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# Adnexal torsion with normal ovary in the third trimester of a twin pregnancy: Case report and literature review

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## Abstract

Management of adnexal torsion in a dichorionic diamniotic pregnancy at 32 weeks is presented. Adnexal torsion is a rare condition in pregnancy, particularly during late third trimester and with normal ovary and tube. The size of a twin uterus at late third trimester prevented a laparoscopic approach. A longitudinal laparotomic incision below the umbilicus permitted detorsion and fixation of the adnexa. To our knowledge, this is the first case reported in a late twin pregnancy.

**Key words:** adnexal torsion, normal ovary, third trimester, twin pregnancy.

## Introduction

Severe unexplained abdominal pain during pregnancy can be a challenging clinical emergency. Although ultrasound is the gold standard for abdominal evaluation, especially in early pregnancy,[1] rare conditions cannot be diagnosed, due to its decreased diagnostic value in the third trimester. Magnetic resonance imaging (MRI) can be helpful in diagnostic workup,[2] even though it may not be available on site and during emergency. In this case report, a twin late pregnancy with adnexal torsion and normal ovary is presented.

## Case Report

A 34-year-old gravida 2 para 2 at 32 weeks with spontaneous dichorionic diamniotic pregnancy was admitted with acute right lower abdominal pain arisen 3 h earlier. Pregnancy was uncomplicated, except for left kidney colic at 23 weeks. Patient did not have appendectomy in the past.

All vital signs were normal, with no fever and blood examinations failed to show any suspicion of infection. Abdomen did not show defense in right iliac fossa, but tenderness was noted. Ultrasound (performed with a 3.5 MHz transabdominal probe) revealed a viable dichorionic diamniotic pregnancy, but failed to show any mass in the adnexa as well as abnormal Doppler vascularization. Small relief using paracetamol was achieved, therefore a computed tomography (CT) scan of the abdomen was performed. Right ovary (52 × 25 mm) slightly increased in size (Fig. 1) and without normal enhancement after endovenous contrast was shown; left ovary seemed to be normal. In view of acute persistent abdominal pain with possible right adnexal torsion, an emergency laparotomy was performed through a longitudinal incision under the umbilicus. Tocolysis with atosiban was started before and continued after the procedure. To minimize abdominal wall trauma a medium 'Alexis O Wound Protector/Retractor' was used. Intraoperative findings showed a large uterus, which was carefully pushed contralaterally to expose right adnexal region. Surgical field was very narrow but a three times twist of the adnexa was identified. Neither necrosis nor hemorrhage was found and no evidence of a mass as well (Fig. 2). After adnexal detorsion a prophylactic salpingo-oophoropexy was performed with fixation of

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**Figure 1** Enlarged right ovary without endovenous contrast enhancement.

ovarian ligament to round ligament. Surgery was uneventful and pain relief was completely achieved within 12 h. Planned cesarean section for transverse fetal lie was performed through a Pfannenstiel incision at 38 weeks.

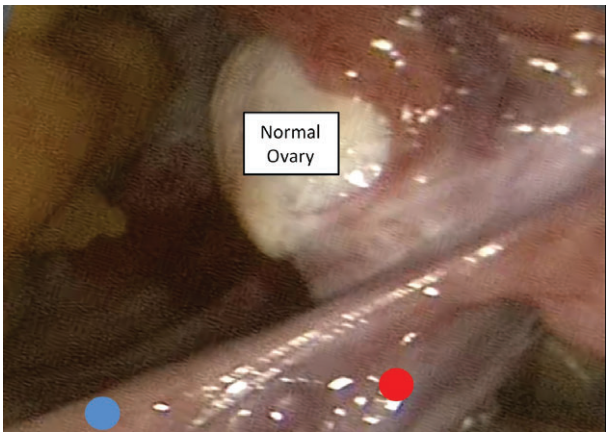


**Figure 2** Adnexal torsion with normal ovary (blue dot, tubal isthmus; red dot, mesosalpinx).

## Discussion

Up to 1% of all pregnancies are diagnosed with an adnexal mass, although most of them will be corpus luteum or other functional cysts that will regress spontaneously without symptoms.[3] Infrequently a minority of these masses could complicate with an adnexal torsion, which is a rare event during pregnancy and is most common in the first trimester and very rare in second and third trimesters. In fact, adnexal torsion occurs, overall, in one every 5000 pregnancies.[3] Usually, torsion occurs on a pathological ovary as in case of malignant or benign tumor, corpus luteum cyst or in case of ovarian hyperstimulation syndrome in early pregnancy,[4] while adnexal torsion with a normal ovary is not classically described during pregnancy. In literature, the incidence of adnexal torsion with normal ovary or isolated tubal torsion during singleton pregnancy at the third trimester was reported only in few cases (Table 1). A total of nine patients were identified in literature; all these patients referred acute pain, while intermittent pain (33%) with irradiation to flank (33%) was not constant. Vomiting (55%) and nausea (33%) were frequently described, while fever was noted in only one (11%) patient. Diagnostic pathway infrequently included multimodal imaging approach; in fact, transabdominal ultrasound scan was followed by panoramic imaging in only two cases, both using MRI (22%). Median gestational age was 30 weeks (range 28–32) and all pregnancies were uncomplicated. Isolated tubal torsion occurred in four patients (44%) and laparoscopy approach was used in half of the cases and all the patients underwent unilateral salpingectomy. Adnexal torsion with normal ovary occurred in five patients (66%) and two of them were successfully managed conservatively (detorsion and fixation of the adnexa) using both endoscopic and open surgical access; remaining patients underwent laparotomic unilateral salpingo-oophorectomy. Regardless of whether surgery is considered to be a risk factor for adverse fetal outcome, only one patient of this case series had a preterm delivery at 36 weeks with a cesarean section for breech presentation.

Adnexal torsion can be suspected on the basis of symptoms (pain, nausea and vomit), by physical examination, laboratory tests and using ultrasonography, even though CT scan and MRI could help in differential diagnosis. Missing a timely diagnosis can lead to necrosis and therefore an increased risk for ovarian preservation,[13] as well as increased risk for

**Table 1** Published cases of adnexal torsion with normal ovary or isolated tubal torsion during third trimester of singleton pregnancy

| Authors | Type of torsion | GA | Diagnostic imaging | Symptoms | Treatment | Fetal outcome |
|---|---|---|---|---|---|---|
| Duncan and Shah | Tubal | 30 | TUS | Acute intermittent pain, irradiation to flank, vomit, tenderness of abdomen | LPS and US | At term (CS) |
| Varghese *et al*.[5] | Tubal | 29 | TUS | Acute pain, tenderness of abdomen | LPT and US | NA |
| Phupong and Intharasakda[6] | Tubal | 28 | TUS | Acute intermittent pain, irradiation to flank, vomit, nausea, tenderness of abdomen | LPT and US | At term (CS) |
| Upadhyay *et al*.[7] | Tubal | 32 | NA | Acute pain | LPS and US | At term (NA) |
| Silja and Gowri[8] | Adnexal | 32 | TUS | Acute pain, vomit, nausea | LPT and USO | At term (VD) |
| Bouet *et al*.[9] | Adnexal | 30 | TUS | Acute intermittent pain | LPS, detorsion and fixation | At term (VD) |
| Mathew *et al*.[10] | Adnexal | 31 | TUS | Acute pain, vomit, nausea, fever | LPT and USO | At term (VD) |
| Vincens *et al*.[11] | Adnexal | 30 | TUS, MRI | Acute pain, vomit | LPT, detorsion and fixation | At term (VD) |
| Tayyar *et al*.[12] | Adnexal | 30 | TUS, MRI | Acute paint, irradiation to flank | LPT and USO | Preterm at 36 weeks (CS) |

CS, cesarean section; GA, gestational age; LPS, laparoscopy; LPT, laparotomy; MRI, magnetic resonance imaging; NA, not available; TUS, transabdominal ultrasound scan; US, unilateral salpingectomy; USO, unilateral salpingo-oophorectomy; VD, vaginal delivery.

fetomaternal well-being. Given the lack of ultrasound suspicion of adnexal torsion, a CT scan was performed. Laparotomic approach was decided in view of uterus size for gestational age and presence of a twin pregnancy. As the free space in the abdomen decreased at the third trimester of a singleton pregnancy, lesser space was assumed in a twin pregnancy and therefore a minimally invasive approach was not attempted. A longitudinal 10-cm surgical incision was performed below umbilicus to reach the right adnexa, dislocated in the upper abdominal quadrant. Pfannenstiel approach was preferred for elective cesarean section to avoid a long longitudinal incision. To our knowledge, this is the first case reported in a late twin pregnancy.

Unexplained pain in late pregnancy should raise suspicion of adnexal torsion, even with normal adnexa at ultrasonography. Laparoscopic approach can be an option,[14] although in a late pregnancy or in case of large uterus as in twin pregnancy laparotomic approach could be safer and faster.[15] Whenever is possible a conservative surgery (detorsion with or without oophoropexy), should be performed, while salpingo-oophorectomy has to be considered in case of necrosis. Finally, there seems not to be an increased risk for adverse fetal outcome for pregnancies in the third trimester underwent adnexal surgery, therefore early surgical intervention is outmost recommended.

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## Disclosure

None declared.

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