International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Kadrekar AR et al. Int J Reprod Contracept Obstet Gynecol. 2024 Nov;13(11):3355-3358
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20243020

Case Report

Postpartum ovarian torsion caused by a large mucinous cystadenoma: a rare case study

Aishwarya R. Kadrekar*, Ashwini S. Patel

Department of Obstetrics and Gynecology, Seth G. S. Medical College and Wadia Hospital, Parel, Mumbai, Maharashtra, India

Received: 25 September 2024
Revised: 14 October 2024
Accepted: 15 October 2024

***Correspondence:**
Dr. Aishwarya R. Kadrekar,
E-mail: doctorark21@gmail.com

ABSTRACT

Ovarian torsion is an uncommon cause of abdominal pain, which is the most frequent symptom during pregnancy and the postpartum period. Its diagnosis can be challenging due to its rarity as an obstetric emergency. A high degree of clinical suspicion is essential for timely recognition and intervention to save the ovary and reduce the risk of significant morbidity. A 25-year-old woman, 35 days postpartum, presented with acute onset of severe, sharp abdominal pain and vomiting. On examination, her lower abdomen appeared distended, and a mass corresponding to the size of a 26-week uterus was palpable. The mass was tender, cystic in consistency, and demonstrated lateral mobility. Blood investigations and imaging supported the clinical diagnosis of torsion. Ultrasound revealed a well-defined, thin-walled large adnexal mass with a volume of 1980 cc, and Doppler findings suggested left adnexal torsion. An emergency exploratory laparotomy with left-sided salpingo-oophorectomy was performed due to intraoperative findings of a large, haemorrhagic cystic ovarian mass measuring 18×16×18 cm, with three twists in the pedicle. Histopathology confirmed a mucinous cystadenoma. The patient recovered without complications. This case highlights the importance of clinical suspicion, prompt ultrasound evaluation, and timely surgical intervention in achieving optimal outcomes for patients with ovarian torsion.

Keywords: Ovarian torsion, Postpartum, Mucinous cystadenoma, Laparotomy

INTRODUCTION

The occurrence of adnexal masses during pregnancy ranges between 0.05% and 2.4%. Many of these masses are asymptomatic and are often discovered incidentally through ultrasound, while others may go undetected until either a caesarean delivery or when they present with symptoms, particularly in the postpartum phase.[1]

Ovarian torsion is a serious complication that can occur with large ovarian masses during pregnancy and puerperium. Ovarian torsion occurs when the ovary rotates around its suspensory ligament, which connects the ovary and its vascular pedicle to the lateral pelvic wall over time, this twisting can lead to ovarian tissue swelling, reduced blood flow and, eventually, hemorrhagic infarction.[2]

While ovarian masses are found in approximately 1 out of every 100 to 2000 pregnancies ovarian torsion affects only about 3% of pregnant women who have ovarian cysts.[2,3]

Ovarian torsion is identified through clinical symptoms such as sudden, intense lower abdominal pain, tenderness, the presence of a palpable abdominopelvic mass, and associated nausea or vomiting.[3] Imaging and blood investigations aid in confirming its diagnosis as this presentation can have many differential diagnoses, including appendicitis, renal colic, ruptured ovarian cyst and diverticulitis.[4,5]

For large suspicious ovarian masses, tumour markers are not considered reliable for evaluation during pregnancy. Ultrasound remains the preferred method for assessing

ovarian tumours in pregnancy, although its specificity in diagnosing malignancy is lower. Pelvic magnetic resonance imaging (MRI) is a more accurate tool for diagnosing ovarian tumours during pregnancy and can provide additional insights beyond ultrasound.[6] Expectant management is advised for all cases of asymptomatic pregnancy-associated benign ovarian tumours (PBOT) that do not increase in size. However, surgical intervention, either through laparoscopy or laparotomy, is recommended for patients exhibiting symptoms of adnexal torsion, regardless of gestational age.[6]

CASE REPORT

A 25-year-old woman, para 2 (G2P2), 35 days postpartum, was referred with severe abdominal pain and vomiting. The pain was severe with an intensity of 10/10, sharp, acute in onset, encompassing the entire abdomen without any aggravating or relieving factors. She reported a history of lower abdominal discomfort and distention over the past month but denied fever or bladder complaints. Pain was also associated with vomiting.

Upon examination, she was in fair general condition, afebrile, with a pulse of 100 bpm, blood pressure (BP) 100/70 mmHg, respiratory rate (RR) 24 cycles/minute, and no cardiopulmonary abnormalities. There was no pallor, icterus, cyanosis, or oedema. Abdominal examination: On inspection, the lower abdomen appeared distended, and a mass, equivalent to a 26-week uterine size arising from the pelvis, was palpable. This mass was tender, cystic in consistency and had lateral mobility. Per speculum examination revealed a healthy cervix and vagina with no bleeding or discharge. Per vaginal examination, showed bilateral fornices fullness, more pronounced on the left side with tenderness and a cystic mass separated from the uterus, freely mobile and smooth, confirming the abdominal findings. Urgent ultrasound pelvic scan with Doppler was ordered, and the findings are presented in Table 1.

Management

Exploratory laparotomy with left salpingo-oophorectomy was performed. Intraoperative findings revealed, as shown in Figures 1a and 1b show a large cystic mass originating from left ovary, measuring 18×16×18 cm. The mass has a smooth surface with bluish hue, indicating haemorrhagic content.

The capsule was intact with no adhesions, with three twists of the pedicle in a clockwise direction, detorted in an anticlockwise direction. The left fallopian tube adhered to the ovary, with no vascular changes noted. The uterus was normal in size, shape, position, and surface, with no evidence of metastasis. The excised mass (Figure 2) was sent for histopathological examination to confirm an ovarian mucinous cystadenoma. The patient's postoperative course was uneventful.

Table 1: Ultrasound and Doppler findings, along with tumour marker results.

Parameters	Findings	Reference values
Cystic mass size (cm)	16×17×13	
Solid component size (cm)	8×5×6.8	
Volume of mass (cc)	1980	
Doppler finding	Left adnexal torsion	
CA-125* (U/ml)	9.8	<34
CEA# (ng/ml)	<0.5	<2.5
LDH (U/ml)**	267	<250
CA 19-9## (U/ml)	13.96	<37
Alpha-fetoprotein$ (IU/ml)	1.4	0.1-7
Beta HCG (mIU/ml)	<1.2	<1.2

*CA-125: Cancer antigen 125, #CEA: carcinoembryonic antigen, **LDH: lactate dehydrogenase, ##CA 19-9: cancer antigen 19-9, $Beta HCG: beta human chorionic gonadotropin

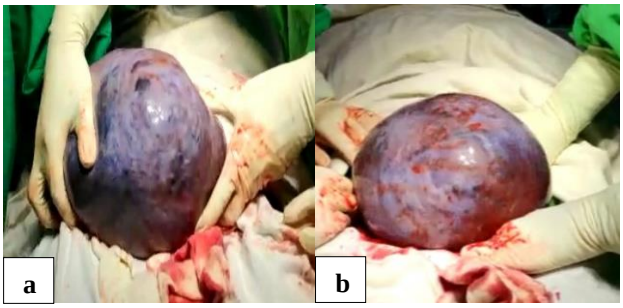

Figure 1 (a and b): Intraoperative view of haemorrhagic mucinous cystadenoma.

Figure 2: Excised left ovarian cyst and fallopian tube.

DISCUSSION

An adnexal mass complicates around 0.05% to 2.4% of pregnancies. These adnexal masses can range from the most commonly occurring benign simple cysts such as

functional ovarian cysts which can either be follicular cysts or corpus luteum cysts, endometriomas to benign neoplasms such as mature cystic teratoma through to the malignant neoplastic lesions which comprise 1-6 percent of all these masses.[7-11] Mature cystic teratoma is the most frequently occurring ovarian mass linked to torsion, affecting 3-16% of patients with ovarian teratomas.[12] Complications such as rupture, torsion, infection and malignant transformation of adnexal or ovarian masses increase notably during pregnancy.[13]

Ovarian torsion is a rare obstetric emergency defined as a "partial or complete rotation of the ovarian vascular pedicle that obstructs venous outflow and arterial inflow".[5,14] Ovarian cysts over 5 cm in size are at risk of undergoing torsion. The other risk factors are pregnancy, ovarian stimulation, history of abdominal surgery and tubal ligation. The postpartum period is a risk factor due to uterine involution, displacing the adnexa within the lax supporting tissues.[15,16] Ovarian torsion is typically diagnosed based on clinical symptoms, including sudden, severe, unilateral lower abdominal pain and tenderness, often accompanied by a palpable adnexal mass and symptoms like nausea or vomiting. Patients typically present with acute abdominal pain localized to one side of the pelvic region, with extreme tenderness and guarding. This presentation can have many differential diagnoses, including appendicitis, renal colic, ruptured ovarian cyst and diverticulitis.[4] However, diagnosing ovarian torsion can be particularly challenging in the early puerperal period due to non-specific symptoms that overlap with various other puerperal conditions.[17,18]

Imaging and blood investigations aid in confirming its diagnosis. Ultrasonography (US) is the main imaging technique to assess ovarian torsion. Typical ultrasound findings of ovarian torsion include "an enlarged ovary on one side, peripheral cystic structures, a mass with affected ovary, free fluid in the pelvis, absence of arterial or venous blood flow, and a twisted vascular pedicle".[4,5] Detection of blood flow on color Doppler imaging does not necessarily rule out ovarian torsion but may suggest that the ovary is still viable, especially if central flow is present. On the other hand, the absence of flow in the twisted vascular pedicle may indicate that the ovary is no longer viable.[5] Our patient presented with acute, severe abdominal pain and vomiting, persisting for four hours and affecting the entire abdomen without any aggravating or relieving factors. Examination revealed lower abdominal distention, tenderness, and guarding, with a cystic mass arising from the pelvis. USG, the primary diagnostic tool for gynaecological emergencies like ovarian torsion, showed an enlarged, congested ovary with a well-defined, thin-walled, multiloculated cystic mass measuring 16×17×13 cm and a solid component measuring 8×5×6.8 cm. These findings confirmed the clinical suspicion of left adnexal torsion, highlighting the importance of ultrasound in identifying the mass and its characteristics for accurate diagnosis and management.[19]

In our study, an ultrasound of the abdomen and pelvis showed a well-defined, thin-walled multi-loculated cystic mass inseparable from the ovary. Doppler studies often show decreased or absent blood flow in a twisted ovary. The "whirlpool sign", which indicated a twisted vascular pedicle with circular vessels on Doppler, has good sensitivity for ovarian torsion, which aligned completely with our findings on colour Doppler, indicating left adnexal torsion.[20] Normal Doppler results do not rule out the condition, so clinical findings should always be considered alongside Doppler results.[17]

Preliminary tumour marker tests were conducted to rule out malignancy, and all results were within the normal range, effectively excluding the possibility of malignancy.[18] A high index of suspicion and prompt surgical intervention is crucial for salvaging ovarian function; however, following the onset of symptoms, the likelihood of ovarian conservation decreases over time. Laparoscopy can be performed during pregnancy's first and second trimesters to treat symptomatic cases. The risk of miscarriage following surgery, whether laparoscopy or laparotomy for ovarian tumours during pregnancy, is approximately 2.8%. The presence of an ovarian tumour should not alter the delivery methods unless the caesarean section is necessary due to obstetric reasons, complications, or suspected malignancy.

Our patient had persistent symptoms for four hours, and there were three twists of the pedicle in the clockwise direction with anticlockwise detorsion of the ovary and left fallopian tube being adherent to the ovary, necessitating surgical intervention. Therefore, an exploratory laparotomy with left salpingo-oophorectomy was carried out.[19]

The surgical intervention was rendered successful as there were no adverse postoperative outcomes. Studies have shown that salpingo-oophorectomy is the preferred surgical intervention for ovarian torsion during the puerperium.[4,19]

CONCLUSION

This case underscores the need for vigilant monitoring of ovarian cysts during pregnancy and the postpartum period. The acute presentation of ovarian torsion postnatally highlights the potential for severe complications if not promptly diagnosed and treated. Accurate diagnosis using ultrasound and Doppler imaging is crucial for timely intervention. Early recognition and surgical management, as demonstrated by successful exploratory laparotomy and left salpingo-oophorectomy in this case, are essential to prevent significant morbidity. Comprehensive follow-up and patient education about the risks of adnexal masses is key to ensuring favourable outcomes.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Duigenan S, Oliva E, Lee SI. Ovarian torsion: diagnostic features on CT and MRI with pathologic correlation. AJR Am J Roentgenol. 2012;198(2).
2. Cunningham FG, Leveno KJ, Bloom SL. Reproductive tract abnormalities. In: Williams Obstetrics. New York: McGraw-Hill. 2010;890-911.
3. Condous G, Khalid A, Okaro E, Bourne T. Should we be examining the ovaries in pregnancy? Prevalence and natural history of adnexal pathology detected at first-trimester sonography: Ovarian cysts in early pregnancy. Ultrasound Obstet Gynecol. 2004;24(1):62-6.
4. Chavan NN, Bhutada RG, Kapote DS, Pushpa, Kampoowale S. An interesting case of right ovarian cyst torsion: case report. Int J Reprod Contracept Obstet Gynecol. 2024;13(2):441-3.
5. Chang HC, Bhatt S, Dogra VS. Pearls and pitfalls in diagnosis of ovarian torsion. Radiographics. 2008;28(5):1355-68.
6. Vázquez-Manjarrez SE, Rico-Rodriguez OC, Guzman-Martinez N, Espinoza-Cruz V, Lara-Nuñez D. Imaging and diagnostic approach of the adnexal mass: what the oncologist should know. Chin Clin Oncol. 2020;9(5):69.
7. Schmeler KM, Mayo-Smith WW, Peipert JF, Weitzen S, Manuel MD, Gordinier ME. Adnexal masses in pregnancy: surgery compared with observation. Obstet Gynecol. 2005;105(5 Pt 1):1098-103.
8. Smith LH, Dalrymple JL, Leiserowitz GS, Danielsen B, Gilbert WM. Obstetrical deliveries associated with maternal malignancy in California, 1992 through 1997. Am J Obstet Gynecol. 2001;184(7):1504-12.
9. Webb KE, Sakhel K, Chauhan SP, Abuhamad AZ. Adnexal mass during pregnancy: a review. Am J Perinatol. 2015;32(11):1010-6.
10. Aggarwal P, Kehoe S. Ovarian tumours in pregnancy: a literature review. Eur J Obstet Gynecol Reprod Biol. 2011;155(2):119-24.
11. Giuntoli RL 2nd, Vang RS, Bristow RE. Evaluation and management of adnexal masses during pregnancy. Clin Obstet Gynecol. 2006;49(3):492-505.
12. Fayez I, Khreisat B, Athamneh T, Omoosh R, Daibes MA. Multiple bilateral ovarian mature cystic teratomas with ovarian torsion: A case report. Oman Med J. 2018;33(2):163-6.
13. Maiti S, Fatima Z, Anjum ZK, Hopkins RE. Ruptured ovarian cystic teratoma in pregnancy with diffuse peritoneal reaction mimicking advanced ovarian malignancy: a case report. J Med Case Rep. 2008;2(1):203.
14. Martone S, Troìa L, Luisi S. Adnexal masses during pregnancy: management for a better approach. Gynecol Surg. 2021;18(1).
15. Larraín D, Casanova A, Rojas I. Ovarian torsion after hysterectomy: Case report and concise review of the reported cases. Case Rep Obstet Gynecol. 2018;2018:6267207.
16. Cavaco-Gomes J, Jorge Moreira C, Rocha A, Mota R, Paiva V, Costa A. Investigation and management of adnexal masses in pregnancy. Scientifica (Cairo). 2016;2016:1-9.
17. Kaur A, Singh B. Ovarian torsion in early puerperium: a case report. New Indian J OBGYN. 2022;8(2):324-6.
18. Ngu S-F, Cheung VYT, Pun T-C. Surgical management of adnexal masses in pregnancy. JSLS. 2014;18(1):71-5.
19. Ding D-C, Huang C, Hong M-K. A review of ovary torsion. Tzu Chi Med J. 2017;29(3):143.
20. Khalil RM, El-Dieb LR. Sonographic and MRI features of ovarian torsion. Egypt J Radiol Nucl Med. 2016;47(2):621-9.

Cite this article as: Kadrekar AR, Patel AS. Postpartum ovarian torsion caused by a large mucinous cystadenoma: a rare case study. Int J Reprod Contracept Obstet Gynecol 2024;13:3355-8.