

## Ovarian Torsion in Pregnancy: A Case Report

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**Abstract:** The ovary's Torsion is the adnexa's total or partial rotation around its vascular axis or pedicle. Although the exact etiology is unknown, common predisposing factors include a moderately sized cyst, free mobility, and a long pedicle. Torsion of ovarian tumours predominantly occurs in the reproductive age group. Most cases are presented in pregnant women (22.7%) compared to non-pregnant women (6.1%). Here, we report a case of ovarian torsion in pregnancy. Ovarian torsion is an urgent gynaecological condition that can occur during pregnancy. Surgical intervention should be considered in developing adnexal torsion regardless of gestational age.

**Keywords:** Ovarian torsion; Hemorrhage and necrosis; Torsion or infarction

### إلتواء المبيض أثناء الحمل: تقرير حالة

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استشارية النساء والتوليد | قسم النساء والتوليد | مستشفى القطيف المركزي | المملكة العربية السعودية

المستخلص: التواء المبيض هو الدوران الكلي أو الجزئي للزائدة حول محورها الوعائي أو ساقها. على الرغم من أن السبب الدقيق غير معروف، إلا أن العوامل الشائعة المهيمنة تشمل الكيس متوسط الحجم، الحركة الحرة، وساق طويلة. يحدث التواء أورام المبيض بشكل رئيسي في الفئة العمرية الإنجابية. تظهر معظم الحالات في النساء الحوامل (22.7%) مقارنة بالنساء غير الحوامل (6.1%). هنا، نبلغ عن حالة التواء المبيض أثناء الحمل. التواء المبيض هو حالة طبية طارئة في أمراض النساء ويمكن أن تحدث أثناء الحمل. يجب النظر في التدخل الجراحي عند تطور التواء الزائدة بغض النظر عن عمر الحمل.

الكلمات المفتاحية: التواء المبيض؛ النزيف والنخر؛ التواء أو احتشاء

## Introduction:

Ovarian torsion, a critical and emergent condition in gynaecology, particularly during pregnancy, poses significant challenges and necessitates urgent attention for both maternal and fetal well-being. Diagnosing and managing ovarian torsion in pregnant women is complex, as highlighted by various studies and clinical guidelines reflecting the latest findings and best practices in obstetric care.

Torsion of the ovary involves the total or partial rotation of the adnexa around its vascular axis or pedicle. While the exact aetiology is unknown, common predisposing factors include moderate-sized cysts, free mobility, and long pedicles. The most common types of ovarian cysts associated with torsion are dermoid and serous cystadenomas. Complete torsion causes venous and lymphatic blockade, leading to stasis, venous congestion, haemorrhage, and necrosis. The cyst becomes tense and may rupture, leading to acute onset abdominal pain, a common presenting symptom. There is a fivefold increased risk of ovarian torsion during pregnancy, with an incidence of 5 per 10,000 pregnancies. Torsion of ovarian tumours occurs predominantly in the reproductive age group, with most cases presenting in pregnant women (22.7%) compared to non-pregnant women (6.1%) [1].

Starting with an overview of ovarian torsion in pregnancy, Nasiri, Rahimi, and Tomlinson provide a foundational understanding of the incidence and clinical presentations typically observed. They stress the importance of rapid diagnosis and intervention to prevent adverse outcomes such as loss of the ovary and potential complications for the pregnancy [1]. Similarly, Grimm et al. discuss the nuances of managing epithelial ovarian cancer during pregnancy, complicating standard torsion treatment due to the malignancy's aggressive nature and the need for oncological considerations alongside obstetric care [2].

Further insights are offered by Agha et al., who emphasize the criticality of adhering to established surgical guidelines to ensure consistent and safe reporting in case studies involving ovarian torsion during pregnancy. Their SCARE 2020 guideline update provides a framework for documenting surgical interventions, essential for accumulating reliable data and improving outcomes [3].

Kwon et al. contribute to the discussion by detailing the clinical management and pregnancy outcomes associated with ovarian cancer coinciding with pregnancy, indicating a shift towards more conservative management strategies that aim to balance fetal viability with the treatment of maternal pathology [4].

The systematic review by Didar and Najafiarab broadens the discussion by collating various case reports and case series, providing a comprehensive overview of adnexal torsion's implications on pregnancy outcomes [5]. This is complemented by the six-year observational study from Balci et al., examining management strategies and outcomes for adnexal masses during pregnancy, offering valuable data on the effectiveness of different treatment approaches [6].

Contributions from Guile et al. and Ali et al. focus on specific case studies and broader reviews outlining the symptoms, diagnostic pathways, and successful management of ovarian torsion, particularly emphasizing the role of minimally invasive surgery where feasible [7][8]. Kanayama et al. underscore this by detailing a case where laparoscopic detorsion was successfully performed during the early stages of pregnancy affected by ovarian hyperstimulation syndrome, showcasing the potential for laparoscopic approaches in preserving ovarian function and continuing a healthy pregnancy [9].

### Case Presentation:

A 25-year-old gravida 2, para 1 woman at 27 weeks and 1 day of gestation presented to the emergency department with a chief complaint of sudden onset left lower quadrant pain. She described the pain as sharp, interfering with walking and breathing, with no alleviating factors, and reported two episodes of emesis. She had a history of a 3-year-old ovarian cyst before pregnancy but was unsure about its size. Otherwise, her pregnancy had been uneventful.

On examination, she was afebrile with vital signs within normal limits. She exhibited severe tenderness in the left lower quadrant with guarding and documented rebound tenderness. The uterus was noted to be 27-28 weeks in size with left adnexal fullness and tenderness on the bimanual exam. Pelvic ultrasound revealed a single live fetus corresponding to 27 weeks of gestation. A large left ovarian cyst measuring  $7.9 \times 7.1$  cm was noted, with no visible arterial or venous flow in the left ovary, suggestive of left ovarian torsion (Figures 1 and 2).

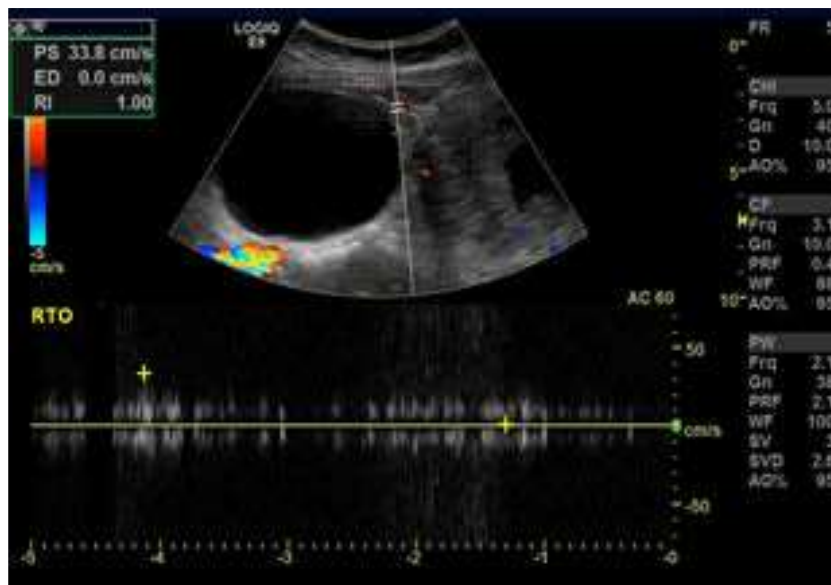


Figure 1: Novisiblearterialorvenousflowintheleft oay

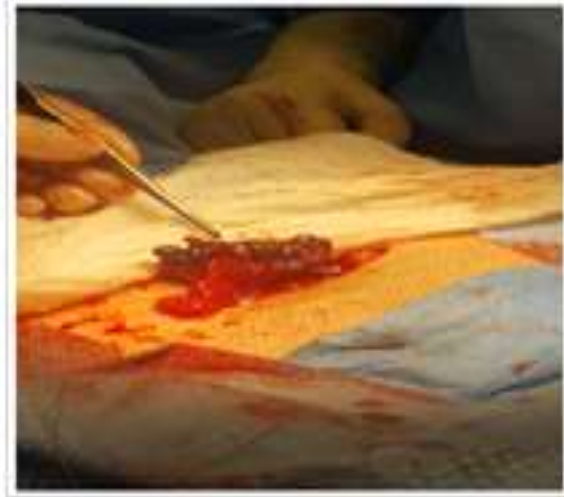


Figure 2: suggestive of left ovarian torsion

After obtaining informed consent, the patient underwent an emergency exploratory laparotomy using a Pfannenstiel incision under general anaesthesia. Inspection of the left adnexa revealed a twisted dermoid cyst and a gangrenous left ovary. An oophorectomy was then performed without complications (Figures 3a and 3b).

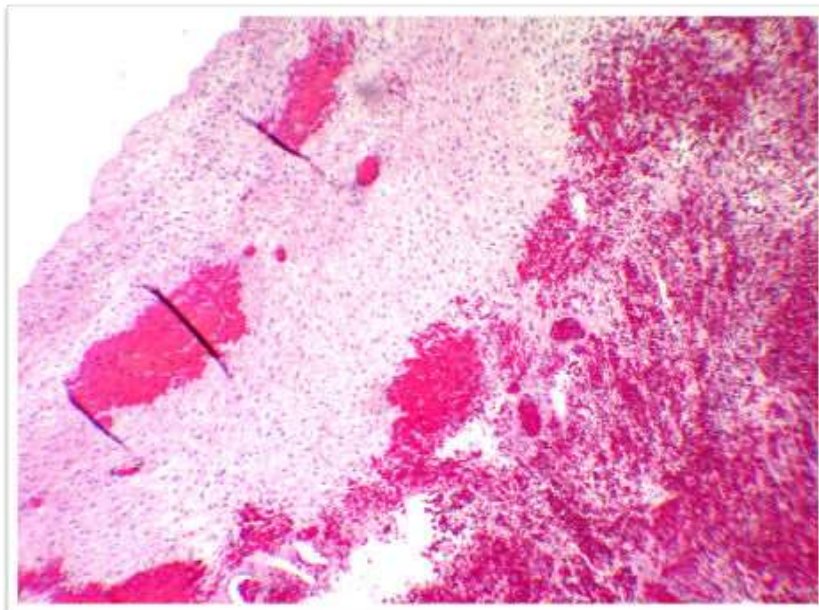


**Figure 3a:** Ovarian cystectomy

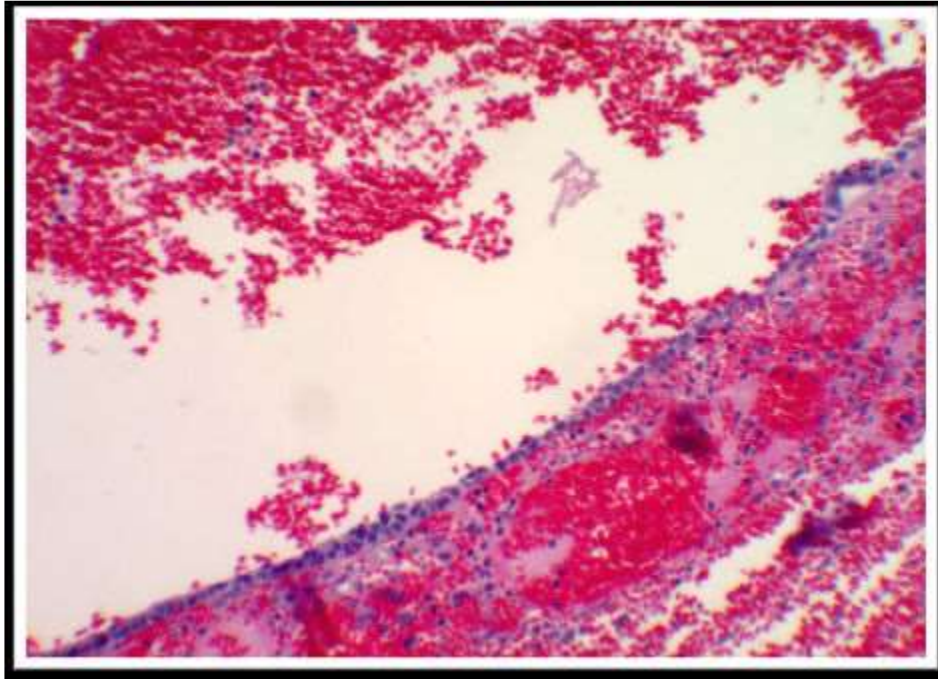


**Figure 3b:** Ovarian cystectomy

The post-operative period was uneventful, and the patient was discharged on the fourth postoperative day. She was recommended to take oral progesterone for one week. Her histopathology report was consistent with a dermoid cyst (see Figures 4 and 5).



**Figure 4** Histopathology with serous cyst adenoma.



**Figure 5:** Histopathology with hemorrhagic corpus luteum Cyst with diffuse haemorrhage.

On the sixth day post-discharge, the patient was readmitted with a wound infection. She complained of pain at the wound site and pus discharge. At the time of presentation, she was afebrile, and her vital signs were within normal limits. Wound examination revealed a small gap with pus discharge. A swab was taken, and later results indicated a positive MRSA infection. The patient was isolated with contact precautions, daily dressings were performed, and antibiotics were started. The patient improved and was subsequently discharged home.

At 39 weeks and 3 days of gestation, the patient was admitted with a case of PROM (pre-labour rupture of membranes) with meconium-stained liquor. A cesarean section was performed with a good outcome. The baby boy weighed 3240 grams and had Apgar scores of 9 and 10 at 1 and 5 minutes, respectively.

#### **Discussion:**

Ovarian masses in pregnancy, which can range from innocuous corpus luteal cysts to malignant ovarian tumours, pose a challenge from both a diagnostic and management point of view. The incidence of adnexal masses in pregnancy has been variably reported as 0.15-5.7%, with clinically significant masses ranging from one in 25 to one in 8000 pregnancies [1-5]. This high incidence is likely due to the increasing use of ultrasound (USS) as a routine antenatal evaluation and the trend of postponing childbearing to an older age. Malignant adnexal masses during pregnancy range between 0.8% and 13% [5-12]. The reported incidence of ovarian cancer (OC) in pregnancy varies from 1 in 15,000 to 1 in 32,000, making it one of the top five cancers diagnosed during pregnancy [13-17]. With increasing maternal age, it is expected that more women will be diagnosed with OC during pregnancy; therefore, management guidelines should be formulated with regular updates and reviews of recent literature [15-16]. Several articles have addressed issues about the diagnosis of adnexal masses, management algorithms specific to each trimester, and the use of laparoscopy and laparotomy during pregnancy, considering both maternal and fetal outcomes.

Dermoid cysts, cystadenomas, functional corpus luteal cysts, and endometriomas are the most common causes of benign ovarian cysts in pregnancy [5-8]. Additionally, ovarian hyperstimulation and polycystic ovaries should be

considered, especially with a history of infertility. Most adnexal masses are diagnosed incidentally in the first trimester during routine dating scans unless investigated earlier for infertility. About 65-80% are asymptomatic, and almost three-fourths resolve spontaneously, with those persisting beyond 16-20 weeks indicating definitive pathology. Mature cystic teratoma and borderline ovarian tumour (BOT) are the most common histopathological diagnoses among persistent masses [18-22]. Complications of cysts associated with pregnancy include torsion, rupture, infection, malignancy, impaction in the pelvis causing urinary retention, obstructed labour, and fetal malpresentation [23].

Some studies suggest surgical intervention for concerns of malignancy, tumour torsion, rupture, or obstruction of labour [24-25]. Other studies recommend observation, finding that most ovarian masses remain uneventful or resolve throughout pregnancy, with the incidence of complications being low [24-26]. The most common cause of adnexal torsion in pregnancy is a corpus luteum cyst, which usually regresses spontaneously by the second trimester [27]. Ovarian torsion occurs most frequently in the first trimester, occasionally in the second, and rarely in the third [28]. The incidence of adnexal torsion is unknown, but a 10-year study review found that ovarian torsion accounted for 2.7% of emergency surgeries at a women's hospital and was the fifth most common surgical emergency [29]. Ovarian cysts less than 6 centimetres and appearing benign on ultrasound are generally treated conservatively as they may undergo spontaneous resolution. Cysts larger than 10 centimetres are usually resected due to increased risks of malignancy, rupture, or torsion. The management of cysts between 5 to 10 centimetres is controversial. If the cysts contain septa, nodules, papillary excrescences, or solid components, resection is recommended. Simple cystic appearances may be managed expectantly with serial ultrasound surveillance, but emergency exploratory laparotomy may be required for rupture, torsion, or infarction in up to 50% of cases [30]. Ovarian cysts during pregnancy may be managed conservatively with observation if diagnosed in the first trimester. The optimal time for surgical intervention during pregnancy is between 16 and 28 weeks of gestation. Immediate surgical intervention, regardless of gestational age, may be warranted in cases of ovarian torsion, ruptured ovarian cysts, or suspected malignancy [30]. In cases of rupture or twisted ovarian cysts, symptoms are nonspecific and can be confused with other acute abdominal conditions such as appendicitis, ureteral or renal colic, cholecystitis, and bowel obstruction. The presence of an ovarian mass on ultrasound should raise suspicion for adnexal torsion [31].

Diagnosis of ovarian torsion in pregnancy can be made with clinical presentations in conjunction with ultrasound with color Doppler. Treatment options are limited to surgery, either by laparoscopic approach or laparotomy. Torsion of the adnexa has traditionally been treated by surgical excision of the affected structure without untwisting due to fear of emboli departing from thrombosed ovarian veins [32]. Several recent reports have described successful conservative management with untwisting of the twisted adnexa. As the trend towards conservative management progresses, the incidence of recurrent adnexal torsion may increase [33]. Pregnancy loss seems to be very rare, and postoperative progesterone supplementation is recommended when the corpus luteum is removed before 7 to 9 weeks of gestation [34-36].

## **Dedication and Acknowledgment:**

### **Dedication**

Dedicated to my beloved parents and family for their love, endless support, encouragement, and sacrifices. There are no words to express my gratitude and thanks to my beloved parents, family members, and friends for always standing by me. Their love has been the major spiritual support throughout this journey.

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## References:

- Nasiri A, Rahimi S, Tomlinson E. Ovarian torsion in pregnancy. 2017;3(2):51.
- Grimm D, Woelber L, Trillsch F, et al. Clinical management of epithelial ovarian cancer during pregnancy. *Eur J Cancer*. 2014;50(5):963-971.
- Agha RA, Franchi T, Sohrabi C, Mathew G. The SCARE 2020 guideline: Updating consensus Surgical **Case Report** (SCARE) guidelines. *Int J Surg*. 2020; **84**:226-230.
- Kwon YS, Mok JE, Lim KT, et al. Ovarian cancer during pregnancy: Clinical and pregnancy outcomes. *J Korean Med Sci*. 2010;25(2):230-234.
- Didar H, Najafiarab H. Adnexal torsion in pregnancy: A systematic review of case reports and case series. 2022 Dec 22.
- Balci O, Gezginc K, Karatayii R, et al. Management and outcomes of adnexal masses during pregnancy: A 6-year experience. *J Obstet Gynaecol Res*. 2008;34(4):524-528.
- Guile SL, et al. Ovarian torsion. StatPearls. Treasure Island (FL): StatPearls Publishing; 2022.
- Ali MK, et al. Adnexal torsion in the first trimester of pregnancy: A case report. *Middle East Fertil Soc J*. 2013.
- Kanayama S, et al. Laparoscopic detorsion of the ovary in ovarian hyperstimulation syndrome during the sixth week of gestation: A case report and review. *Int J Surg Case Rep*. 2019.
- Cohen-Herriou K, Semal-Michel S, Lucot JP, et al. Management of ovarian cysts during pregnancy: Lille's experience and literature review. *Gynecol Obstet Fertil*. 2013;41(1):67-72.
- Grunau GL, et al. Diagnosis of ovarian torsion: Is it time to forget about Doppler? *J Obstet Gynaecol Can*. 2018.
- Chittacharoen A, Apiwat W, O-Prasertsawat P. Adnexal masses in pregnancy. *J Med Assoc Thai*. 2005;88.
- Behtash N, Zarchi MK, Gilani MM, et al. Ovarian carcinoma associated with pregnancy: A clinicopathologic analysis of 23 cases and review of the literature. *BMC Pregnancy Childbirth*. 2008; **8**:3.
- Bassi A, et al. Effect of pregnancy on the management and outcomes of ovarian torsion: A population-based matched cohort study. *J Minim Invasive Gynecol*. 2018.
- Marret H, Lhomme C, Lecuru F, et al. Guidelines for the management of ovarian cancer during pregnancy. *Eur J Obstet Gynecol Reprod Biol*. 2010;149(1):18-21.
- Amant F, Van Calsteren K, Halaska MJ, et al. Gynecologic cancers in pregnancy: Guidelines of an international consensus meeting. *Int J Gynecol Cancer*. 2009; Suppl 1.
- Goffinet F. Ovarian cysts and pregnancy. *J Gynecol Obstet Biol Reprod*. 2001;30(S1).
- Hoover K, Jenkins TR. Evaluation and management of adnexal mass in pregnancy. *Am J Obstet Gynecol*. 2011;205(2):97-102.
- Young R, et al. Intermittent ovarian torsion in pregnancy. *Clin Pract Cases Emerg Med*. 2017.
- Yuk JS, et al. Association between pregnancy and adnexal torsion: A population-based matched case-control study. *Medicine*. 2016.
- Naqvi M, Kaimal A. Adnexal masses in pregnancy. *Clin Obstet Gynecol*. 2015;58(1):93-101.
- Glanc P, Salem S, Farine D. Adnexal masses in the pregnant patient: A diagnostic and management challenge. *Ultrasound Q*. 2008; **24**:225-401. Yacobozzi M, Nguyen D, Rakita D. Adnexal masses in pregnancy. *Semin Ultrasound CT MR*. 2012; **33**:55-64.
- Leiserowitz GS. Managing ovarian masses during pregnancy. *Obstet Gynecol Surv*. 2006; **61**:463-70.
- Glanc P, Salem S, Farine D. Adnexal masses in the pregnant patient: A diagnostic and management challenge. *Ultrasound Q*. 2008; **24**:225-40.
- Mathew M, et al. Conservative management of twisted ischemic adnexa in early pregnancy. *Ann Med Health Sci Res*. 2015.

- Wang Z, et al. Characteristics of the patients with adnexal torsion and outcomes of different surgical procedures: A retrospective study. *Medicine*. 2019.
- Duic Z, Kukura V, Ciglar S. Adnexal masses in pregnancy: A review of eight cases undergoing surgical management. *Eur J Gynaecol Oncol*. **2002**; **23**:133-134.
- Ferrari F, et al. Adnexal torsion with normal ovary in the third trimester of a twin pregnancy: Case report and literature review. *J Obstet Gynaecol Res*. 2019.
- Bouguizane S, Bibi H, Farhat Y, Dhifallah S, Darraji F, et al. Adnexal torsion: A report of 135 cases. *J Gynecol Obstet Biol Reprod (Paris)*. **2003**; **32**:535-540.
- Yen CF, Lin SL, Murk W, Wang CJ, Lee CL, et al. Risk analysis of torsion and malignancy for adnexal masses during pregnancy. *Fertil Steril*. **2009**; **91**:1895-1902.
- Huang PH, Tsai KB, Tsai EM, Su JH. Hemorrhagic corpus luteum cyst torsion in term pregnancy: A case report. *Kaohsiung J Med Sci*. **2003**; **19**:75-78.
- Bai W, et al. Adnexal torsion in the third trimester of pregnancy: A case report and diagnostic value of MR imaging. *BMC Med Imaging*. 2020.
- Pansky M, Smorgic N, Herman A, Schneider D, Halperin R. Torsion of normal adnexa in postmenarchal women and risk of recurrence. *Obstet Gynecol*. 2007;109(2):355-359.
- Pritts EA, Atwood AK. Luteal phase support in infertility treatment: A meta-analysis of the randomized trials. *Hum Reprod*. **2002**; **17**:2287-2299.
- Li C, et al. Torsion of normal-sized ovary during late pregnancy: A case report and review of the literature. *J Obstet Gynaecol Res*. 2018.
- Dawood MT, et al. Adnexal torsion: Review of radiologic appearances. *Radiographics*. 2021.