly lead to severe abdominal pain. In a computed tomography (CT) scan, the structure could be suspected to be ovarian cancer tissue [5]. We herein present a case in which a patient with a 6-month delay in menstruation presented with chronic abdominal pain. The CT images were consistent with a teratoma or malignancy. To our knowledge, a freely mobile ovarian tumor detached from all ligamentous suspension that has undergone torsion, and was removed entirely without any resection and dissection during exploratory laparotomy, has never been identified as a malignancy in imaging before.

## Case report

A 21-year-old unmarried female, gravida 0, para 0, with the history of polycystic ovary syndrome, had experienced no menstruation for the previous 6 months. Two weeks before admission to our hospital, she went to a local clinic for severe lower abdomen tenderness and rebound pain, where transabdominal

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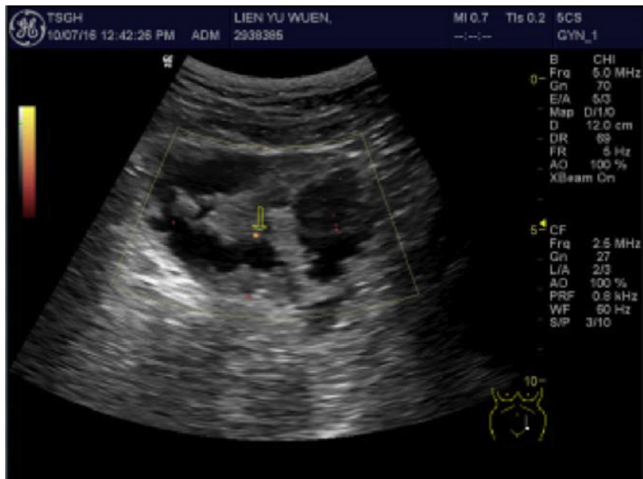
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sonography revealed an ovarian tumor. She was referred to our hospital with unexpectedly no abdominal pain but persistence of delayed menstruation. A pelvic CT was performed, which showed a well-defined cystic lesion of approximately  $9 \times 9$  cm in the middle of the pelvis, as shown Figs. 1 and 2. A teratoma or malignancy was suspected. The CA-125 tumor biomarker level was 12.7 IU/mL, which is within the normal range. Based on the clinical and physical findings, surgical intervention with exploratory laparotomy was immediately scheduled. Exploratory laparotomy revealed an ovarian tumor approximately  $10 \times 9 \times 9$  cm (free of all ligamentous suspension) on the left side of the pelvic cavity with a clear point of

detachment. It was filled with dark brown fluid and necrotic tissue. The tumor was removed entirely without any resection and dissection; the pathologic report revealed a hemorrhagic cyst with a fibrotic wall, calcification, and extensive necrosis (Fig. 3a–c). The patient had an uneventful recovery and was discharged 48 h after surgery. Transabdominal sonography was performed 36 days postoperatively, with no abnormal findings.

## Discussion

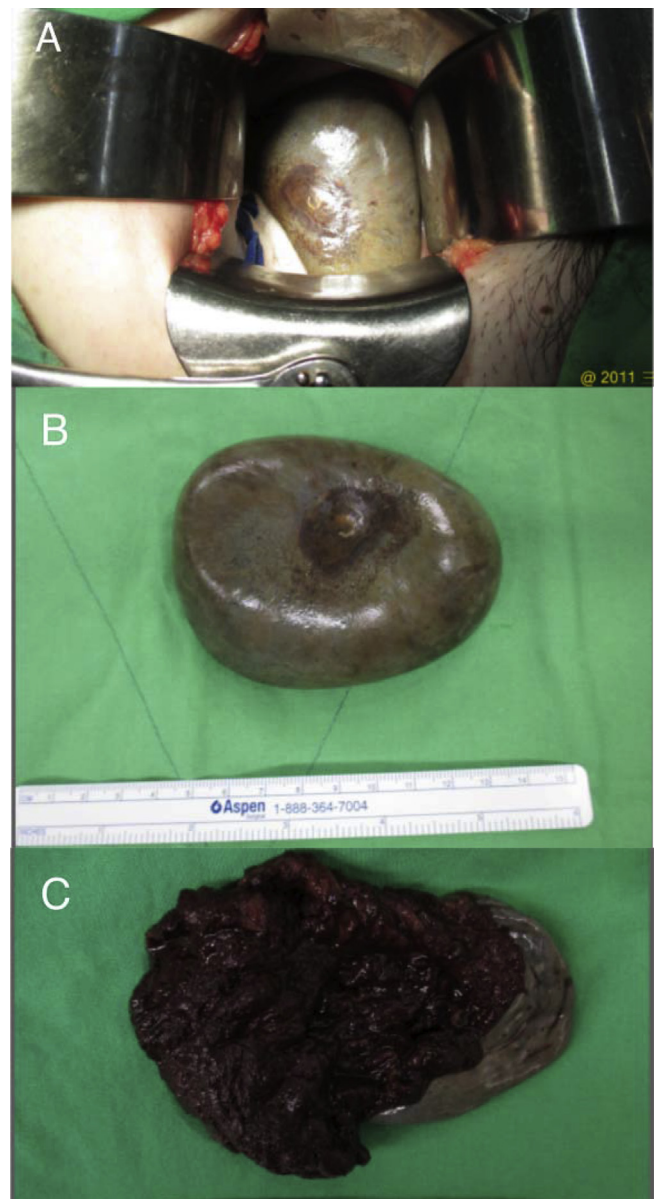
This unusual case of a painless ovarian tumor was due to the ligaments being detached and the tumor being freely mobile, resulting in an asymptomatic presentation with ambiguous warning signs. This is difficult to detect and diagnose preoperatively, and must be differentiated from other emergency gynecological diseases that present with abdominal pain, such as ovarian



**Fig. 1.** Transabdominal sonography image revealed a cystic lesion with blood flow on the left side, a suspected teratoma or malignancy.



**Fig. 2.** Abdominal computed tomography, coronal image, revealed a well-defined cystic lesion approximately 9 cm in the middle of the pelvis with curvilinear calcifications in the dependent portion.



**Fig. 3.** a: Image of the torsion of the ovarian tumor and spontaneous detachment from the ligament. b: An isolated, well-capsulated ovarian tumor, size approximately  $10 \times 9 \times 9$  cm with a clear detached point. c: Torsion of ovarian tumor and spontaneous detachment from the ligament with necrosis-like tissues.

hemorrhage, uterine adnexitis, and ectopic pregnancy [6]. Furthermore, in this case of torsion of an ovarian tumor free of ligamentous attachment, detachment of the tumor led to necrosis and substantial changes, resulting in CT images typical of suspected ovarian cancer tissue. When the exploratory laparotomy was performed, because the tumor was freely mobile within the abdominal cavity, the actual location was different from that expected from the CT images; this is a rare and unique situation. Therefore, an exploratory laparotomy helped the surgeon to more easily and completely visualize the abdominal contents and removes any suspicious masses [7]. Ovarian torsion has been found to be present in between 2.5 and 7.4% of all cases of acute abdomen pain [8]. Thus, it is not uncommon for a diagnosis to be made only after emergency diagnostic exploratory laparotomy [9]. Some reports have shown that preoperative elevated levels of D-dimer, IL-6, and tumor necrosis factor may accompany torsion of an ovarian tumor; however, to date, no specific marker has been established [10]. In conclusion, judging from cases involving torsion of ovarian tumors, the treatment should be decided on the basis of age, symptoms, signs, desire for fertility, or the presence of another pelvic pathology [11]. The two greatest dangers to be avoided are tumor rupture and aseptic inflammation. Furthermore, freely mobile ovarian tumors with all ligaments spontaneously detached may be misdiagnosed because there is no pain caused by torsion and blood flow leading to internal necrosis is absent. Therefore, it can be easily mistaken for malignancy or other diseases. Also, the location may change from the time images are captured until surgery. These are sufficient justifications for treating the lesion as an emergency demanding operative treatment [12].

In conclusion, though our patient had no typical symptoms, such as lower abdominal pain, nausea, or vomiting, ovarian torsion

still needed to be considered. In such cases, surgery is the best option, regardless of the final diagnosis in cases of freely mobile ovarian tumors, with no ligamentous attachment.

### Conflicts of interest

None.

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