

Clinical Communications: OB/GYN

CASE REPORT: OVARIAN TORSION IN PREGNANCY – DIAGNOSIS AND MANAGEMENT

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□ **Abstract—Background:** Ovarian torsion (OT) is one of the most common gynecologic surgical emergencies. All age groups can be affected, but ovarian stimulation, as found during early pregnancy or infertility treatment, is a major risk factor. **Objective:** Diagnosing OT in early pregnancy can be challenging. Patients frequently present with abdominal pain and non-specific symptoms. Missed diagnosis of OT could lead not only to ovarian necrosis and sepsis, but also threaten the pregnancy. The objective of this article is to present a case of OT in early pregnancy and to review its epidemiology, diagnosis, and treatment. **Case Report:** A 30-year-old woman at 10 weeks gestational age presented to the Emergency Department (ED) with 2 h duration of abdominal pain, nausea, and vomiting. The patient was not on ovarian stimulation treatments. A bedside ED ultrasound showed an enlarged edematous right ovary with a large cyst, but without flow on color Doppler. Immediate obstetric consultation was initiated. Eventual radiology ultrasound showed decreased but present flow in the right ovary. The patient underwent emergent laparoscopic surgery, during which the necrotic right ovary was removed. She was placed on progesterone therapy upon hospital discharge and eventually delivered a healthy term infant. **Conclusions:** Ovarian torsion in pregnancy is increasing in frequency due to the growing prevalence of ovarian stimulation treatment. Although diagnostic ultrasound is a frequently used imaging tool in patients with suspected OT, the mere presence of blood flow on Doppler ultrasonography of the adnexa has a poor negative predictive value. A high clinical suspicion and early

laparoscopic management correlate with favorable maternal and fetal outcomes. Published by Elsevier Inc.

□ **Keywords—**adnexal mass; ovarian torsion; pelvic ultrasonography; pregnancy

INTRODUCTION

Torsion of the ovary is a true gynecological emergency, and up to one-fifth of ovarian torsion occurs during pregnancy. Ovarian torsion is most common in the first trimester of pregnancy, but can happen well into the third trimester, and torsion early in pregnancy seems to increase the risk for recurrence at a later gestational age (1). The presence of a corpus luteum cyst, and also the increased ovarian mass and size associated with hormonal stimulation in assisted reproductive therapy seem to be contributing factors. Tissue necrosis can occur rapidly, and timely diagnosis and treatment is essential to preserve ovarian function and the pregnancy.

For ovarian torsion in pregnancy, rapid laparoscopic oophorectomy is generally the recommended emergency treatment to not only improve the rate of adnexal salvage, but also to prevent recurrent episodes of torsion, although some suggest that transabdominal ultrasound-guided cyst

aspiration may be effective (2,3). Given the time-sensitive nature of this diagnosis, it is helpful for emergency physicians to be familiar with ultrasound techniques to identify ovarian torsion at the bedside. In this case report, we outline the diagnosis and management of ovarian torsion in pregnancy, and describe the utility of emergency physician-administered bedside ultrasound in its diagnosis.

CASE REPORT

A 30-year-old G1P0 woman presented to the Emergency Department (ED) of our tertiary care academic hospital with right lower quadrant abdominal pain for 3 h before presentation. She stated that she was about 10 weeks pregnant with a single intrauterine pregnancy confirmed by previous outpatient ultrasound. She reported that her pain was sudden in onset, constant, sharp, and stabbing in nature, and awoke her from sleep. The pain was associated with nausea and vomiting and radiated down her anterior right leg. It was not associated with any fevers, change in stool patterns, vaginal bleeding, or abnormal vaginal discharge.

The patient's past medical history was negative, and her only medications were prenatal vitamins. She had no known drug allergies and was on no fertility drugs. On physical examination, her vital signs were within normal limits (temperature 36.4°C, blood pressure 137/68 mm Hg, heart rate 74 beats/min, respiratory rate 20 breaths/min, pulse oxygenation 100% on room air) and she appeared to be in moderate distress, lying on her left side with her legs drawn up to her abdomen. The abdominal examination was remarkable for tenderness to palpation, exclusively to the right lower quadrant, with voluntary guarding. She had rebound tenderness and a positive "psoas sign." Bowel sounds were within normal limits.

Notable laboratory values included a positive qualitative human chorionic gonadotropin (HCG) test and a quantitative HCG of 150,000 U/L. The complete blood count was within normal limits, with a white blood cell count of $10.4 \times 10^3/\mu\text{L}$ and a hemoglobin/hematocrit of 13.5 g/dL/40.1%. Chemistry panel and urinalysis were also within normal limits.

The patient's presentation was concerning for acute abdomen, most likely from ovarian torsion. An immediate bedside ultrasound was performed by the emergency physician using a 3–5-MHz curvilinear probe and a transabdominal approach (Sonosite MTurbo, Bothell, WA). ED ultrasound detected a single viable intrauterine pregnancy with a gestational age measured at 9 weeks, 5 days. Fetal movements were observed, and fetal heart tones were recorded at a rate of 146 beats/min. On further transabdominal ultrasound of the adnexae, a small amount of

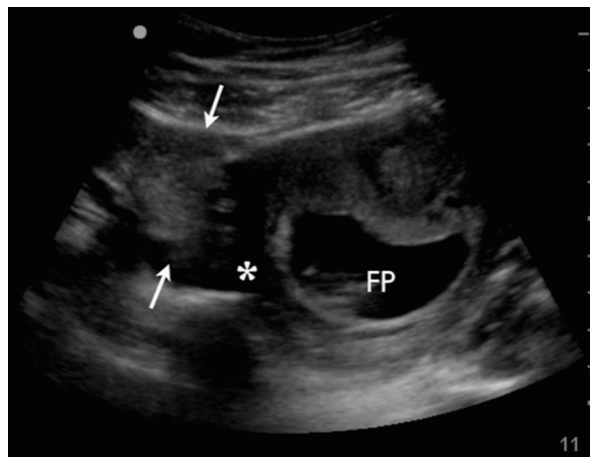


Figure 1. Transabdominal ultrasound shows the uterus with fetal pole (FP) and an enlarged ovary (arrows) with a small amount of free fluid (*) in the space between ovary and uterus.

free pelvic fluid was noted. The right ovary appeared significantly enlarged and edematous, and contained multiple small follicles as well as a simple 3.5-cm cyst, believed to be the corpus luteum cyst of the pregnancy (Figure 1). No blood flow was detected on color and power Doppler ultrasound of the right ovary utilizing the most sensitive flow settings available for this bedside ultrasound equipment (Figure 2). Of note, when the transducer was placed directly over the right ovary and minimal pressure was applied, the patient reported significant abdominal pain. An emergent obstetric consult was obtained and confirmed the clinical suspicion of ovarian torsion. The consult service requested additional pelvic ultrasound imaging from the department of Radiology, and this was performed within 20 min of the ED bedside ultrasound. Radiology-performed pelvic ultrasound detected an intrauterine pregnancy of 9 weeks, 5 days with a fetal heart rate that was now 161 beats/min. It also confirmed the finding of an enlarged and edematous right ovary with detectable but decreased blood flow compared to the left ovary. It was felt that there was no evidence of infarction, and ovarian torsion was the likely diagnosis. The patient was emergently taken to the operating room for laparoscopic exploration.

During surgery, the right ovary was found to be twisted twice over and appeared necrotic. Multiple attempts at detorsion of the ovary were performed, but the ovary continued to revert to its original position of torsion. In addition, some bleeding was observed from the necrotic ovary. As a result, the decision was made by the surgical team to perform a right-sided salpingo-oophorectomy. The patient tolerated the procedure well and was discharged on postoperative day 1 in stable condition with a viable intrauterine pregnancy and on progesterone supplement therapy. She eventually had an uncomplicated delivery of a term infant.

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