Intracystic endometrioid borderline tumor.

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Houssein El Hajj ,[1] Fabrice Narducci,[1] Glenn McCluggage,[2] Camille Pasquesoone[3]

A 51-year-old pre-menopausal patient underwent a laparoscopic ovarian cystectomy for persistent bilateral cysts. Pathology analysis revealed borderline endometrioid tumors on both ovaries[1] (Figures 1–4). A secondary review confirmed that the cyst's epithelial surface lining was often abraded and had underlying stromal tissue or stromal macrophages loaded with hemosiderin pigments, suggesting an endometriotic cyst. In some areas, the surface epithelium showed cellular dystrophies with nail-like cells and epithelial proliferation with papillary formations, and the accretion of glandular structures. Some cells also contained intracytoplasmic mucus-secreting vacuoles. This proliferating aspect and increased glandular density and adhesions in the endometriotic cyst wall suggest endometrial atypical hyperplasia, but in this context, it was considered an intracystic borderline endometrioid tumor.[1]

In immunohistochemical analysis, the cells lining the cyst showed positive nuclear staining with the anti-PAX8 antibody, indicating a Müllerian origin. These cells also expressed moderate levels of estrogen and progesterone receptors. The tumor cells displayed a wild-type profile with anti-p53 antibody and lacked expression of WT1, supporting endometrioid histotype. The differential diagnosis included a serous tumor, which typically expresses WT1, or a mucinous neoplasm, which usually demonstrates lower levels of PAX8 and hormone receptors expression and more prominent intracytoplasmic mucin. Additionally, the epithelial proliferation was underlined by a stromal tissue that stained positive for anti-CD10 antibody, suggesting an endometriotic cyst. HPV16 in-situ hybridization was negative. The diagnosis of an intracystic endometrioid borderline tumor developed inside an endometriotic cyst was confirmed.

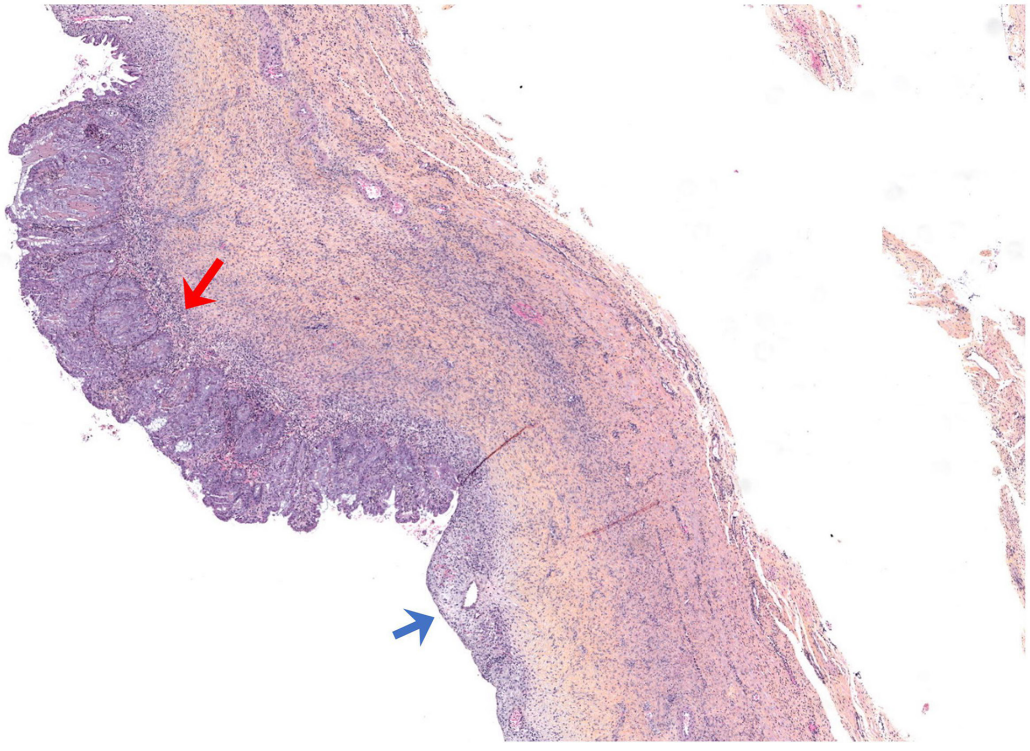

Figure 1 Hematoxylin and eosin sections of the intracystic endometrioid borderline lesion of the left ovary (magnification x5) showing that the endometriotic cyst wall is made of an epithelial lining that is most often abraded, underlined by stromal tissue or by a significant increase in stromal macrophages (blue arrow), and a focally epithelial proliferation on the surface of the cyst with papillary aspect and apposition of glandular structures (red arrow).

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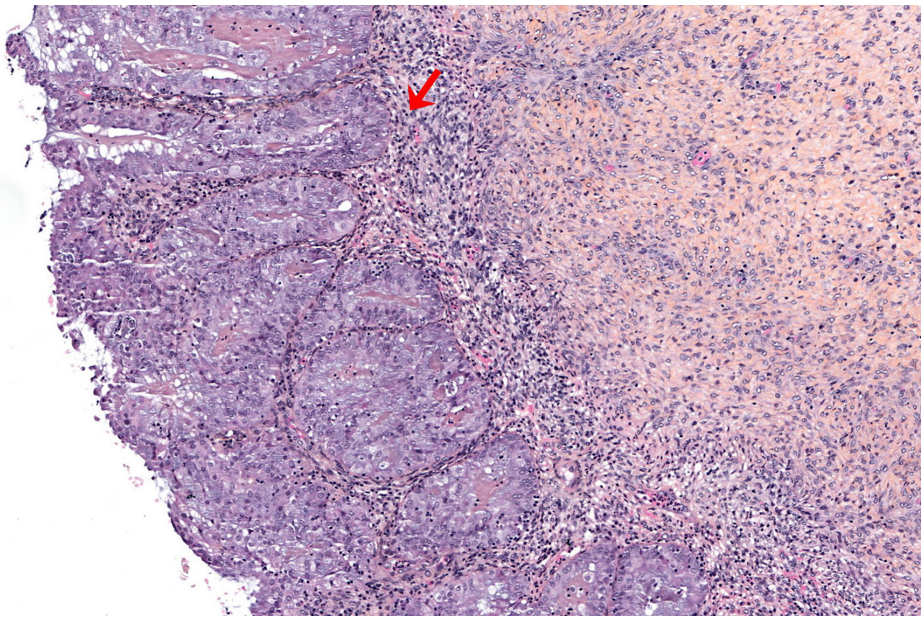

Figure 2 Hematoxylin and eosin sections of the intracystic endometrioid borderline lesion of the left ovary (magnification x15). Red arrow: presence of an epithelial proliferation surrounding the base of the papilla with apposition of the glandular structures. Epithelial cells are cylindrical, with regular nuclei and cytoplasms containing mucous vacuoles.

Post-operative imaging suggested persistent ovarian endometriomas and nodules at the level of the torus uterinus with no suspicious lymph nodes. Tumor markers were normal. Following tumor board discussion, the patient underwent peritoneal staging, appendix evaluation, omentectomy, and hysterectomy with bilateral adnexectomy. The pathological examination confirmed endometriosis on both ovaries and rectal nodules, as well as an intracystic endometrioid borderline tumor on the right ovary and intramucosal, low-grade endometrioid adenocarcinoma in the endometrium. No infiltration of the myometrium, extension to the cervix, or evidence of lymphovascular invasion was found. Molecular testing was not performed; however, the tumor was noted to be p53 wild-type and mismatch repair protein proficient by immunohistochemistry. A discussion in the tumor board determined that there was no

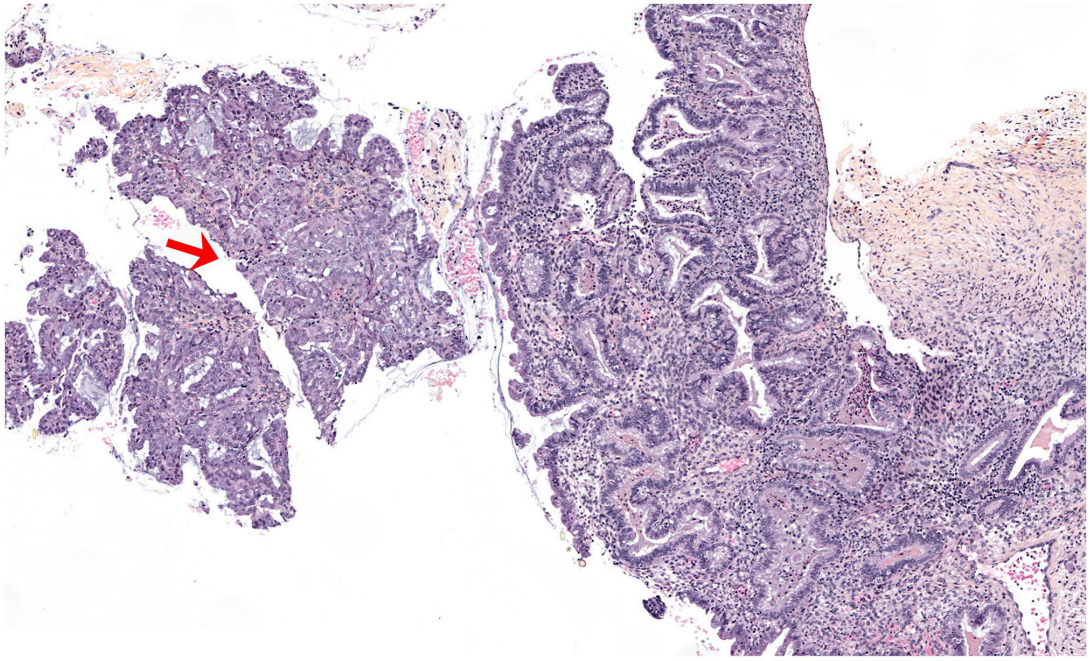

Figure 3 Hematoxylin and eosin E sections of the intracystic endometrioid borderline lesion of the left ovary (magnification x10). Red arrow: presence of an epithelial proliferation surrounding the base of the papilla with apposition of the glandular structures. Epithelial cells are cylindrical, with regular nuclei and cytoplasms containing mucous vacuoles.

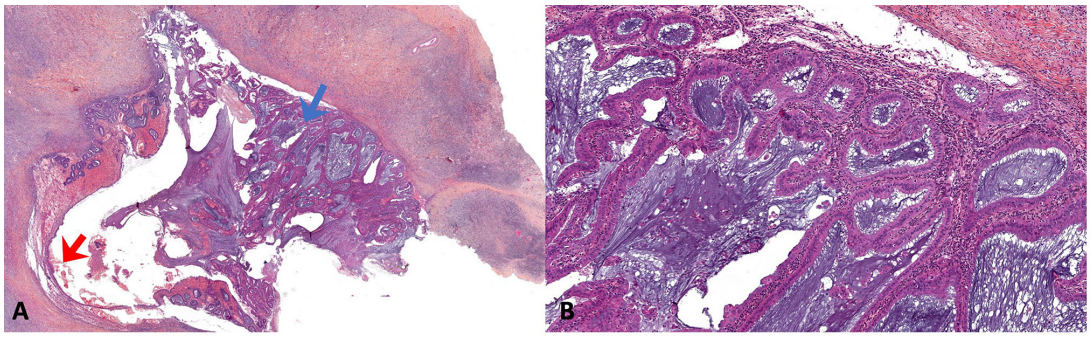

Figure 4 Hematoxylin and eosin sections of the intracystic endometrioid borderline lesion of the right ovary. (A): Red arrow: endometriotic cyst made of a regular columnar epithelium underlined by stromal tissue. Blue arrow: in some areas, we witness an epithelial proliferation on the surface of the cyst with glands adherent to each other. (B) The glands are adherent to each other. The epithelial cells are cylindrical and comprise intracytoplasmic mucous-secreting vacuoles.

need to search for the POLE mutation as no further treatment was necessary.

Endometrioid borderline tumor, a rare subtype of borderline ovarian tumor, can be mistaken for metastasis from endocervical, endometrial, or gastrointestinal origins due to immunophenotype similarities.[2] Up to 40% of these patients can present concomitant endometriosis lesions. McCluggage emphasized the significance of this uncommon, but potentially pre-malignant, entity that could progress to low-grade endometrioid carcinoma, particularly when endometrioid cysts contain foci of atypical hyperplasia.[3] Borderline endometrioid tumor and an adenocarcinoma, complex can be differentiated by their architectural features, such as extensive gland fusions, infiltration of the stroma, reactive stroma, and glands with angular outlines larger than 5 mm, indicating a low-grade infiltrating adenocarcinoma. In patients who underwent a hysterectomy, endometrial lesions, including polyps, hyperplasia, and synchronous endometrioid adenocarcinoma of the uterus, were found in 53% of the cases, particularly in young nulliparous patients.[2 4] The importance of endometrial sampling to exclude an endometrioid carcinoma was noted, as was the case with this patient.

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