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Case Report

A rare cause of acute abdomen in postmenopausal women: borderline mucinous ovarian tumor with torsion

Tanya Singhal[1]*, Satyabhama Marandi[1], Sugatha Sahu[2], Keshari Rajmohan Pattayat[2]

[1]Department of Obstetrics and Gynecology, Institute of Medical Sciences and SUM Hospital, Bhubaneswar, Orissa, India
[2]Department of Pathology, Institute of Medical Sciences and SUM Hospital, Bhubaneswar, Orissa, India

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***Correspondence:**
Dr. Tanya Singhal,
E-mail: tanyasinghal@soa.ac.in

ABSTRACT

Ovarian torsion accounts for 2–3% of gynecological emergencies and is typically associated with benign, mobile ovarian cysts in reproductive-age women. Torsion involving malignant or borderline ovarian tumors is rare, particularly in postmenopausal women, and may obscure timely diagnosis and management. We report a rare case of a 45-year-old postmenopausal woman presenting with acute abdominal pain, nausea, and vomiting. Clinical examination revealed a large, firm abdominopelvic mass with restricted mobility. Ultrasound and contrast-enhanced CT demonstrated a 20 cm multiloculated right ovarian mass with solid components and >270° vascular pedicle torsion, raising suspicion for malignancy. Tumor markers showed normal CA-125 and CEA but elevated CA-19.9. The patient underwent staging laparotomy with total abdominal hysterectomy, bilateral salpingo-oophorectomy, and omentectomy. Intraoperatively, a 20 cm twisted ovarian mass with areas of hemorrhage and necrosis was identified. Histopathology confirmed a mucinous borderline ovarian tumor with microinvasion, confined to the right ovary (FIGO stage pT1a). The contralateral ovary unexpectedly showed a benign Brenner tumor. Omentum and peritoneal cytology showed no malignant involvement. This case underscores that adnexal torsion in postmenopausal women warrants a high index of suspicion for malignancy. Mucinous tumours may present with normal CA-125 but elevated CA-19.9, particularly in the setting of torsion. Early imaging, comprehensive evaluation, and prompt surgical staging are crucial to prevent complications such as capsular rupture and peritoneal dissemination. Timely management in this case enabled complete oncologic surgery and a favorable postoperative outcome.

Keywords: Postmenopausal adnexal mass, Ovarian torsion, Borderline ovarian tumor, Brenner tumor, Staging laparotomy

INTRODUCTION

Ovarian torsion accounts for 2–3% of gynecological emergencies.[1] It is defined as the rotation of the ovary around the infundibulo pelvic (IP) ligament or the utero-ovarian ligament, causing blood flow obstruction to the ovary, risking ovarian necrosis. It is most often associated with benign cysts, usually dermoids.[2] Common ultrasound signs of ovarian torsion are enlarged adnexa, whirlpool sign, ovarian stromal edema with or without peripherally displaced antral follicles, and free fluid in the pelvis.[3] These patients are often adolescents or women of reproductive age group.[4] Large dermoid cysts often due to their heterogenous fat content tend to twist on their own pedicle. However, malignant ovarian tumours contain solid components and rarely present with torsion due to their tendency to be fixed by local invasion or adhesions. In postmenopausal women, an adnexal torsion with a large mass is unusual and often can cloud the diagnosis. We hereby report a rare case of large, borderline Mucinous ovarian tumor presenting as adnexal torsion in a 45-year-old postmenopausal woman.

CASE REPORT

A 45-year-old, P1L1 postmenopausal lady presented with acute onset, severe lower abdominal pain associated with nausea and vomiting for 24 hours to the Emergency Department. On examination, the abdomen was distended with tenderness present in the lower abdomen. A firm abdominopelvic mass measuring approximately 20 cm was palpable with restricted mobility. The margins were ill-defined and considering the age of presentation, a possibility of malignancy was included. The patient did not give any prior history of mass felt per abdomen, nor there was any past or family history suggestive of any gynaecological or abdominal malignancy.

Ultrasound revealed a right adnexal thick walled, multiloculated, septated lesion of 19x14 cm with septal vascularity. Left ovary was reported to be normal. The report was given suggestive of a mucinous cystadenoma. Since she was a postmenopausal lady, a decision for CECT abdomen and pelvis was taken and tumour markers were performed to further evaluate for the presence of malignancy.

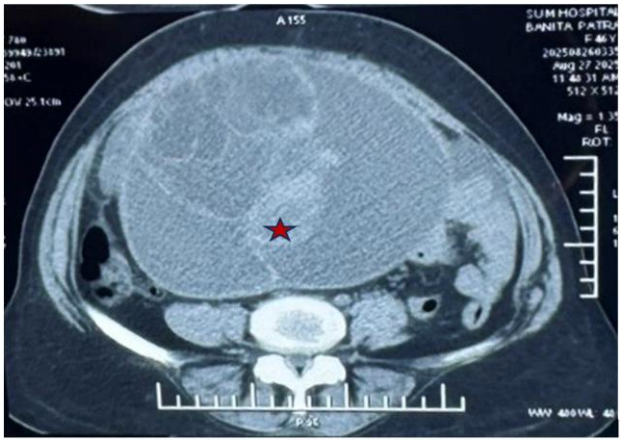

Figure 1: Contrast-enhanced CT showing multiloculated ovarian cyst with torsion features. Red star points towards solid areas.

Contrast-enhanced CT abdomen and pelvis showed a 20x16x15 cm multiloculated, solid, cystic mass arising from right ovary with ill-defined, enhancing solid components (Figure 1). Ipsilateral vascular pedicle showed a >270 degrees torsion. The mass extended till T11 vertebra superiorly, anteriorly abutting the fascia transversals, posteriorly extending till major vessels with maintained fat planes and laterally displacing the bowel loops. Mild ascites was also noted and no retroperitoneal lymphadenopathy was seen. Features were suggestive of a right ovarian malignant neoplasm with torsion. Tumour markers were performed. CA-125 was 16.72 U/ml (lab ref range >35), CEA: 2.86 ng/ml (lab ref range >3.8), CA-19.9: 151 U/ml (lab ref range >40), LDH: 245 U/L (lab ref range >214). In view of solid components seen in the mass and raised CA19.9, the patient was planned for a Staging Laparotomy with Total abdominal hysterectomy with bilateral salpingoophorectomy with total omentectomy.

Intra-operative findings

Peritoneal fluid was aspirated and fluid was sent for cytological examination. Both paracolic gutters and under-surface of diaphragm did not show any evidence of tumour. Liver, stomach, spleen, all appeared to be free of tumour.

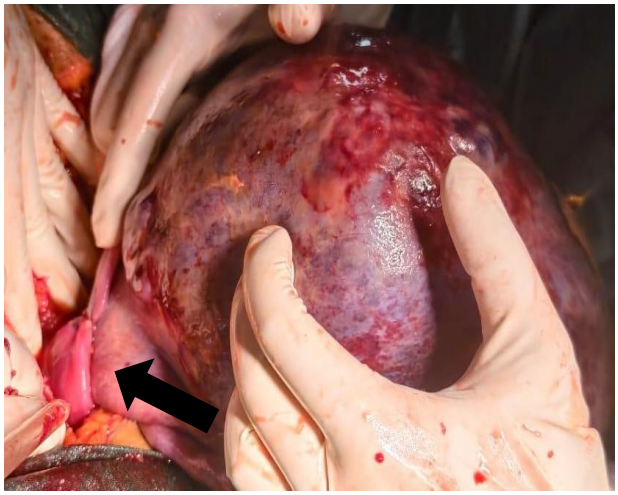

Figure 2: Intra-operative image of twisted right ovarian mass. The black arrow denotes the presence of twisted pedicle. Surface of mass shows areas of hemorrhage and necrosis.

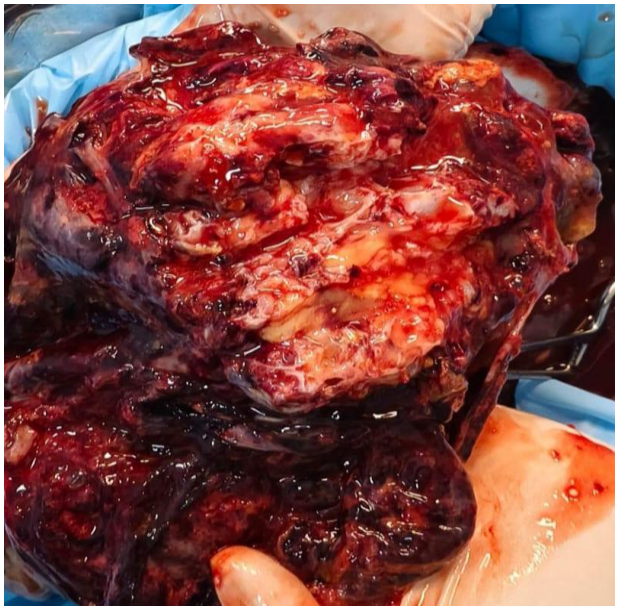

Figure 3: Cut section of tumour showing necrosis and hemorrhage along with solid components in the mass.

A 20 cm solid, right ovarian mass with 2 complete twists of the pedicle was seen. The surface of the mass was congested with areas of hemorrhage (Figure 2-4). The mass was not adherent to any surrounding structure. The

uterus and left ovary were normal. There were no ascites, omental caking, or peritoneal nodules. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was done. Total omentectomy was also performed. Intra-op peritoneal cytology was reported to have a mixture of mesothelial cells along with atypical cells with enlarged nuclei with irregular margins giving an impression of Suspicious for malignancy (TIS category- IV).

Black arrows point to the epithelium.

Figure 4: Complete specimen (uterus with bilateral tubes, bilateral ovaries along with the mass, total omentum).

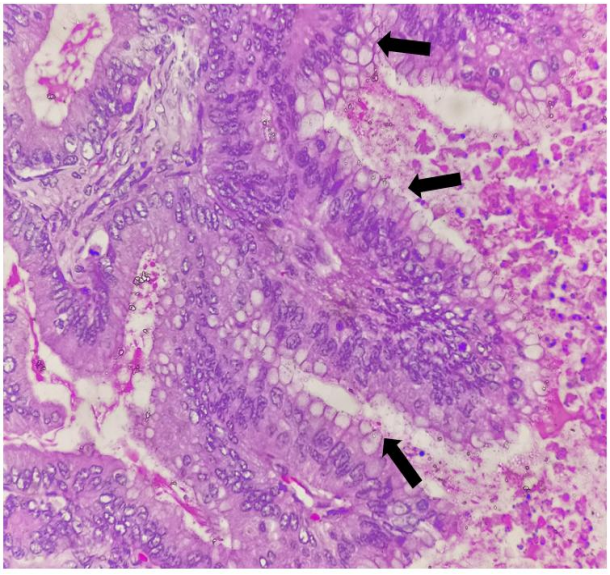

Figure 5: Biopsy from the right ovarian mass: black arrows point to the mucinous epithelium of gastrointestinal type and epithelial proliferation (tufting, stratification and villus formation).

Histopathology

The cut-sections from the right ovarian tumor gave a diagnosis of Mucinous Borderline tumour with microinvasion of the ovary. The tumor was confined to only one ovary, capsule was intact and no surface involvement was seen (Figure 5).

Omentum was found to be free of tumour. Immunohistochemistry was done in which tumour cells showed diffuse positivity for CK 7, CK 20, variable positivity for CD X2 and wild type staining for p53. The final staging was given as FIGO PT1a marking the surgery complete and final for the patient. Interestingly, left ovary showed features of Benign Brenner's tumour (Figure 6).

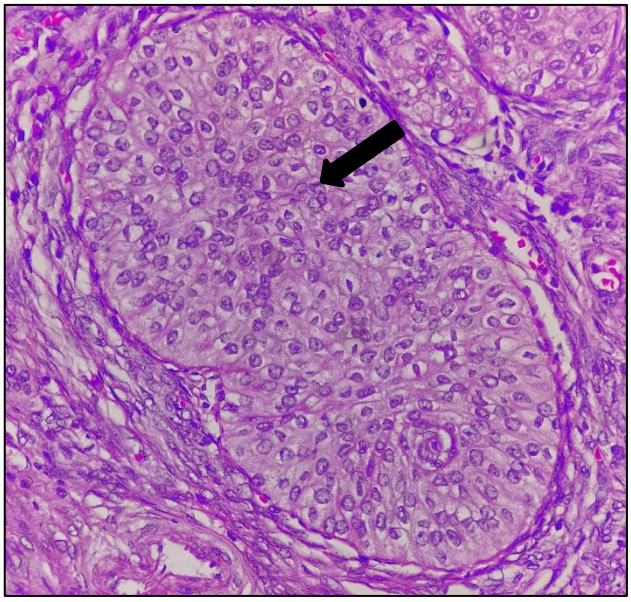

Figure 6: Brenner's tumor of the left ovary. Black arrows point to the transitional epithelium.

DISCUSSION

Torsion of the ovary is usually seen in cases of benign cysts in women of reproductive age group.[1,2] Most recent studies[5] now show that cases of torsions can be conservatively managed by laparoscopic cystectomy and detorsion along with plication of the ovarian ligament or even the round ligament (hotdog in bun approach).[6] This approach is commonly followed in young women who want to preserve their reproductive function and desire future fertility. It is worth considering that there is a higher chance of intraoperative rupture of the capsule in laparoscopy in large masses[7] which could be detrimental where malignancy is suspected.

The rate of malignancy in patients having ovarian torsion in postmenopausal women has been reported between 9% and 22%.[8,9] This highlights that it is prudent to keep a high index of suspicion for malignancy in women with postmenopausal age group presenting with ovarian

torsion. A thorough workup should be performed in such cases wherein presence of solid areas on radiology and raised tumour markers should raise the alarm for malignancy. A dreaded complication of ovarian torsions is rupture of the capsule. In a case reported by Tien C-T et al[10], laparoscopic unilateral salpingoophorectomy was performed for a postmenopausal lady for torsion and rupture of an 8 cm ovarian cyst which later on biopsy was revealed to be harbouring mucinous cystadenocarcinoma. The rupture and dissemination of the cancer into the abdomen was later managed by a second surgery with staging laparotomy with HIPEC (Hyperthermic Intraperitoneal Chemotherapy).

When using a minimally invasive approach, a careful in-bag retrieval of cyst wall must be performed and the cyst wall should be inspected. High expertise is often needed in cases of larger cysts. When in doubt for malignancy, an open approach should be opted for. Areas of necrosis, solid component and papillary projections frequently point towards malignancy and decision for a complete surgery in one sitting should be preferred. A frozen section intraoperatively also helps in excluding malignancy. Our initial diagnosis on 2D ultrasound had pointed to a benign pathology and initially a plain unilateral oophorectomy was planned. However, in view of clinical findings and postmenopausal status, we went for CECT abdomen + pelvis, findings of which further pointed towards malignancy.

Interestingly in our case, CA-125 was normal which is commonly elevated in malignancies. Mucinous tumors may present with raised CA-19.9 instead[12] as in our case. Another reason for elevation of CA 19-9 could be the presence of torsion itself as torsions have increasingly being shown to be elevated with a higher CA-19.9 level, especially in cases of mature cystic teratomas.[11] Thus, where there is a dilemma in diagnosis and management, urgent surgical exploration should be done which can prove to be both diagnostic and therapeutic.

CONCLUSION

This case highlights that ovarian torsion, though uncommon in malignancy, can occur even in large ovarian cancers. The management of ovarian torsion in postmenopausal women should always include consideration of malignancy. Mucinous ovarian tumors may present with normal CA-125 and CEA but elevated CA-19.9. In postmenopausal women, prompt surgical intervention with staging is essential to ensure accurate diagnosis and further management. In this patient, timely surgery prevented rupture and peritoneal dissemination.

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REFERENCES

1. Hibbard LT. Adnexal torsion. Am J Obstet Gynecol. 1985;152(4):456-61.
2. Templeman C, Fallat ME, Blinchevsky A, Hertweck SP. Noninflammatory ovarian masses in girls and young women. Obstet Gynecol. 2000;96(2):229-33.
3. Moro F, Bolomini G, Sibal M, Vijayaraghavan SB, Venkatesh P, Nardelli F, et al. Imaging in gynecological disease (20): clinical and ultrasound characteristics of adnexal torsion. Ultrasound Obstet Gynecol. 2020;56(6):934-43.
4. Bridwell RE, Koyfman A, Long B. High risk and low prevalence diseases:ovarian torsion. Am J Emerg Med. 2022;56:145-50.
5. Abes M, Sarihan H. Oophoropexy in children with ovarian torsion. Eur JPediatr Surg. 2004;14(3):168-71.
6. Kondrup JD, Measick J. Oophoropexy: The “Hotdog in a Bun” Technique. J Minim Invasive Gynecol. 2012;19:S151-78.
7. Novoa M, Friedman J, Mayrink M. Ovarian torsion: can we save the ovary?. Arch Gynecol Obstet. 2021;304(1):191-5.
8. Eitan R, Galoyan N, Zuckerman B, Shaya M, Shen O, Beller U. The risk of malignancy in post-menopausal women presenting with adnexal torsion. Gynecol Oncol. 2007;106(1):211-4.
9. Cohen A, Solomon N, Almog B, Cohen Y, Tsafrir Z, Rimon E, et al. Adnexal torsion in postmenopausal women: clinical presentation and risk of ovarian malignancy. J Minim Invasive Gynecol. 2017;24(1):94-7.
10. Tien CT, Cheng CH, Hong MK. Torsion and ruptured ovarian cystadenocarcinoma with internal bleeding complicated with retroperitoneal hematoma after tumor transection: A case report. Medicine. 2025;104(4):e41282.
11. Emin U, Tayfun G, Cantekin I, Ozlem UB, Umit B, Leyla M. Tumor markers in mature cystic teratomas of the ovary. Arch Gynecol Obstet. 2009;279(2):145-7.
12. Kelly PJ, Archbold P, Price JH, Cardwell C, McCluggage WG. Serum CA19-9 levels are commonly elevated in primary ovarian mucinous tumours but cannot be used to predict the histological subtype. J Clin Pathol. 2010;63(2):169-73.

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