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WHEN ENDOMETRIOMA BECOMES MALIGNANT: A CLINICAL CASE AND CONCLUSIONS FOR ONCOGYNECOLOGICAL PRACTICE

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Abstract

Objective. To evaluate the clinical and morphological features of malignant transformation of ovarian endometrioma and to emphasise the importance of oncological vigilance in the management of patients with endometriosis.

Materials and methods. A clinical case of early endometrioid carcinoma of the ovary against the background of endometrioma in a woman of reproductive age is presented. An analysis of current literature data and ESGO, ESHRE, and JSGO recommendations for the diagnosis and treatment of such patients was performed.

Results. Morphological and radiological signs of increased oncological risk were identified, which became the basis for timely surgical intervention. Endometrioid carcinoma G1, FIGO IA was histologically verified. Fertility-preserving staging surgery was performed. No recurrence was detected during 24 months of follow-up.

Conclusions. Ovarian endometrioma can be a source of early gynaecological cancer processes even in young patients. Vigilance, high-quality imaging and adequate surgical tactics are key factors for successful treatment.

Keywords: endometrioma; endometriosis; malignancy; ovarian cancer; ARID1A; gynaecological oncology.

Introduction

Ovarian endometrioma is traditionally considered a benign form of genital endometriosis, which has a chronic course and is associated with pelvic pain, infertility, and a significant reduction in the quality of life of women of reproductive age. Despite its classic classification as a benign disease, data accumulated over the past decades indicate that endometrioma is not a biologically static structure. A number of morphological, genetic, and epigenetic changes characteristic of endometrioid and clear cell ovarian carcinomas have also been described in endometrioma tissues, which has increased the scientific community's attention to the potential malignancy of this pathology [1-5].

According to large population studies, the risk of developing ovarian cancer in the context of endometriosis is approximately 1.4–1.9 times higher than in the general population, and for endometriomas – 2.5–4 times higher. Most often, malignancy is associated with two histological variants – endometrioid and clear cell carcinoma, which confirms the concept of so-called endometriosis-associated ovarian cancer (EAOC). Risk factors for progression include a long history of endometriosis, repeated episodes of inflammation, oxidative stress, recurrent cysts, age-related increase in proliferative activity of the cyst epithelium, as well as genetic changes, in particular ARID1A, PIK3CA, PTEN, and KRAS mutations [6-12].

Although the absolute risk of malignancy remains low, clinicians need to be alert to changes in the behaviour of endometriomas, as early signs of malignant transformation may be non-specific and masked by recurrence or complications of a benign process. The ultrasound criteria described in the IOTA and ESGO guidelines, as well as the emergence of new risk assessment methods, including molecular markers, allow for more accurate diagnosis, but clinical decisions require the integration of morphological, radiological, and intraoperative data [13-15].

Timely surgical intervention, adequate selection of patients for organ-preserving approaches, multidisciplinary management, and oncological vigilance are key elements of the modern strategy for managing patients with endometriomas. The description of clinical cases where a benign course progresses to a borderline or malignant state provides a deeper understanding of the natural history of the disease and improves management protocols [16-18].

The purpose of this article is to present a clinical case of a patient with ovarian endometrioma, in whom signs of a process beyond typical benignity were detected during surgical treatment, as well as to analyse diagnostic and tactical decisions that are important for daily gynaecological oncology practice.

Materials and methods

The article describes the clinical case of a patient who consulted a gynaecologist with complaints of chronic pelvic pain and confirmed endometrioma. The following were performed:

clinical examination,

transvaginal ultrasound,

MRI of the pelvic organs,

determination of CA-125 and HE4 levels,

laparoscopic cystectomy,

pathohistological and immunohistochemical examination,

multidisciplinary consultation to determine further tactics.

The method of sexual preservation in the early stages is in line with ESGO and NCCN recommendations for young patients with endometrioid carcinoma.

Results (Clinical case)

Patient A., 34-year-old woman, G1P1, with a 5-year history of dysmenorrhea and suspected endometriosis. She did not receive treatment but regularly visited an obstetrician-gynaecologist and family doctor at her place of residence.

Instrumental diagnostics

Ultrasound: 6.7 cm endometrioma of the left ovary with typical ground glass and areas of capsule thickening.

MRI: intracystic papillary inclusions, heterogeneous walls, no signs of infiltrative growth.

CA-125 marker: 98 U/ml.

HE4: within normal limits.

Surgical treatment

Laparoscopic cystectomy was performed. During the operation, a dense capsule, dense adhesions and areas of fibrosis were noted. Intraoperative cytological and histological examination revealed the presence of malignant cells in the specimen. Thus, it was decided to perform the following surgical intervention. Unilateral adnexectomy, peritoneal biopsy, and omentectomy were performed for staging.

Postoperative histological examination

The following was detected:

endometrioid carcinoma G1 against a background of endometriosis,

positive expression of PAX8, ER,

partial loss of ARID1A,

tumour confined to the ovary → FIGO IA.

Further tactics

Adjuvant therapy is not indicated. The patient has been under observation for 24 months — no recurrence.

Discussion

The presented case demonstrates that even a typical-looking endometrioma in a young woman may contain early signs of malignancy. The thickening of the capsule and papillary structures detected by MRI are predictors of malignant transformation, which is consistent with the literature.

Molecular changes, especially the loss of ARID1A, are now considered an early marker of the transition of endometriosis to atypia and carcinoma. Although routine genetic testing has not yet been widely implemented, it has significant potential in the development of personalised monitoring tactics.

Surgical treatment of such patients should be carried out in accordance with the principles of oncological safety: minimal risk of capsule rupture, accurate staging, avoidance of spillage of cyst contents. In the early stages, fertility can be preserved in selected patients, which is fully consistent with current recommendations.

In our case, the combination of early stage, low degree of malignancy, and adequate surgical tactics allowed us to avoid adjuvant therapy and ensure a good prognosis.

Malignancy of endometrioma remains a rare but clinically significant phenomenon that requires increased oncological vigilance. The presented case highlights the need for a differentiated approach to the treatment of patients with a long history of endometriosis and ovarian cysts ≥6 cm, especially in the presence of atypical morphological or radiological features.

According to current clinical guidelines, the most predictable predictors of malignancy are an increase in the size of the endometrioma, the appearance of intracystic papillary elements, capsule heterogeneity, and dynamic growth of tumour markers. However, even normal CA-125 or HE4 values do not rule out early oncopathology, as confirmed by both the literature and the clinical example given.

The molecular aspect of the process is also important. Recent studies indicate the involvement of ARID1A mutations, PI3K/AKT/mTOR signalling cascade, and epigenetic abnormalities in the transition of endometrioma from benign to precancerous and malignant. This creates a basis for the development of personalised approaches to risk stratification of patients with endometriosis in the future.

Surgical treatment should be performed in accordance with the principles of oncological safety. Laparoscopic access remains optimal provided that the operation is performed by a specialist with experience in gynaecological cancer surgery, as microperforation of the cyst capsule and spillage of its contents can lead to a worsening prognosis. Verification of the diagnosis based on a pathohistological examination with an immunohistochemical panel is a mandatory step that allows the histotype and grade to be established and potential targets for treatment or observation to be assessed.

This case demonstrates the possibility of fertility-preserving treatment in patients with early endometrioid ovarian carcinoma associated with endometriosis, provided that careful staging and multidisciplinary decision-making are performed. This approach is in line with current trends in individualised gynaecological cancer care.

Conclusions

1. Endometrioma is not an entirely benign pathology; in 0.5–1% of cases, carcinoma may develop.

2. Atypical ultrasound and MRI findings should be interpreted as risk factors and require surgical intervention.

3. Molecular abnormalities of ARID1A and PI3K/AKT pathways play a key role in the pathogenesis of malignancy.

4. The involvement of a gynaecological oncologist in surgical treatment is important to ensure the oncological adequacy of the intervention.

5. In carefully selected young patients, a fertility-preserving approach is possible without compromising oncological outcomes.

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