

Rapid Progression of Endometriotic Cyst into Endometrioid Carcinoma in a Young Patient

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Background

Endometriosis is a chronic condition affecting approximately 6–10% of women of reproductive age (Rogers et al., 2009). While benign in most cases, it carries a recognized risk of malignant transformation, particularly within ovarian endometriomas. This transformation occurs in approximately 0.5–1% of cases, most commonly resulting in endometrioid or clear cell ovarian carcinoma (Ioannidou A et al., 2025).

The pathogenesis is thought to involve chronic inflammation, hormonal stimulation, and genetic alterations within ectopic endometrial tissue. Histological evidence often demonstrates transition from benign endometriotic epithelium to malignant neoplasm. Malignant transformation is typically seen in women above the age of 50, and is rare in younger patients (Kadan, Y. et al, 2015).

Imaging can be non-specific, as benign endometriomas and malignant lesions often share overlapping features. However, the presence of mural nodules, septations, or rapid cyst growth should raise clinical concern. Although tumour markers such as CA-125 may be elevated, they lack specificity in this context (Kadan, Y. et al, 2015).

Early recognition and surgical assessment are key to diagnosis and management. This case adds to the limited literature describing rapid malignant transformation in a young patient and underscores the importance of vigilance when evaluating complex adnexal masses, even in patients without longstanding endometriosis.

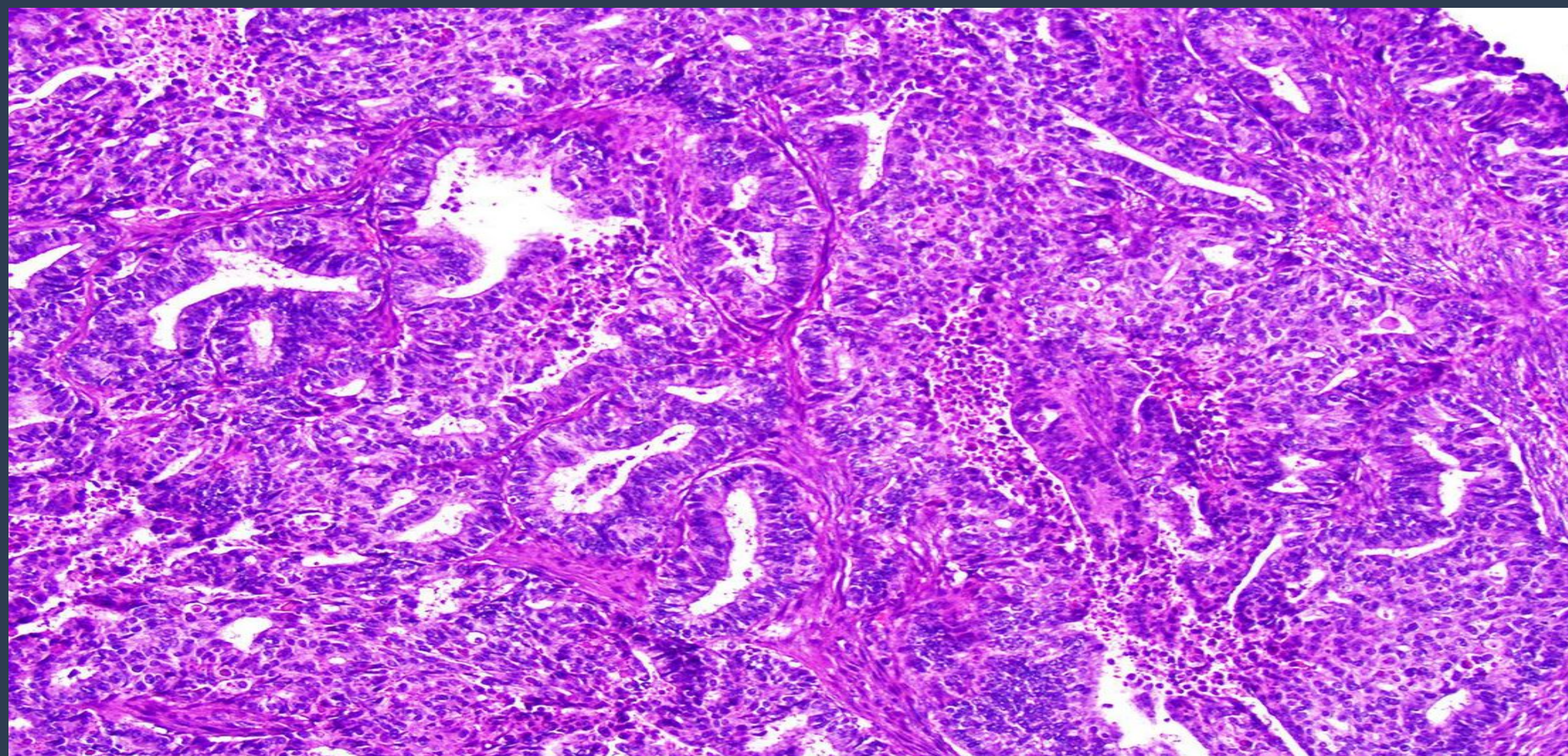


Figure 1: Endometrioid adenocarcinoma, FIGO grade 2 – Ozlen Saglam, M.D. PathologyOutlines.com, Inc.

Case Report

A 25 year old female presented with persistent vaginal bleeding with duration of over two weeks. Initial transvaginal ultrasound was unremarkable, showing no evidence of structural abnormalities. Approximately five months later an MRI performed for unrelated lower back pain incidentally identified bilateral ovarian cysts with the right sided cyst demonstrating complex septations.

Within three weeks of this finding, the patient presented to the emergency department with acute lower abdominal pain. Repeat imaging revealed a ruptured right ovarian cyst with pelvic abscess formation.

Conservative management was initiated with empirical treatment for presumed pelvic inflammatory disease. The patient's symptoms persisted despite antibiotic therapy prompting a diagnostic laparoscopy. Intraoperative findings conflicted with the earlier diagnosis of a hemorrhagic cyst; a right ovarian abscess, adherent to the right pelvic sidewall was revealed along with a contralateral left ovarian cyst which was drained.

Tumor markers revealed an elevated lactate dehydrogenase, with a normal CA 125 level. Ongoing pain and clinical concern necessitated a second-look laparoscopy. This revealed a large, complex cystic mass, adherent to the right pelvic sidewall, posterior uterus, and rectosigmoid colon. A small solid nodule was also noted on the right ovary.

An en bloc laparoscopic resection was performed including right tubo-ovarian mass excision, right pelvic peritonectomy, and right parametrectomy.

Histopathological examination of the resected right parametrial tissue, right fallopian tube and ovary, and right pelvic sidewall confirmed the presence of a **FIGO Stage IIA, Grade 2 endometrioid carcinoma**. Immunohistochemistry showed tumor cells positive for PAX8, estrogen receptor, and progesterone receptor, with a p53 wild type expression with MMR proficiency.

Biopsies of the uterine serosa revealed endometriosis. No malignancy was identified in the omental or endometrial biopsy specimens. The patient also reported a family history of ovarian cancer.

Following a multidisciplinary team meeting, the patient was recommended for pelvic clearance surgery and adjuvant chemotherapy, in order to address any residual disease and reduce the risk of recurrence.

Discussion

Endometriosis affects an estimated 6–10% of women of reproductive age, with malignant transformation occurring in roughly 0.5–1% of cases (Rogers et al., 2009, Ioannidou A et al., 2025). Endometrioid and clear cell carcinomas are the most common histological subtypes arising from endometriotic cysts, typically after years of disease.

This case is unusual not only due to the patient's age, 25 years old, but also the rapid progression from a suspected benign ovarian cyst to confirmed Stage IIA endometrioid carcinoma within a few months. The tumour estrogen and progesterone receptor positivity may have prognostic and therapeutic relevance. Although mismatch repair, MMR, proficiency was confirmed, the family history of ovarian cancer raises the possibility of an underlying genetic predisposition, warranting further assessment.

The initial clinical impression of a ruptured hemorrhagic cyst or tubo-ovarian abscess highlights the diagnostic challenges in distinguishing benign from malignant adnexal pathologies, particularly when imaging is equivocal. This case reinforces the importance of early surgical evaluation in patients with persistent, complex adnexal lesions, especially in lieu of risk factors such as family history or atypical clinical progression are present. Timely multidisciplinary involvement allowed accurate diagnosis and appropriate oncologic intervention in this rare presentation.

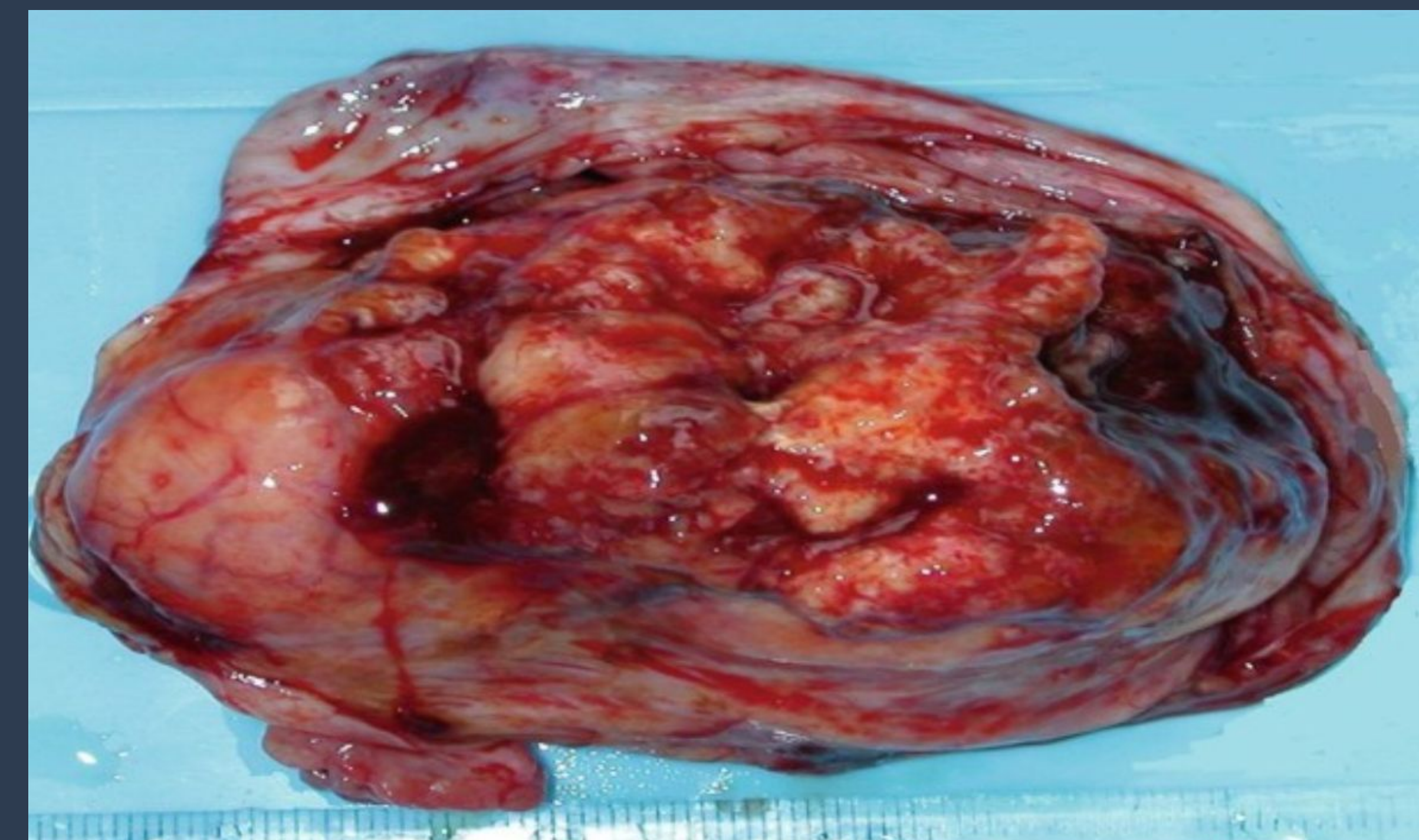


Figure 2: Gross ovarian endometrioid adenocarcinoma – Katzenberg, J., Roma, A.A. Ovarian Endometrioid and Clear-Cell Tumors, Gynecologic and Obstetric Pathology, Volume 2

Conclusion

In conclusion this case highlights the importance of maintaining a high index of suspicion when evaluating complex ovarian cysts, particularly in patients with a family history of gynecologic malignancy despite their age. Even in the absence of long standing symptoms, atypical or rapidly evolving adnexal masses warrant early surgical assessment and histological confirmation.

Prompt escalation from conservative management to operative intervention proved essential in this case, allowing timely diagnosis and treatment of a FIGO Stage IIA, Grade 2 endometrioid carcinoma. Multidisciplinary team input was instrumental in guiding optimal management. Further research into the malignant potential of endometriosis are needed to refine risk stratification and management strategies for similar cases.

References

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2. Ioannidou A, Sakellariou M, Sarli V, Panagopoulos P, Machairiotis N. New Evidence About Malignant Transformation of Endometriosis—A Systematic Review. Journal of Clinical Medicine. 2025; 14(9):2975.
3. Kadan, Y. et al. Predictive factors for the presence of malignant transformation of pelvic endometriosis', European Journal of Obstetrics & Gynecology and Reproductive Biology, 2015, 185, pp. 23–27.

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