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Case Report

Mucinous borderline ovarian tumour presenting with ovarian torsion in a young woman

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ABSTRACT

Borderline ovarian tumours (BOTs) are epithelial neoplasms of low malignant potential that often occur in women of reproductive age. We describe a 23-year-old nulliparous woman who presented with acute abdominal pain and vomiting and was diagnosed with right ovarian torsion associated with a large cystic adnexal mass. Imaging showed a multiloculated cystic lesion measuring approximately 10-11 cm with internal septations. Serum CA 19-9 was mildly elevated, while the other tumour markers tested were within normal limits. Emergency laparotomy revealed torsion of the right ovary without gangrene or necrosis. Fertility-preserving cyst enucleation was performed; intraoperative cyst rupture occurred. Histopathological examination showed a mucinous borderline ovarian tumour without stromal invasion. The tumour was reported as FIGO stage IC1 (pT1c1NxMx). The patient subsequently underwent right salpingo-oophorectomy and staging procedures, which showed no residual neoplasm. This case illustrates the need to consider BOTs in the differential diagnosis of adnexal masses presenting with acute abdomen. Prompt surgery and histopathological assessment are important, while fertility-preserving management should be individualized according to the clinical and pathological findings.

Keywords: Mucinous borderline ovarian tumour, Ovarian torsion, Adnexal mass, Fertility-sparing surgery

INTRODUCTION

Borderline ovarian tumours (BOTs) are epithelial neoplasms characterized by epithelial proliferation and cytological atypia without destructive stromal invasion. They account for a proportion of epithelial ovarian tumours and generally have a more favourable prognosis than invasive epithelial ovarian carcinomas.[1] Mucinous BOTs are an important histological subtype and are often diagnosed in women of reproductive age.[2,3]

Their presentation ranges from an incidentally detected adnexal mass to acute abdominal emergencies, including torsion or rupture. Imaging and serum tumour markers contribute to preoperative assessment, but definitive diagnosis depends on histopathological examination.

CASE REPORT

A 23-year-old nulliparous woman presented with acute abdominal pain associated with multiple episodes of vomiting. She was initially evaluated at a local hospital and treated symptomatically. Emergency computed tomography (CT) performed at presentation raised suspicion of ovarian torsion. She had no fever, dysuria, abnormal vaginal bleeding, or gastrointestinal symptoms. Her menstrual cycles were regular, and bowel and bladder habits were normal. A family history of breast carcinoma was noted. On admission, she was haemodynamically stable.

Cardiovascular, respiratory, and neurological examinations were unremarkable. Abdominal examination revealed diffuse tenderness in the lower abdomen.

Initial laboratory investigations were within normal limits. CT showed a well-defined, hypodense cystic lesion in the midline pelvis, measuring approximately 8×10.5×9.6 cm and extending into the bilateral adnexal region. Neither ovary was clearly visualized.

Ultrasonography demonstrated a well-defined, lobulated cystic lesion with partial internal septations and internal echoes, measuring 11×7.2 cm and extending from the right adnexa toward the midline. The right ovarian parenchyma was seen adherent to the periphery of the lesion, with preserved vascularity. The left ovary appeared normal.

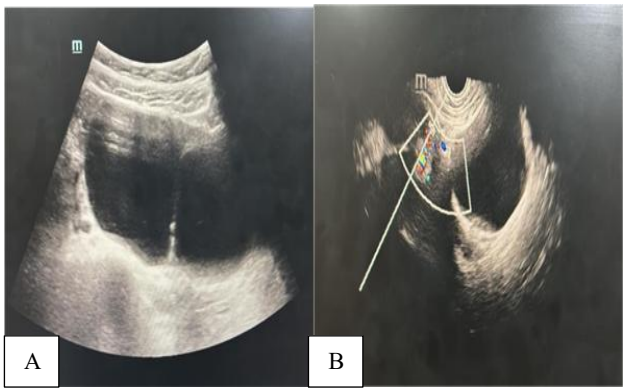


Figure 1 (A and B): Ultrasonographic images showing a well-defined, lobulated cystic lesion with partial internal septations and internal echoes.

Serum tumour markers, including alpha-fetoprotein (AFP), beta-human chorionic gonadotropin (β-hCG), CA-125, CA 19-9, and carcinoembryonic antigen (CEA), were measured. CA 19-9 was elevated at 57.4 U/mL; the other markers were within normal limits.

The patient underwent emergency laparotomy. Intraoperatively, the right ovary was found to be twisted around its pedicle, without evidence of gangrene or necrosis.

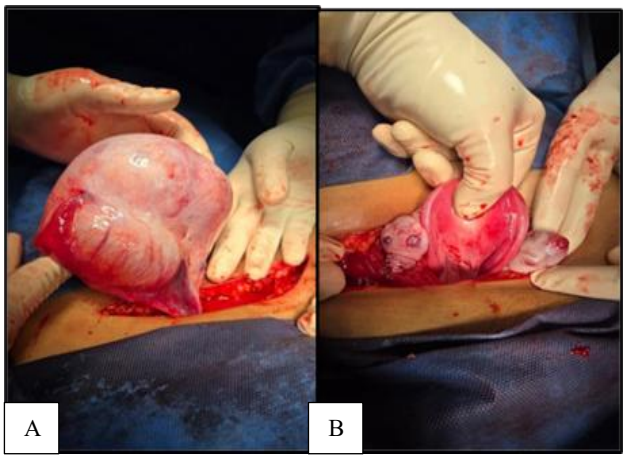


Figure 2 (A and B): Intraoperative images demonstrating right ovarian torsion without visible gangrene or necrosis.

The ovarian cyst measured approximately 10×9 cm. During cyst enucleation, the cyst ruptured and straw-coloured fluid was released. The excess cyst wall was excised. The right ovary and fallopian tube appeared grossly normal and were preserved. The postoperative course was uneventful, and the patient was discharged in an improved condition. Histopathological examination revealed a mucinous borderline ovarian tumour with epithelial proliferation involving 10–15% of the tumour, without stromal invasion. The tumour was classified as pT1c1NxMx, corresponding to FIGO stage IC1.

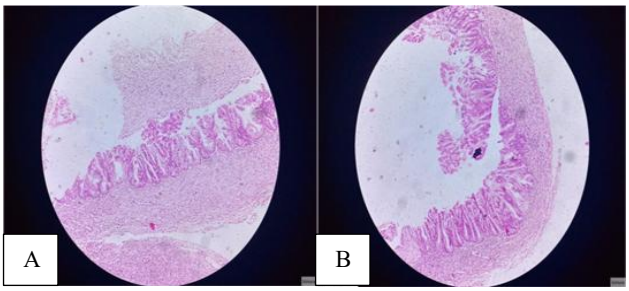


Figure 3 (A and B): Histopathological images of the mucinous borderline ovarian tumour.

The patient was subsequently referred to the gynaecologic oncology department and underwent right salpingo-oophorectomy, right pelvic lymph node dissection, and omental biopsy. Histopathological examination showed no residual neoplasm in the ovarian tissue. The fallopian tube and omentum showed no significant pathological abnormality.

DISCUSSION

Mucinous borderline ovarian tumour, also termed atypical proliferative mucinous tumour, is characterized by epithelial proliferation and cytological atypia without destructive stromal invasion. Its biological behaviour lies between that of a benign mucinous cystadenoma and invasive mucinous carcinoma. These tumours commonly occur in women of reproductive age and may be detected at an early stage because of their often large size and associated symptoms. They are usually unilateral and multilocular, with cystic spaces containing mucin. Clinical presentations include abdominal or pelvic pain, distension, increasing abdominal girth, and pressure symptoms; some lesions remain asymptomatic until they become large.[4]

Ultrasonography may show a multilocular cystic ovarian mass with septations and, occasionally, papillary projections. However, imaging alone may not reliably distinguish benign, borderline, and malignant mucinous tumours. CA-125 and CEA may be elevated, but neither is specific.[5] Histopathological examination is therefore essential. Mucinous borderline tumours show epithelial stratification, tufting, papillary infoldings, cytological atypia, and mitotic activity without destructive stromal invasion. The absence of destructive stromal invasion is the key feature distinguishing a borderline tumour from

invasive mucinous carcinoma. Mucinous borderline ovarian tumours are predominantly of intestinal type. Tumours previously described as endocervical-type mucinous borderline tumours are now classified separately as seromucinous tumours.[6,7]

Surgery is the mainstay of treatment in these patients. The procedure is selected according to the patient's age, fertility goals, disease stage, and operative findings.

For patients who wish to preserve fertility, conservative surgery may be considered after counselling regarding recurrence and follow-up. The choice between cystectomy and unilateral salpingo-oophorectomy depends on the extent of disease and the condition of the affected ovary. More extensive surgery may be appropriate for patients who have completed childbearing or when indicated by the pathological findings. Surgical staging is undertaken to assess for extraovarian disease. The prognosis of stage I BOTs is generally excellent. Recurrence is more frequently reported after conservative surgery, particularly cystectomy, and has also been associated with intraoperative rupture and residual tumour. Serous borderline tumours generally have a higher recurrence risk than mucinous borderline tumours. Progression to invasive carcinoma is uncommon. Long-term follow-up with clinical assessment and imaging is important, particularly after fertility-sparing surgery.

Right pelvic lymph node dissection was performed during staging because of intraoperative concern about malignancy in this large mucinous ovarian tumour. Lymph node involvement is uncommon in mucinous BOTs, and routine lymphadenectomy is generally not recommended. Nodal assessment may be individualized when suspicious findings raise concern for invasive disease. In this case, the resected specimens showed no residual neoplasm or significant pathological abnormality. This finding is consistent with the generally low frequency of lymphatic involvement reported in mucinous BOTs.[5,6]

CONCLUSION

This case demonstrates that a mucinous borderline ovarian tumour may present as acute ovarian torsion in a young woman. These tumours should be considered in the differential diagnosis of large cystic adnexal masses presenting with acute abdominal pain. Histopathological examination is essential to distinguish borderline lesions from invasive carcinoma and guide further management. Fertility-preserving surgery may be appropriate in selected patients, with subsequent management and surveillance tailored to the final pathology and staging findings.

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