International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Shetty C et al. Int J Reprod Contracept Obstet Gynecol. 2025 Jul;14(7):2369-2372
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20251775

Case Report

Successful management of a young patient with endometroid ovarian carcinoma with positive immuno-histochemistry

Chiranjeev Shetty, Meena Satia*, V. Bhadhwar, Nilofer Yelurkar

Department of Obstetrics and Gynecology, Dr. D. Y. Patil Hospital Nerul, Navi Mumbai, Maharashtra, India

Received: 06 March 2025
Revised: 11 June 2025
Accepted: 12 June 2025

***Correspondence:**
Dr. Meena Satia,
E-mail: meenasatia@kem.edu

ABSTRACT

Ovarian cancer is overall a disease of postmenopausal women although, in about 12% of cases, it may develop during child bearing age. This estimate includes numerous women with borderline and non-epithelial tumours typically presenting during child bearing age group. Although there are several case reports of Endometriosis-associated ovarian cancer (EAOC) at a young age, the exact age distribution of EAOC diagnosis is still not well- expounded. Presenting here with a young patient with ovarian malignancy with positive immuno-histochemistry for both oestrogen and progesterone receptor.

Keywords: Endometrioid ovarian carcinoma, Endometriosis-associated ovarian cancer, Immunohistochemistry, Estrogen receptor, Radiological evaluation, Staging laparotomy

INTRODUCTION

Endometroid carcinoma of the ovary accounts for approximately 10% of epithelial ovarian cancers and is frequently associated with endometriosis.[1] Though it commonly affects women in their 5th to 6th decade of life younger women can also develop this malignancy, albeit rarely.[2] Early diagnosis, often achieved through a combination of radiology, tumor markers, and histopathological analysis. All these can significantly improve outcomes. Endometriosis-associated ovarian cancer (EAOC) is an evolving and distinct clinical entity, often considered to develop from endometrioma.[3] Furthermore, contemporary state-of-the-art methodologies have provided evidence of genetic correlation and a causal relationship between endometroid EAOC, with studies identifying specific gene mutations such as ARID1A, PIK3CA, and PTEN that contribute to tumorogenesis.[4] Clear-cell and endometroid ovarian epithelial carcinomas are the most intensely and reproducibly associated malignancies with endometriosis. While endometriosis may also be linked to low-grade serous ovarian carcinoma, this association remains less documented.[5] Coexistence with endometriosis is observed in about 20%–40% of all women diagnosed with clear-cell and endometroid ovarian carcinomas.[6] The increased risk of developing clear-cell and endometroid ovarian carcinomas in women with endometriosis is 3.4-fold and 2.3-fold, respectively.[7] A methodological assessment of the age at EAOC diagnosis may have numerous implications for the clinical management of women with intact endometrioma, especially in young patients planning future pregnancies. Moreover, this knowledge may supplement essential information for reproductive endocrinologists and gynaecological surgeons in their counselling for the best treatment approach, particularly when atypical features of an endometrioma appear on transvaginal sonography (TVS).[8] The integration of clinical risk factors, imaging technologies, and molecular profiling may enhance early detection and allow for more personalised treatment strategies, ultimately improving patient outcomes.

CASE REPORT

This case details the diagnostic and therapeutic journey of a 31-year-old Patient with history of one previous Caesarian section and a H/o splenectomy presenting with complaints of severe dysmenorrhea during her young age along with pain in abdomen and lump in abdomen since last 6 months along with 3 months of intermittent lower abdominal pain, bloating sensation and loss of appetite. There was no history of weight loss bowel or bladder complains or abnormal vaginal bleeding. Her GC was fair and on physical examination mild tenderness was noted in the right iliac fossa and a 24 weeks size freely mobile mass was palpable and per vaginum examination revealed a bulky uterus and a freely mobile mass occupying the pelvis of size 24 weeks with no evidence of ascites per rectal examination revealed that mucosa appeared free.

All the laboratory investigations were within normal limits. Pelvic sonogram showed a 10×14.7×15 cm size well defined cystic lesion with internal echoes in right adnexa and right ovary not seen separately. Multiple cysts with dense echoes also noted within the cystic lesion largest 4.7×4.7 cm. There is 5.7×5.5 cm size ill-defined lobulated hyperchoic structure with vascularity also noted within this cystic lesion. Evidence of 2.6×3.2 cm hemorrhagic follicular cyst on left side. No evidence of ascites or obvious lymphadenopathy in visualised retroperitoneum and iliac regions. CECT was advised along with CA 125 which was 167. Other tumour markers such as LDH, Beta-HCG, CEA, AFP were within normal limits. After that MRI pelvis was advised which was suggestive of a large well defined, multiloculated heterogeneous mixed signal intensity mass lesion involving the abdominal and pelvic cavit not seen separately from the right ovary with predominant fat component, heterogeneously enhancing polypoidal soft tissue component and variable intensity cystic components.

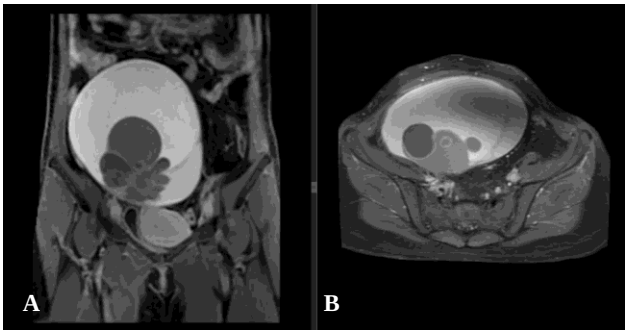

Figure 1: (A) Coronal T2-weighted MRI showing a large, multiloculated cystic pelvic mass with multiple septations and solid components arising from the adnexa, suggestive of a malignant ovarian neoplasm; (B) axial T2-weighted MRI depicting the same complex cystic lesion with irregular septae and areas of solid enhancement.

Findings were suggestive of malignant neoplastic aetiology, possibly right ovarian malignant teratoma with minimal ascites. Patient was prepared for staging laparotomy with frozen section of the ovarian mass. A midline vertical incision taken peritoneal fluid was collected and sent for cytology A solid cystic mass arising from the right adnexa, measuring approximately 20×15×10 cm was seen freely mobile was seen clamped cut and ligated and send for frozen section and uterus was normal in size and left ovary showed endometrioma. Based on the frozen section report which showed features of ovarian malignancy favouring surface epithelial tumour.

Cytology was suspicious of surface epithelial malignancy with the left ovary also slightly enlarged with cystic component Total abdominal hysterectomy along with bilateral salpingoopherectomy was performed. Under surface of liver was palpated, partial omentectomy was done and para-aortic and common iliac lymph nodes were not palpable. Final HP report was given which was suggestive of endometriod carcinoma FIGO grade 1 (right ovary) with no tumour deposits seen on omentum and peritoneum. Left adnexa showed no significant pathology and immuno-histochemistry was advised which showed tumor cells with strong diffuse positivity for ER and Ck7. Oncosurgery reference was sent and they had advised chemotherapy. Currently has completed chemotherapy of combination of Paclitaxel, Carboplatin and Filgrastim for six cycles six months later she was advised PET-CT which was suggestive of no evidence of metabolically active disease anywhere in the body.

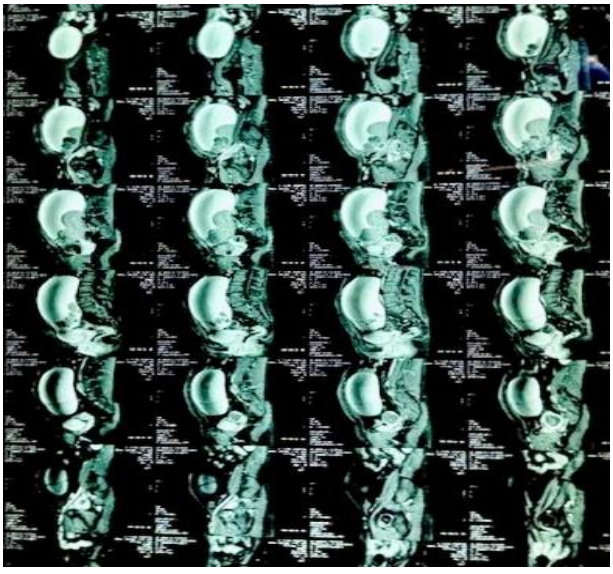

Figure 2: Sequential sagittal MRI sections showing a large multiloculated pelvic-abdominal mass with both cystic and solid components arising from the adnexal region. The lesion demonstrates mass effect with anterior displacement of the uterus and posterior compression of the rectum.

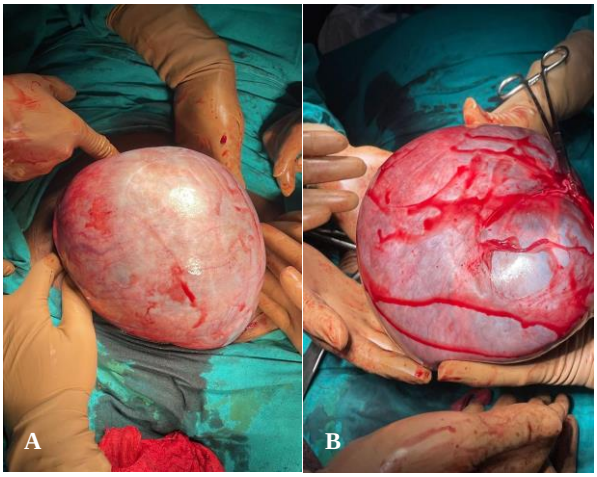

Figure 3: (A) Intraoperative image showing an intact, smooth-surfaced ovarian cystic mass; (B) same cystic mass displaying prominent surface vascularity

DISCUSSION

Although EAOC diagnosis at the reproductive age is infrequent and even sporadic in women under 40 years the index of suspicion should be directed toward distinct clinical situations. Cases with relapsing or worsening pelvic pain, the rapid growth of an endometrioma, or a larger-sized endometrioma, particularly those exceeding 9 cm, should raise concerns for EAOC and warrant thorough investigation. In this setting, serum cancer antigen 125 (CA-125) has limited diagnostic value, as it lacks specificity in differentiating benign endometriosis from malignant transformation.[9,10]

Clinical imaging plays a vital role in evaluating and differentiating an endometrioma's transformation into EAOC, particularly in women of reproductive age. Pelvic transvaginal ultrasound (TVS) is the first-line imaging modality, given its high sensitivity in detecting adnexal masses. However, computed tomography (CT) scans perform poorly in characterising ovarian lesions.[10] Magnetic resonance imaging (MRI) serves as a valuable adjunct when ovarian findings are categorised as intermediate or atypical on TVS.[11] Benign endometrioma typically presents as a homogenous, 'ground glass' ovarian mass, which may be unilateral or bilateral, lacking solid components or papillary projections on TVS. However, as age increases, papillations and other solid components become more frequent, and the characteristic 'ground glass' appearance diminishes, even though cyst diameter remains relatively stable.[12]

Conversely, EAOC, particularly clear-cell and endometriod ovarian carcinomas, are typically larger than 9 cm, with a mean size of 11-13 cm, and are usually unilateral tumours with solid components, papillary projections, and vascularization.[13] In clinical practice, 5-25% of cases may have indeterminate or atypical adnexal findings on TVS, necessitating further evaluation with MRI.[14] On MRI, benign endometrioma typically displays T2-weighted image shading, while a larger cyst with an enhanced solid portion may indicate malignant transformation. Moreover, the disappearance of shading on T2-weighted images within the endometrioma may also suggest malignant transformation.

Endometrioma and deep infiltrating endometriosis (DIE) occasionally coexist in the same patient. In a recent review of DIE-related malignant transformation cases, only eight patients were identified over ten years, highlighting its rarity.[15] However, given the potential for malignancy, a high level of suspicion is necessary in DIE cases presenting with new clinical manifestations and pelvic masses in locations such as the pelvic wall, pouch of Douglas, and rectovaginal septum.[16] Further studies are essential to explore the association between extra-gonadal endometriosis and malignant transformation, particularly in cases where atypical features arise.

MRI performance is crucial in these situations, especially when TVS reveals atypical endometrioma features. A definitive diagnosis of EAOC necessitates surgery, most commonly performed via laparoscopy or laparotomy, depending on the tumour's characteristics. Definitive management should be individualised, considering the patient's age, final pathological diagnosis, tumor stage, and histological grade. Since women with EAOC are often diagnosed at an earlier stage and tend to have a more favourable histological grade, conservative surgical management should be discussed in infertile patients, preserving fertility whenever possible.

CONCLUSION

This case highlights the diagnostic complexity of EAOC in young women of reproductive age, particularly when initial clinical and radiological findings raise concern for malignancy. The transformation of endometrioma into endometrioid carcinoma, though uncommon in younger patients, must remain a differential in women presenting with atypical imaging features, persistent pelvic pain, or enlarging adnexal masses. MRI served as a key tool in raising suspicion in this case, underscoring its value when ultrasound findings are equivocal. Early surgical intervention and histopathological confirmation remain the cornerstones of diagnosis. Given that EAOC often presents with hormone receptor positivity and low-grade histology, as in this case, timely diagnosis allows for optimal oncologic outcomes, even in younger patients. Continued awareness, vigilant surveillance, and tailored surgical planning are essential for balancing oncologic safety with fertility considerations in this rare but significant entity.

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

REFERENCES

1. Kurman RJ, Shih IM. The dualistic model of ovarian carcinogenesis: revisited, revised, and expanded. American J Pathol. 2016;186(4):733-47.
2. Richani D, Gilchrist RB. The epidermal growth factor network: role in oocyte growth, maturation and developmental competence. Human Reprod. 2018;24(1):1-4.
3. Saavalainen L, Lassus H, But A, Tiitinen A, Härkki P, Gissler M, et al. Risk of gynecologic cancer according to the type of endometriosis. Obst Gynecol. 2018;131(6):1095-102.
4. Wiegand KC, Shah SP, Al-Agha OM, Zhao Y, Tse K, Zeng T, et al. ARID1A mutations in endometriosis-associated ovarian carcinomas. New England J Med. 2010;363(16):1532-43.
5. Westhoff GL, Chen Y, Teng NN. Targeting FOXM1 improves cytotoxicity of paclitaxel and cisplatinum in platinum-resistant ovarian cancer. International J Gynecol Cancer. 2017;27(8):1602-9.
6. Bigelow AM, Crane SS, Khoury FR, Clark JM. Catheter ablation of supraventricular tachycardia without fluoroscopy during pregnancy. Obst Gynecol. 2015;125(6):1338-41.
7. Kvaskoff M, Mahamat-Saleh Y, Farland LV, Shigesi N, Terry KL, Harris HR, et al. Endometriosis and cancer: a systematic review and meta-analysis. Human Reprod. 2021;27(2):393-420.
8. Mikami Y. Endometriosis-related ovarian neoplasms: pathogenesis and histopathologic features. Diag Histopathol. 2014;20(9):357-63.
9. Li DP, Du C, Zhang ZM, Li GXBreastfeeding and ovarian cancer risk: a systematic review and meta-analysis of 40 epidemiological studies. Asian Pacific J Cancer Preven. 2014;15(12):4829-37.
10. Zhang X, Li M, Tang Z, Li X, Song T. Differentiation between endometriosis-associated ovarian cancers and non-endometriosis-associated ovarian cancers based on magnetic resonance imaging. Br J Radiol. 2021;94(1125):1441.
11. Umeoka S, Koyama T, Togashi K, Kobayashi H, Akuta K. Vascular dilatation in the pelvis: identification with CT and MR imaging. Radiographics. 2004;24(1):193-208.
12. Love C, Tomas MB, Tronco GG, Palestro CJ. FDG PET of infection and inflammation. Radiographics. 2005;25(5):1357-68.
13. Zhu C, Xu Z, Zhang T, Qian L, Xiao W, Wei H, et al. Updates of pathogenesis, diagnostic and therapeutic perspectives for ovarian clear cell carcinoma. J Cancer. 2021;12(8):2295.
14. Gong E, Pauly JM, Wintermark M, Zaharchuk G. Deep learning enables reduced gadolinium dose for contrast-enhanced brain MRI. J Magn Reson Imag. 2018;48(2):330-40.
15. Gałczyński K, Chauvet P, Canis M, Bourdel N. Laparoscopic extraperitoneal lumboaortic lymphadenectomy in 10 steps–Let's make it easier. Gynecol Oncol. 2016;143(2):448-9.
16. Medeiros LR, Rosa MI, Silva BR, Reis ME, Simon CS, Dondossola ER, da Cunha Filho JS. Accuracy of magnetic resonance in deeply infiltrating endometriosis: a systematic review and meta-analysis. Arch Gynecol Obst. 2015;291:611-21.

Cite this article as: Shetty C, Satia M, Bhadhwar V, Yelurkar N. Successful management of a young patient with endometroid ovarian carcinoma with positive immuno-histochemistry. Int J Reprod Contracept Obstet Gynecol 2025;14:2369-72.