

Adnexal Cyst Torsion in Near-Term Pregnancy – the real challenges of a clinical case

Torção de Quisto Anexial em Gravidez próxima do Termo – os verdadeiros desafios de um caso clínico

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Abstract

Adnexal torsion in third trimester of pregnancy is rare and represents a diagnostic challenge due to nonspecific clinical features and ultrasound limitations. We report a case of para-ovarian torsion at 36 weeks of gestation, presenting with isolated lower abdominal pain. Ultrasound revealed a cyst and the “whirlpool sign”, suggestive of torsion. Laparotomy confirmed a necrotic cyst, and a cystectomy was performed. Perioperative tocolysis was administered, and due to maternal-fetal clinical stability, there was no indication for delivery. The pregnancy progressed uneventfully, and a vaginal birth occurred at 41 weeks. This case highlights the importance of early diagnosis and individualized management.

Keywords: Adnexal torsion; Ovarian cysts; Pregnancy; Diagnostic imaging.

Resumo

A torção anexial no terceiro trimestre da gravidez é rara, representando um desafio diagnóstico devido à inespecificidade dos sintomas e às limitações da ecografia. Descrevemos um caso de torção de quisto para-ovárico às 36 semanas, com dor abdominal inferior isolada. A ecografia revelou um quisto e o “whirlpool sign”, sugestivo de torção. A laparotomia confirmou um quisto necrótico e realizou-se quistectomia. Foi administrada tocolise perioperatória e, perante a estabilidade materno-fetal, não houve indicação para terminação da gravidez. A evolução foi favorável, com parto vaginal às 41 semanas. Este caso reforça a importância do diagnóstico precoce e da abordagem terapêutica individualizada.

Palavras-chave: Torção anexial; Quistos ováricos; Gravidez; Diagnóstico por imagem.

INTRODUCTION

Adnexal torsion is a rare but potentially serious condition during pregnancy. Its true incidence remains uncertain, with reported estimates ranging from 0.2% to 3%¹. It refers to the complete or partial rotation of the ovary or para-ovarian structures around their ligamentous supports, which contain the vascular pedicle, leading to venous congestion, ischemia, and ultimately necrosis. Approximately 10-20% of cases

occur in pregnant women, most frequently during the first and early second trimesters¹⁻³.

Pregnancy increases the risk of torsion due to hormonal stimulation of functional cysts and anatomical changes, such as ovarian enlargement and ligamentous

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relaxation, particularly in the first half of pregnancy². Although rare, third-trimester torsion has been reported, even in normal-sized ovaries or para-ovarian cysts⁵⁻⁸.

Diagnosis in late pregnancy is particularly challenging, because symptoms are often nonspecific, and ultrasound assessment may be limited by the enlarged uterus. Although Doppler ultrasound is a key diagnostic tool, normal blood flow does not exclude torsion due to the dual ovarian vascular supply⁴⁻⁹. These limitations delay diagnosis and treatment, increasing the risk of adnexal loss and fetal compromise¹⁰.

We report a rare case of para-ovarian torsion at 36 weeks of gestation, managed without immediate delivery and followed by an uncomplicated term vaginal birth.

CASE REPORT

A 23-year-old woman, gravida 2 para 0, with a spontaneous pregnancy and no significant past medical/surgical history, presented to the OBGYN emergency department at 36 weeks of gestation with localized right lower abdominal and flank pain, since the day before. The pain was non-radiating and unresponsive to oral analgesia. She had been observed and discharged home the day before with analgesic treatment but returned due to worsening symptoms. She denied fever, as well as gastrointestinal or urinary complaints.

A first-trimester scan had revealed a 40 × 30 mm right-sided retrouterine adnexal cyst. Subsequent second- and third-trimester scans showed normal fetal development, with no adnexal findings reported. At 31 weeks, she had been hospitalized for threatened preterm labor and received corticosteroids for fetal lung maturation and tocolysis. Vaginal swabs were positive for *Chlamydia trachomatis* and *Ureaplasma urealyticum*, and the couple completed treatment with azithromycin.

On initial evaluation at the OBGYN emergency department, her vital signs were stable. Abdominal palpation revealed tenderness in the right lower quadrant, without signs of peritoneal irritation. Vaginal examination revealed 1 cm of cervical dilatation and 50% effacement. The non-stress test showed a normal fetal heart rate pattern, with uterine irritability but no regular contractions. Fetal ultrasound showed a viable fe-

tus and an adequate amniotic fluid volume. Blood tests revealed mild leucocytosis (15,370/mm³) and elevated C-reactive protein levels (1.59 mg/dL). Transabdominal pelvic ultrasound (Figure 1) revealed a right ovary with normal appearance and a 42 mm unilocular anechoic lesion adjacent to it, with increased echogenicity in the surrounding tissue and a suspected twisted pedicle. The left adnexa appeared normal. Transvaginal ultrasound confirmed the presence of a “whirlpool sign”, strongly suggestive of adnexal torsion. The appendix was not visualized.

Given the persistent pain, suggestive imaging findings, and diagnostic uncertainty, an exploratory laparotomy was performed via a Pfannenstiel incision. Intraoperatively a twisted, hemorrhagic para-ovarian cyst with five complete rotations and minimal intraperitoneal



FIGURE 1. Transabdominal ultrasound at 36 weeks showing a 40 mm anechoic cyst adjacent to the right ovary.



FIGURE 2A. Intraoperative image of a twisted para-ovarian cyst with hemorrhagic necrosis.

FIGURE 2B. Macroscopic view of the excised para-ovarian cyst confirming torsion-related necrosis.

free fluid were identified. The right ovary appeared macroscopically normal. Detorsion and ligation of the vascular pedicle were performed.

Perioperative management included tocolysis with atosiban. There was no significant blood loss. Postoperative maternal and fetal monitoring was uneventful. Analgesia and tocolysis were continued for 24 hours, and the patient was discharged 48 hours later in a stable condition. Histopathological examination confirmed a necrotic para-ovarian cyst with no malignant features.

At 41 weeks of gestation, she was admitted for labour induction. A healthy male infant weighing 3455 grams and with Apgar scores of 8/9/9, was delivered via vacuum-assisted vaginal birth due to arrest of fetal descent. The postpartum course was uneventful.

DISCUSSION

Adnexal torsion in the third trimester of pregnancy is an uncommon event. Although torsion occurs more frequently in early gestation, due to increased adnexal mobility and the presence of functional cysts, several cases have been reported in late pregnancy^{3-5,8}. At this advanced stage, diagnosis is often delayed due to the nonspecific nature of symptoms and the reduced sensitivity of imaging techniques, particularly ultrasound, as a result of uterine enlargement^{1,3}.

In this case, the pregnant woman presented with isolated lower abdominal pain, without systemic signs and with inconclusive laboratory tests, findings commonly described in third-trimester adnexal torsion^{3,5-7}. Although ultrasound remains the first-line diagnostic tool, its sensitivity is reduced in late pregnancy due to displacement of pelvic structures by the uterus and limited adnexal visualization.

Doppler ultrasound may appear absent or reduced venous flow, with arterial flow typically affected later in the disease course. However, normal vascular flow does not rule out torsion because of the dual ovarian blood supply. Up to 25% of patients with laparoscopically confirmed torsion have normal arterial flow on ultrasound, and more than half maintain detectable arterial flow, limiting Doppler sensitivity in pregnancy⁹. Combining ultrasound findings, such as free pelvic fluid, ovarian enlargement, and vascular abnormalities can improve

diagnostic accuracy. The *whirlpool sign* remains the most specific ultrasound finding, with sensitivity of approximately 65-78% and specificity of 91-100% in surgically confirmed cases, including pregnant women. Its high specificity means that a positive finding strongly supports the diagnosis, although the absence of this sign does not rule out torsion or justify delaying surgical intervention^{5-9,12,13}. In this case, the *whirlpool sign* was clearly identified and guided clinical management.

A para-ovarian cyst had been identified on the first-trimester ultrasound but was not mentioned in subsequent ultrasounds, most likely due to technical limitations rather than true resolution. Although adnexal visualization is often challenging in the second and third trimesters, a previously documented adnexal lesion warrants targeted surveillance whenever possible, as changes in morphology, size, or symptoms may signal complications, including intermittent torsion. The literature also supports that cyst mobility or intermittent torsion may account for fluctuating imaging findings⁵. Therefore, adnexal torsion, though rare, should remain part of the differential diagnosis for acute abdominal pain in pregnancy, particularly when the pain is localized, persistent, unresponsive to analgesia, and unexplained by other clinical or imaging findings. Other relevant differential diagnoses include placental abruption, appendicitis and renal colic.

Prompt surgical intervention is essential to prevent irreversible ischemia and to preserve ovarian viability. Xu et al. reported that detorsion within 8-12 hours of symptom onset significantly increases the likelihood of ovarian preservation and reduces maternal morbidity². In the present case, the patient presented beyond this ideal window, but the decision to perform surgery was still timely and resulted in a successful detorsion of the cyst and preservation of the ovary. The ovary appeared normal, without edema or peripheral follicles, findings typically associated with torsion, which may have contributed to diagnostic delay. In this case, the ovary was not compromised. Ovarian preservation is particularly important in young patients, not only to address the acute event but also to maintain reproductive and hormonal function. Most adnexal lesions during pregnancy are benign and often para-ovarian in origin, as confirmed in this case and in previous series⁵⁻⁹.

The surgical approach should be individualized according to gestational age, surgeon expertise, and

available resources. Although laparotomy may be more practical in late pregnancy, current evidence supports laparoscopy for adnexal torsion when feasible and performed by experienced teams, given its shorter recovery, lower morbidity, and higher likelihood of conservative procedures^{2,3,14,15}. In this near-term case, Pfannenstiel laparotomy ensured safe adnexal access and reflected appropriate management¹¹.

The decision to proceed with delivery during surgery depends on maternal-fetal conditions. In this case, conservative management was chosen, as there were no indications for immediate delivery. This approach avoids the risks associated with iatrogenic prematurity and has been successfully reported in similar cases¹⁰⁻¹¹.

Uterine contractions may occur after adnexal detorsion in late gestation, potentially precipitating labor. Perioperative tocolysis can be considered in the presence of uterine irritability or risk of preterm labor, and its use should be individualized, excluding contraindications such as infection, fetal compromise, or maternal instability^{16,17}. Evidence supporting routine perioperative tocolysis during adnexal torsion surgery in pregnancy is limited, and recommendations suggest reserving it for selected cases; further research is needed to clarify optimal protocols¹⁶. In this case, atosiban was administered perioperatively, was well tolerated, and considered clinically appropriate, although the overall benefit of tocolysis remains uncertain.

Histopathological analysis confirmed a necrotic but benign para-ovarian cyst, consistent with previous reports, which indicate that most torsed lesions during pregnancy are benign and extra-ovarian in origin⁵⁻⁹. Reports by Ferrari et al. and Li et al. further support the importance of individualized surgical management without unnecessary preterm delivery when maternal and fetal conditions are stable⁶⁻⁸.

This case highlights the importance of considering adnexal torsion in near-term pregnancies, despite its rarity. Early recognition and timely surgical intervention are essential to preserve adnexal function and avoid unnecessary preterm delivery. Clinical monitoring and individualized decision-making remain key to optimizing maternal and fetal outcomes. Labor induction at 41 weeks followed by an uncomplicated vaginal birth further supports the safety of conservative management when maternal and fetal conditions are stable.

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PATIENT'S INFORMED CONSENT

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CONFLICTS OF INTEREST

The authors declare to have no conflicts of interest regarding the publication of this paper.

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