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Case Report

Adnexal torsion in the third trimester of pregnancy: a challenging diagnosis

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ABSTRACT

The incidence of adnexal torsion (AT) is reported 1 in 10000 births. AT is emergency condition in pregnancy, while the risk of late diagnosis is increased, in third trimester. Since it has been described as a severe complication after controlled ovarian hyper-stimulation for in vitro fertilization (IVF), it is more common in IVF pregnancies. This condition mainly occurs in the first trimester; it is rare during the late third trimester. Herein, we report a case of a 26-year-old woman, gravida 1, singleton pregnancy in the 30th week of gestation was presented to emergency department with 24-hour history of a stabbing pain because of AT. Removal of adnexa performed by laparotomy. The patient had labour pain and cervical dilatation at the 36th week of gestation and a healthy girl weighing 2,200 g was born by emergency caesarean section due to breech presentation.

Keywords: Adnexal torsion, Diagnosis, Pregnancy, Third trimester

INTRODUCTION

AT is a rare cause of acute abdominal pain during pregnancy where the adnexa rotate on their pedicle compromising their blood supply. Its incidence is reported to be 1 in 10000 births.¹ Ovarian enlargement as a result of functional or neoplastic ovarian cysts as well as multiple follicular cysts secondary to ovulation induction are major risk factors for AT, however it can arise in enlarged ovaries without cystic components.² The majority of adnexal torsions occur in the 1st or 2nd

trimester of pregnancy and only around 10% occur in the 3rd trimester.

Nonspecific clinical signs and symptoms resembling the common causes of abdominal pain, and furthermore, difficulty in examining and imaging ovaries due to anatomical changes contribute to challenging diagnosis in the 3rd trimester.^{3,4} In this report, we describe a case of AT during the 3rd trimester of pregnancy in a patient who became pregnant following in vitro fertilization, the diagnostic and the therapeutic approaches are discussed.³

CASE REPORT

A 26-year-old woman, gravida 1, singleton pregnancy in the 30th week of gestation. She conceived after an IVF procedure for male factor. She did not experience any symptoms and signs of ovarian hyperstimulation. She was presented to emergency department with 24-hour history of a stabbing pain on the left flank. The pain was becoming constant and severe before admission. Otherwise her medical history was noncontributory.

On examination, she was normotensive and pulse rate was 100 bpm; respiratory rate was 16/min; and oxygen saturation was 100% in air. She was afebrile. Abdominal palpation revealed a tender abdomen on the lower left side, without signs of peritoneal irritation. She had no nausea and vomiting.

Obstetric ultrasound assessment on the labour ward demonstrated an intrauterine pregnancy with a gestational age of 30 weeks. Cervical length was 30 mm. The ovaries could not be seen in transvaginal sonography due to displacement. Fetal monitoring with cardiotocography was reassuring. Laboratory results showed a slightly elevated white blood cell (WBC) count of 12000/mm³, whereas hematocrit and hepatic enzymes were normal.

A transabdominal ultrasound examination requested due to suspected renal colic and showed a predominantly hyperechogenic mass of 8x4 cm in the left lower abdomen adjacent to the left uterine border, which contains several non-echoic millimetric cysts. Color and power Doppler demonstrated absent blood flow within the mass. There was a small amount of fluid collection in the perisplenic area and between intestinal loops in the left upper abdomen. Right ovary could not be seen because of advanced gestation.

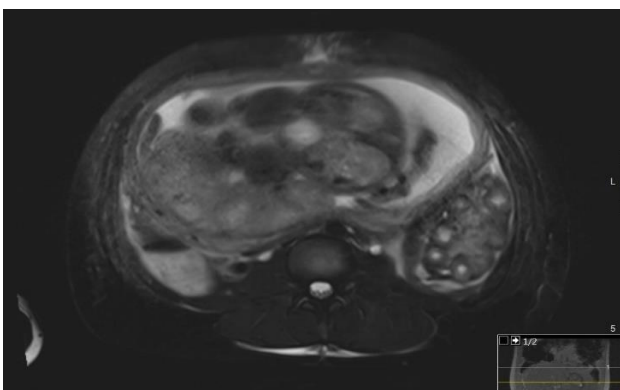


Figure 1: MRI image of enlarged left ovary with multiple peripheral follicles.

The patient subsequently underwent a prompt MRI scan to clarify the origin and nature of the mass. Fat-suppressed T2-weighted sequence MRI showed an enlarged left ovary with multiple peripheral follicles,

measuring 9x6x6 cm and a normal sized right ovary (Figure 1).

There were changes in signal intensity of the left ovarian stroma consistent with edema. Moreover, engorged blood vessels wrapping the ovary were reported. The constellation of findings was consistent with the diagnosis of left ovarian torsion and the decision for a midline laparotomy was made. The patient was informed of the risk of surgery and the possibility of adnexectomy in view of the absence of ovarian stromal vascularization.

A midline laparotomy incision under general anesthesia revealed an edematous, enlarged, left adnexa with a purple hue. The left tube and the utero-ovarian and infundibulopelvic ligament were twisted (Figure 2).



Figure 2: Intraoperative picture of left tube and the utero-ovarian and infundibulopelvic ligament.

The right adnexa and the uterus were normal. Untwisting of the adnexa was not done, as there was extensive hemorrhage and ischemia, subsequently removal of the left adnexa was carried out (Figure 3).



Figure 3: Extensive hemorrhage and ischemia, of the left adnexa.

The pathology report described both hemorrhagic and ischemic necrosis in enlarged left ovary and supported the findings on Doppler ultrasound and laparotomy.

The patient had painful uterine contractions during the postoperative period and indomethacin was administered for acute tocolysis, along with a course of antenatal corticosteroids for fetal lung maturation due to suspected diagnosis of threatened preterm labor (PTL). She was discharged to home on postoperative day 5 after inhibition of acute PTL. Follow-up visits scheduled on a weekly basis to review signs and symptoms of PTL and evaluate fetal well-being. The patient had labour pain and cervical dilatation at the 36th week of gestation and a healthy girl weighing 2,200 g was born by emergency caesarean section due to breech presentation.

DISCUSSION

AT is a rare complication during spontaneous pregnancies. A higher incidence has been reported in patients with ovarian enlargement due to ovarian cysts and ovulation induction. Indeed, 66 % of the torsion cases in 2nd and 3rd trimester has history of infertility treatment.²

Torsion of the ovary and the tube around its own ligamentous support gives rise to progressing ovarian congestion as a consequence of reduced venous return followed by arterial occlusion leading to ischemia and eventually to ovarian necrosis.⁵ Patients present with complaint of pain all most invariably, which can be sharp, stabbing, and gradually worsening, which reflects worsening ischemia. Initially pain may be localized in lateral quadrant of the abdomen also referred flank pain can be the main complaint. Other symptoms and signs, such as nausea, vomiting, and tenderness at the location of affected area are found in around 50-60% of the patients, whereas fever is a rare finding. Peritoneal signs may be present in 35% of the patients. Elevated WBC count is reported to be found in around half of the cases, however, levels may be within normal ranges for pregnant women. Preliminary diagnosis can be other more common etiologies, such as round ligament pain, preterm labor, ureteral or renal colic, pyelonephritis, and acute appendicitis; in fact, 15-35% rate of initial incorrect diagnosis has been reported.^{2,4,5}

Ultrasound examination accompanied by Doppler assessment is an important tool for making the diagnosis. Main ultrasound findings in AT are; enlarged ovaries, particularly with difference in size between ovaries, stromal edema with peripheral follicles, ovarian and paraovarian cysts and masses and free fluid in pelvis.⁶ Doppler evaluation may demonstrate lack of perfusion of the ovary although it has low sensitivity with reported rate of 61%, in detecting ovarian torsion.^{2,5} Although it is not always necessary to employ, MRI has become a valuable complement to sonography as a second line imaging examination, providing diagnostic findings and facilitating prompt surgical intervention, particularly when ultrasound examination is inconclusive. It may demonstrate an enlarged edematous ovary with thick edematous pedicle, engorged blood vessels wrapping the

lesion, changes in signal intensities suggesting infarction and hemorrhage.⁷ Also it is superior to ultrasound in pregnant women in view of detection and characterization of the lesions with lower false positive and false negative rates and helps to avoid unnecessary interventions.⁸

Derotation of AT is the primary approach in treatment. After unwinding, recolorization of the tissue and decreased edema in the adnexa are signs of salvage. Cystectomy is also recommended, if present. If there is an irreversible damage, therefore an organ-preserving approach is not possible, the only option is adnexectomy. Laparoscopic surgery has been performed in all trimesters, and reported to be as safe and feasible as early pregnancy in the second half of the pregnancy without obvious adverse effects, however there is still limited data in the third trimester. Increased risk of injury to the large uterus, poor visualization of the surgical fields and worsening respiratory physiological changes in pregnancy with advanced gestation are the main concerns. Lower postoperative thrombosis rate due to early mobilization associated with the laparoscopy is particularly of benefit to gravid patients, as pregnancy itself is a hypercoagulable state.⁹

Overall PTL rate of 8 to 26% has been reported in patients underwent surgery during all trimesters of pregnancy for AT, but there is no specific data on PTL rate in 3rd trimester.^{2,4,5,9} There is no evidence on prophylactic usage of tocolysis in the literature. However perioperative usage should be considered in case of signs and symptoms suggesting preterm labor.¹⁰

This case demonstrates that although AT in 3rd trimester is rare; it needs to be considered as a differential diagnosis when patients present with acute abdominal pain. Considerably longer presentation to surgery interval in the second and third trimester compared with the first trimester has been reported.^{2,9} A correct diagnosis of ovarian torsion can be established by being acquainted with clinical findings of a patient who has relevant history, for instance infertility treatment or a history of adnexal mass, and integrating MRI with ultrasonography where necessary provided that feasible in emergency settings. If complete torsion with hemorrhagic necrosis is suspected, immediate surgery is needed.

CONCLUSION

The diagnosis of AT in pregnancy is sometimes delayed due to nonspecific clinical features which are common with other diseases presenting with abdominal pain. Early recognition of symptoms of torsion in patients with relevant history is important because any delay leads to irreversible ovarian necrosis, requiring adnexectomy.

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