# Huge tubo-ovarian abscess with elevated CA-125 pre-operative diagnosis dilemma: A case report

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## SUMMARY

**Atypical clinical presentation and imaging features of tubo-ovarian abscess (TOA) may resemble pelvic malignancy, in addition to elevated CA-125, which may further cause diagnostic and treatment dilemmas. This case report highlights a postoperatively confirmed TOA case. Here we share a case of a lady with huge abdominal distension due to ovarian mass as evidenced by radiological imaging, and an elevated CA-125 level. Due to obstructive uropathy and bilateral mild hydronephrosis, an urgent staging laparotomy was performed and uncovered a 4-liter pus-filled mass. Histopathology revealed likely to be a tubo-ovarian abscess. Factors such as huge abscess size and patient demographics play a huge role in this case due to arising complications, favouring operative intervention as part of the treatment.**

## INTRODUCTION

A tubo-ovarian abscess (TOA) develops when an encapsulated collection of pus forms within an infected fallopian tube and ovary, and it can become life-threatening if rupture occurs. TOA commonly arises as a complication of pelvic inflammatory disease (PID), although in some cases, a TOA may itself be the initial presentation leading to a diagnosis of PID. While TOA is more frequently observed in reproductive-age women, cases have also been reported in postmenopausal women. Its atypical clinical presentation and variable imaging characteristics may mimic pelvic malignancy or other non-gynaecological conditions, and an elevation in CA-125 may further complicate preoperative diagnosis and management. This case report discusses a postoperatively confirmed TOA, highlighting its clinical presentation, diagnostic challenges, and management considerations.

## CASE PRESENTATION

A 20-year-old, Para 1, woman came into the hospital, with a month-long history of abdominal distension, early satiety, and lethargy. She has normal, regular menses without any dysmenorrhoea or history of chronic pelvic pain. Although afebrile without pain, vaginal discharge, or altered bowel habits, she showed tachycardia and a term-size distended, non-tender abdomen. Transabdominal ultrasound showed a huge unilocular cystic mass, homogeneous echogenic content without any obvious solid area, papillary projection, or significant Doppler flow, and bilateral mild hydronephrosis. Raised leucocytes with elevated CA-125 level were noted (116 U/mL; normal value, <35 U/mL), while the levels of other tumour markers (α-fetoprotein, carcinoembryonic antigen, β-human chorionic gonadotropin, and CA 19-9) were within normal limits. Diagnostic CT imaging (Figure 1) revealed a huge pelvic cyst measuring 20.7cm x 28.3cm x 27.8cm (AP x W x CC), likely of ovarian origin, causing obstructive uropathy and bilateral mild hydronephrosis. Urgent staging laparotomy was performed and uncovered a 4-liter pus-filled mass adhered to surrounding structures, leading to a right salpingo-ophorectomy. She was given intravenous tazosin for 7 days postoperatively and discharged well with oral amoxicillin-clavulanic acid for 7 days. Histopathology revealed chronic inflammation without malignancy of right ovarian cyst with chronic salpingitis, likely to be a huge right tubo-ovarian abscess case. Pus culture and sensitivity test showed no significant pathogens.

## DISCUSSION

Tubo-ovarian abscess (TOA) poses a significant preoperative diagnostic challenge due to its varied and non-specific clinical presentation, often making it difficult to distinguish from other gynaecological pathologies as well as several non-gynaecological conditions with overlapping symptoms. In this case, the marked abdominal distension caused by a large pelvic mass, together with radiological imaging findings and a raised CA-125 level, was highly suggestive of ovarian malignancy.[1,2] Relying on CA-125 alone to differentiate benign from malignant pelvic masses has limited diagnostic value, particularly in premenopausal women.[1] Therefore, correlation with the overall clinical picture, including symptoms, laboratory parameters, imaging features, patient factors, and associated complications, is essential in guiding the management plan for this case.

CA-125 is a relatively useful tumor marker for epithelial ovarian cancer,[3] and an elevated level often raises suspicion for malignancy when an adnexal mass is identified. However, CA-125 can also be increased in numerous benign and inflammatory gynaecological conditions, particularly in premenopausal women with sexual activity, such as endometriosis, benign ovarian cysts, pelvic inflammatory disease, omental inflammation from a ruptured dermoid cyst, as well as during menstruation and pregnancy. It may

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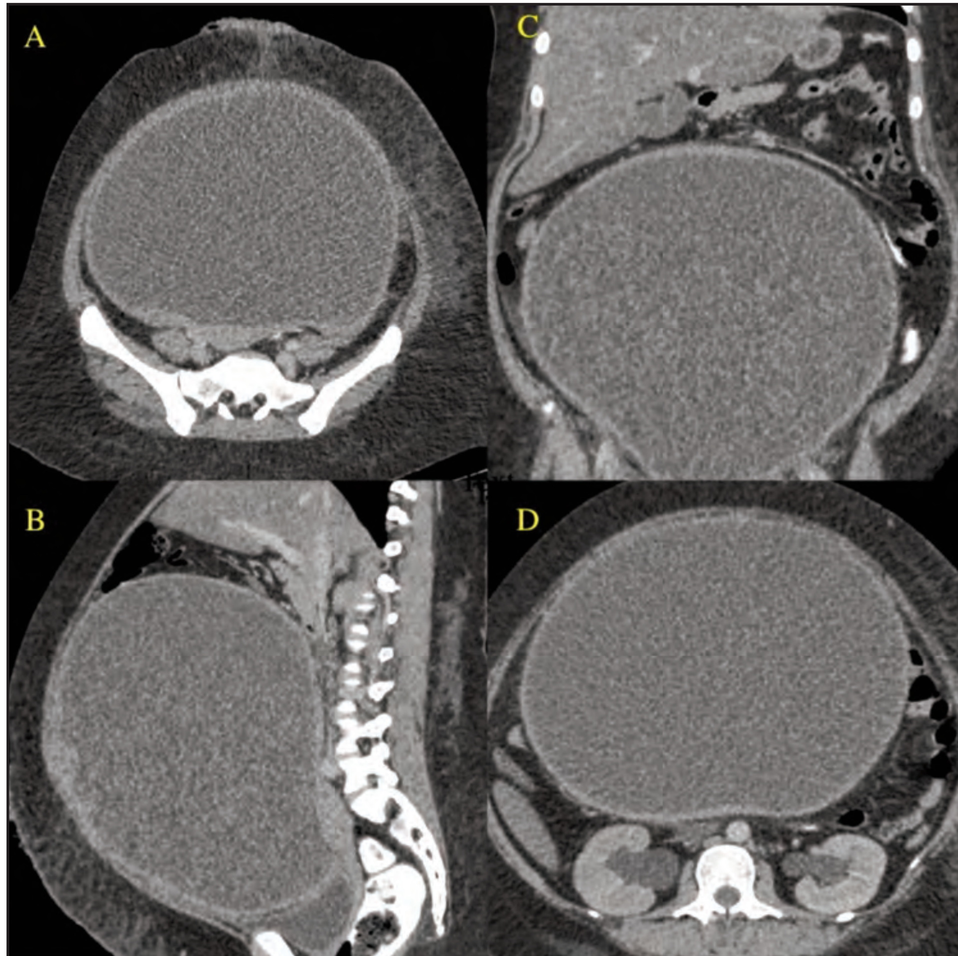


**Fig. 1:** CT TAP findings. A: transverse view at pelvic level. B: Sagittal view, showing displacement of visceral organs superiorly. C: Transverse view at hepatosplenic level. D: transverse view at renal level showing mild hydronephrosis. CECT abdomen and pelvis in axial, coronal and sagittal views showing a huge peripherally enhancing unilocular cystic mass measuring 20.7 x 28.3cm x 27.8cm (AP x W x CC) arising from pelvis till right subhepatic region. There is no septation, papillary projection, calcification enhancing solid or fat component within. It results in bilateral mild hydronephrosis.

also be elevated in non-gynaecological conditions including peritonitis, and hepatic or pulmonary diseases.[1,2] Its elevation may be caused by peritoneal irritation, regardless of whether the underlying cause is benign or malignant.[3] In this case, the atypical clinical presentation (marked abdominal distension without fever, together with elevated leukocyte count and raised CA-125) could mimic an ovarian malignancy and should be considered in the differential diagnosis.[3]

Endometriomas are typically described as homogeneous, hypoechoic ovarian lesions, and most exhibit diffuse low-level internal echoes, multilocularity, and hyperechoic wall foci, although their ultrasonographic appearance can vary.[4] Endometrioma is unlikely in this case, as the patient reports normal, regular menses and does not demonstrate chronic pelvic pain or other common clinical features of endometriosis, such as dysmenorrhoea, dyspareunia, dysuria, dyschezia, or infertility.[5] An infected endometrioma could be considered; however, the patient was afebrile, and such lesions rarely present with rapid, marked abdominal distension over the course of one month.

Ultrasonography is the first-line diagnostic modality for evaluating pelvic masses,[2] and transvaginal ultrasonography have a high negative predictive value in assessing ovarian tumours.[6] According to the IOTA-ADNEX model, incorporating the clinical predictors (20-year-old patient, CA-125 level of 116 U/mL, and referral to a centre with gynaecologic oncology services) and ultrasound predictors (maximum tumour diameter of 28 cm; absence of solid components, cyst locules, papillary projections, acoustic shadows, and ascites), the estimated probability of a benign ovarian tumour in this case is 88.5%. Typical ultrasonographic features of a TOA include a solid, cystic, or complex adnexal mass with surrounding fluid collections.[7] However, preoperative diagnosis of this huge 28 cm mass, such as in this case, is challenging with ultrasonography alone. While the IOTA system offers standardized terminology for adnexal mass characterization, the definitive diagnosis and management of this huge mass depend heavily on clinical presentation, tumor markers, and laboratory findings, and therefore extend beyond the scope of IOTA classification rules.

MRI has been shown to be superior to ultrasonography and CT in characterizing pelvic pathologies, with overall diagnostic accuracies of 97%, 77%, and 87%, respectively.[6] While CT is less ideal for soft tissue discrimination in pelvic masses, it remains valuable for identifying fatty and calcified components, as well as assessing the overall extent of large masses, as demonstrated in this case.[6]

A staging laparotomy was chosen in this case due to compressive complications, including obstructive uropathy and bilateral mild hydronephrosis. Intraoperatively, a 4-liter pus-filled TOA was found adherent to surrounding structures, necessitating a right salpingo-oophorectomy as the right fallopian tube and ovary were already unhealthy and unsalvageable. A minimally invasive approach was not feasible given the massive 28 cm lesion, which significantly increased the risk of injury to adjacent visceral organs and inadvertent puncture of the mass due to the poor laparoscopic working window. Although conservative management with antibiotics is the first-line treatment for any small TOA, an abscess measuring more than 5 cm is associated with poorer response to medical therapy, and surgical intervention or drainage is generally recommended when the abscess exceeds 8 cm.[8,9,10]

Surgical drainage is not ideal in this case, as it may not ensure complete evacuation of the 28 cm TOA compared with smaller TOAs. The significantly larger size increases the risk of intra-abdominal spillage or residual content leaking from the collapsed capsule after drainage. This may lead to recurrence, peritonitis, and subsequent visceral adhesions, which can contribute to chronic pelvic pain and impair fertility preservation. Furthermore, there remains a possibility of an underlying adnexal malignancy that may not be recognised prior to surgery. All these potential complications were taken into consideration in determining the management for this case, especially given that there are yet no reported or published cases addressing the management of a TOA of this size.

Interestingly, a review has reported better outcomes for smaller TOAs when managed with minimally invasive approaches compared with conservative treatment with antibiotics alone.[9] In this case, the patient received 14 days of broad-spectrum antibiotics postoperatively and was subsequently discharged in good condition. Other factors associated with poor response to medical treatment include age over 40 years, elevated initial white blood cell count, and smoking history.[8] Postoperative recovery with antibiotics was successful, reinforcing the importance of surgical intervention when conservative management may be inadequate.

## CONCLUSION

This case contributes valuable insight by presenting an uncommon manifestation of TOA and demonstrating the importance of a multidisciplinary approach in achieving successful management. Although the patient's symptoms and clinical findings initially suggested an ovarian tumour rather than a TOA, this case underscores the significant diagnostic challenges associated with TOA in the preoperative setting. The unusually large abscess size, associated complications, and patient demographics were key factors influencing the decision to proceed with operative intervention as the primary management strategy. This approach aimed not only to treat the underlying pathology but also to preserve fertility and protect adjacent vital organs. This report may assist clinicians in managing huge TOA cases and encourage further reporting to inform future practice, improve outcomes, and guide management strategies for atypical presentations.

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## DECLARATION

The authors declare no conflict of interest related to this report.

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