Borderline Brenner tumour of ovary in a young woman : A case report

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Introduction

Borderline Brenner tumour of the ovary is an uncommon tumour with only about 30 case reports in the English literature to date. Brenner tumours of the ovary constitute 1% to 2% of all ovarian neoplasms.[1] The average age at presentation is 50 years with 71% of the patient being more than 40 years.[2] Brenner tumours are classified by the World Health Organization (WHO) into three groups based on histomorphology: benign, borderline, and malignant. They are mostly benign and unilateral. Borderline and malignant forms are much rarer.

Case Report

A 30 years old , nulliparous lady presented with abdominal distention and irregular menses for three months. She underwent right salphingo-oopherectomy and omentectomy for a huge ovarian mass.

Grossly, the tumour is encapsulated and display greyish smooth external surfaces (Figure 1A). Serial cut sections showed tan to yellowish firm solid cystic appearance, predominantly solid in areas (Figure 1B). Microscopically, the tumour is composed of epithelial nests arranged in a background of dense fibromatous stroma. These epithelial cells display fairly uniform oval nuclei with longitudinal nuclear grooves, distinct nucleoli with moderate to abundant eosinophilic cytoplasm. In areas, these nests are larger, compact with little intervening stroma, having proliferating, stratified and hyperplastic nuclei (Figure 1C & 1D). Cystic and microcyst formations within the nests containing dense eosinophilic materials are also present.

The epithelial cell nests are immunoreactive for Cytokeratin (CK) 7 (Figure 2A) and p63 (Figure 2B); negative for CK20 (Figure 2C), calretinin (Figure 2D), WT-1, CD10, desmin, SMA, caldesmon, S100, CD34, ER and PR. Ki67 proliferative index is very low (<2%). The fibromatous stroma component exhibit immunoreactivity for smooth muscle actin (SMA); focal positivity for PR expression and CD10; negative for desmin, caldesmon, CD34, S100, WT-1, calretinin, p63, CK7 and CK20.

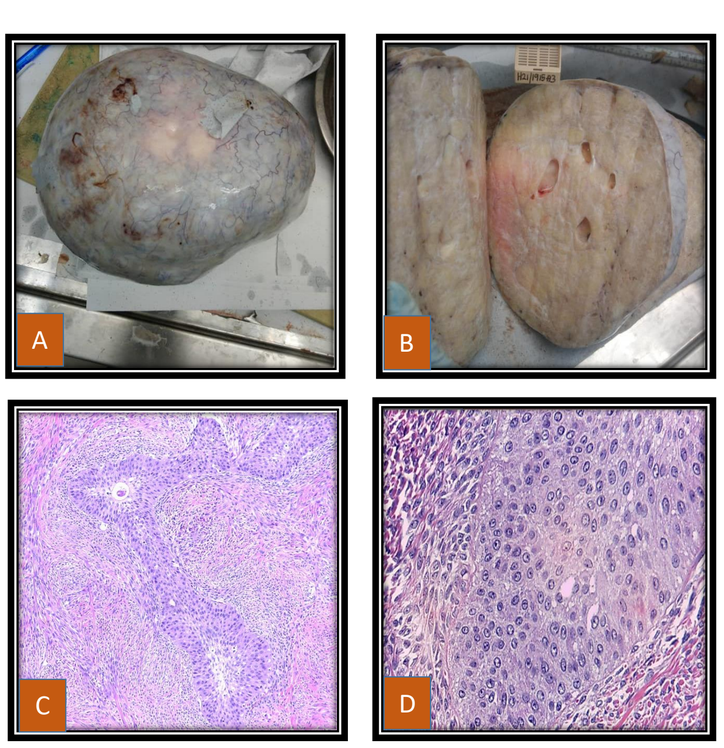

***Figure 1A-D**. Gross examination and microscopic findings of borderline Brenner tumour.*
(A) Gross ovarian mass
(B) Cut surface of the Brenner tumour.
(C) Epithelial nests in a fibromatous stroma (H&E x10)
(D) Epithelial nest under high power(H&E x40)

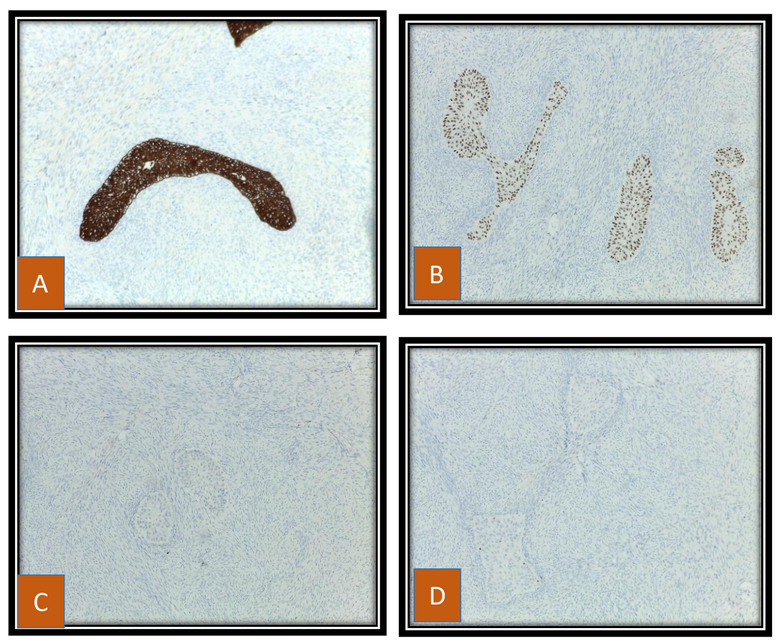

***Figure 2** Immunohistochemistry findings.*
(A) Epithelial tumours are diffusely positive with CK7 (x10).
(B) Epithelial tumour cells are positive for p63 (x10).
(C) Epithelial tumour cells are negative for CK20 (x10).
(D) Epithelial tumour cells are negative for calretinin (x10).

Discussion

The major considerations for this case were benign Brenner tumour with stromal overgrowth or ovarian fibroma with minor sex-cord component.

In our case, the macroscopy findings were suggestive of an ovarian fibroma, showing a solid and firm cut surfaces. The presence of epithelial nests amidst abundant fibrous stroma on histology also suggested an ovarian fibroma with minor sex-cord components as a potential differential diagnosis. The latter differential is an uncommon tumour that was first described as a primarily fibromatous or thecomatous tumour with scattered small sex cord components in less than 10% of the tumour area by Young and Scully.[3] The minor sex cord elements appear as small nests or tubules of cells that resemble Sertoli cells, granulosa cells, or indifferent cells of sex cord type.[4]

These two entities can be further differentiated with IHC stains as the epithelial nests in Brenner tumours are highlighted by epithelial marker (i.e CK7) while the sex-cord components are usually positive with inhibin and calretinin. The epithelial nests in this case were positive for CK 7 but negative for calretinin, confirming the diagnosis of Brenner tumor. The fibromatous stromal background were further supported with positivity for SMA. Remaining smooth muscle differentiation were negative and supported by negative desmin and caldesmon staining. The stromal components are also negative for endothelial marker (CD34) and neural marker (S100). Metastatic urothelial carcinoma or bladder in origin is also unlikely in this case but need to be safely excluded. The IHC profile for urothelial carcinoma are usually CK7+/CK20+ and positive for uroplakin and p63. However, this case expresses CK7+/CK20-/ p63+ of the epithelial nests with no history of urinary symptoms or CT findings of urinary bladder lesions, supporting a primary ovarian transitional epithelial cell nests.

Conclusion

Borderline Brenner tumour of ovary is a relatively uncommon entity. The histomorphology with the aid of immunohistochemical stains are crucial in the diagnosis of this uncommon tumor.

References

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