

Management of a Twisted Ovarian Dermoid Cyst in Early Pregnancy: A Case Report

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Abstract

Background: Ovarian tumors during pregnancy are rare, occurring in approximately 0.3% of cases. The most common benign tumors are dermoid cysts and cystadenomas. These tumors, especially dermoid cysts or mature cystic teratomas, are significant due to their potential to cause severe complications such as torsion, rupture, and infection. This case report illustrates the complexities involved in the diagnosis and management of ovarian dermoid cysts in a pregnant woman.

Case Presentation: A 25-year-old woman, primigravida, presented with persistent non-radiating abdominal pain and episodes of vomiting at nine weeks and four days of gestation. Medical history includes occasional use of propranolol without medical approval. An ultrasound examination revealed a tender right adnexal mass, prompting an emergency Mini laparotomy. The surgery confirmed a 6 cm x 8 cm twisted ovarian dermoid cyst, which was successfully managed with cystectomy, preserving the ovary.

Discussion: Despite general recommendations for elective surgical removal during the second trimester, the acute onset of torsion in this case necessitated prompt intervention. This incident exemplifies the varying clinical manifestations of ovarian dermoid cysts and the necessity for a personalized approach to optimize maternal and fetal outcomes.

Conclusion: Early detection and prompt surgical intervention are crucial in managing ovarian dermoid cysts during pregnancy to prevent serious complications. Throughout the pregnancy, careful monitoring was advised, especially considering the patient's medication history and potential risks to fetal development.

Keywords

Ovarian Dermoid Cyst; Pregnancy; Torsion; Adnexal Mass

Introduction

Ovarian tumors during pregnancy, although rare, occur in approximately 0.3% of cases and are predominantly observed between 16-20 weeks of gestation. Among these benign tumors, dermoid cysts and cystadenomas are the most frequently encountered. Ultrasound remains the gold standard for diagnosing ovarian tumors in pregnant patients, providing guidance for management based on the tumor's size, symptoms, and gestational age of the pregnancy [1]. Dermoid cysts, or mature cystic teratomas, are a significant subset of ovarian tumors, accounting for 20% of adult ovarian tumors, and are diagnosed during the second trimester in three out of a thousand pregnancies. These tumors increase the risk of complications such as torsion, rupture, and infection, necessitating careful monitoring and management [2].

Ovarian torsion is particularly concerning due to its potential to cause sudden severe abdominal pain and ovarian necrosis, with an estimated incidence of 4.9 per 100,000 females aged 1-20 years in the United States [3]. The presence of adnexal masses during pregnancy is increasing, with 1-4% of pregnant women being diagnosed. These masses include a variety of types such as dermoid cysts, endometriomas, corpus luteum cysts, and complex cysts, among others. The second trimester often poses a higher risk for complications such as torsion, leading to infarction, hemorrhage, and rupture [4].

The management of asymptomatic adnexal masses during pregnancy remains a topic of debate. While some advocate for elective removal during the second trimester, others suggest postponing surgery until the postpartum period to minimize risks to both the mother and the fetus. However, the decision-making process must carefully weigh the risks of early surgical intervention, which could potentially lead to abortion, against the risks posed by the mass itself, such as torsion or rupture in larger masses [6]. Imaging plays a crucial role in the evaluation of abdominal pain in pregnant women, attributed to various causes such as acute appendicitis, hydronephrosis, thrombosis, and ovarian cysts. While ultrasound and MRI are preferred to avoid radiation exposure, their limitations include non-panoramic views and lengthy acquisition times, respectively [5]. This case report underscores the critical importance of tailored imaging and timely intervention in the management of ovarian dermoid cysts during pregnancy, highlighting the challenges and essential considerations in preserving both maternal and fetal well-being.

Case Presentation

- A. Case History/examination:** A 25-year-old female, primigravida, presented to the infertility clinic with non-radiating, unrelieved abdominal pain and two episodes of vomiting on the morning. The patient reported a regular menstrual cycle without the utilization of contraceptives. At her arrival, she was nine weeks and four days pregnant and complained of right lower abdominal pain and dizziness without nausea. The pregnancy was unplanned.

B. Methods (Differential diagnosis, investigations and treatment): The patient was admitted and the initial treatment consisted of establishing an intravenous line, administering serum therapy, and maintaining a NPO (nothing by mouth) status. Diagnostic procedures included the complete blood count with differential, PTT, INR, blood typing, CA-125, and Rh factor, alongside a transvaginal ultrasound. All initial laboratory tests were within normal limits.

The ultrasound revealed no free fluid in the abdomen and a large uterus with a gestational sac corresponding to the patient's gestational age. The fetal heart rate was normal. A single mass lesion in the right adnexa measured 61 cm x 76 cm, characterized by a thin-walled septum and dermoid cystic components, without signs of appendicitis. A Doppler ultrasound confirmed normal vascular flow in the right ovary.

In response to the acute presentation, the patient underwent an emergency minilaparotomy under general anesthesia after receiving a stat dose of antibiotic prophylaxis. The omentum, attached to the cyst wall, was gently detached. A twisted right ovarian cyst, measuring 6 cm x 8 cm and twisted twice around its pedicle, was visualized and corrected (Figure1).



Figure 1: A Minilaparotomy revealed a right ovarian cyst measuring 6 cm x 8 cm with a thin-walled, dermoid cystic component.

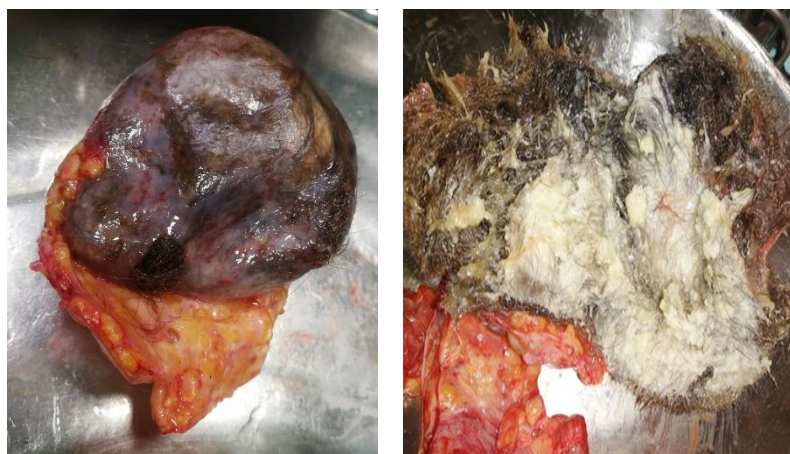
The left ovary exhibited corpus luteum cysts measuring 14 x 17 mm in diameter. An ovarian cystectomy was performed, preserving the right ovary (Figure 2). The pedicle was sutured using 2-0 Vicryl, and the specimen was sent for histopathological examination.



Figure 2: A prompt ovarian cystectomy was performed subsequent to its untwisting, resulting in the preservation of the right ovary.

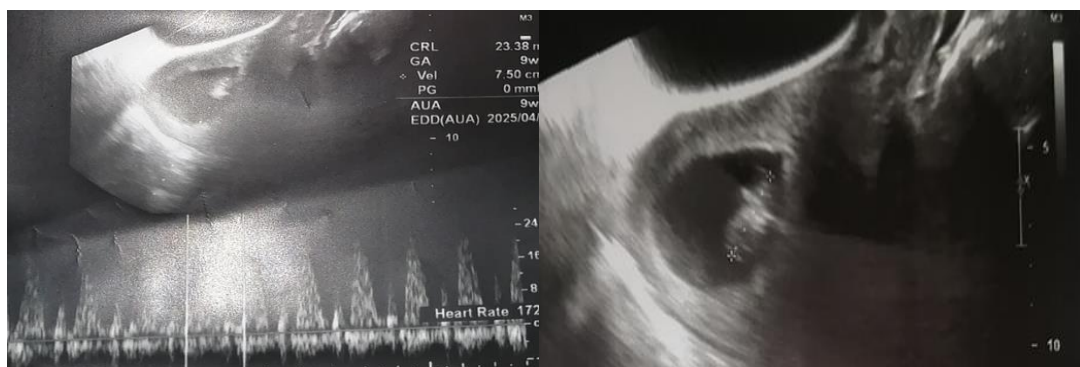
C. Conclusion and Results (Outcome and follow-up):

The patient was provided with follow-up consultations and psychological support plans, which were scheduled at the outpatient clinic for perinatology. Histopathological examination confirmed the diagnosis of a 6 x 7 cm right ovarian dermoid cyst (mature cyst teratoma) containing hair, fibro-fatty tissue, and bony parts (Figures 3A and 3B).



Figures 3A and 3B: A dermoid cyst of 6 x 7 cm consists of an opened cyst containing hair and a yellowish paste-like material, as well as bony parts.

Postoperative obstetric ultrasound on the second day post-surgery confirmed a live fetus at nine weeks and six days (Figures 4A and 4B).



Figures 4A and 4B: A transvaginal ultrasound indicates a live nine-week and six-day fetus with normal heartbeats.

Throughout her pregnancy, she was advised to undergo screening for nuchal translucency (NT) Down syndrome and trisomy [18]. Monitoring fetal growth was emphasized, particularly since the use of propranolol, which crosses the placenta, may pose risks of fetal growth restrictions, congenital abnormalities, and chronic maternal hypertension. Her delivery plan was developed based on obstetrical recommendations.

Discussion

This case report highlights the significant challenges we may face in managing ovarian dermoid cysts during pregnancy and underscores the importance of monitoring and timely intervention. Typically diagnosed in the second trimester, ovarian dermoid cysts in our case were detected earlier due to the patient's acute symptoms, which necessitated immediate intervention due to severe symptoms [1, 2].

The patient's acute presentation with severe abdominal pain resembled other urgent abdominal conditions. Our use of ultrasound helped diagnose dermoid cysts and remove symptomatic cysts to further prevent serious issues like necrosis or rupture of the ovary [2, 5].

Contrary to general recommendations that favor elective surgical removal during the second trimester [5], our case required immediate surgery due to the onset of the torsion and the need for immediate intervention. While literature discusses complications such as fetal growth restriction (FGR) and oligohydramnios associated with large cysts [8], the primary concern in our case was the immediate risk of torsion. This demonstrates that the complications associated with dermoid cysts can vary greatly depending on when they are detected and how quickly they are addressed.

This discussion highlights the need for individualized management of ovarian dermoid cysts during pregnancy. It emphasizes the role of prompt and precise imaging, along with timely surgery, in handling acute complications and preventing adverse effects for both mother and baby. By examining our case alongside literature, we see how flexible and dynamic clinical decision-making must be for each individual case.

Conclusion

This case illustrates the importance of early detection and accurate imaging in the management of ovarian dermoid cysts with torsion during pregnancy. Despite the rareness of such complications, timely action prevented severe maternal and fetal outcomes, demonstrating the importance of individualized, case-

specific management. Our findings highlight the need for a balanced approach to weighing the risks of emergency surgery against the potential complications of untreated adnexal masses during pregnancy.

Author Contributions

All authors read and approved the final draft of the paper for publication.

- ✓ **Fatemeh Keikha:** Supervision, Conceptualization, Writing - review & editing.
- ✓ **Hawraa Shbeeb:** Conceptualization, Data curation, Investigation, Project administration, Resources, Methodology, Supervision, Software, Validation, Writing - original draft, Writing - review & editing.
- ✓ **Huma Homam:** Conceptualization, Data curation, Investigation, Resources, Methodology, Supervision, Software, Validation, Writing - original draft, Writing - review & editing.

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