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Short Communication

Upheaval and Metamorphosis-Brenner Tumour Ovary

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Brenner tumour of the ovary is characteristically constituted of transitional or urothelial-like epithelium enmeshed within a fibromatous stroma. Neoplasm is classified as benign, borderline or malignant wherein aforesaid variants are categorized contingent to cytological features of epithelial cells and pattern of tumour evolution. Benign Brenner tumour delineates an adenofibromatous architecture composed of nests of bland transitional epithelial cells entangled within a fibromatous stroma [1]. Borderline Brenner tumour demonstrates preponderant papillary architecture wherein the papillae are coated with several layers of transitional epithelium. Cellular component expounds low grade to variable cytological atypia. Malignant Brenner tumour exemplifies stromal invasion with carcinomatous transitional cells. Commonly, a benign or borderline Brenner tumour appears to concur with the malignant neoplasm. Brenner tumour of the ovary is commonly observed within fifth to sixth decade although no age of disease emergence is exempt. Brenner tumour commonly implicates the ovary. Notwithstanding, extra-ovarian Brenner tumours are exceptionally documented [2,3]. Of obscure aetiology, cellular origin of Brenner tumour appears debatable. Alternatively, Brenner tumour is posited to arise from Walthard cell rests [2,3]. Although benign Brenner tumours are asymptomatic, borderline and malignant neoplasms appear as enlarged lesions and represent with an adnexal mass and associated symptoms [2,3].

Upon frozen section, benign Brenner tumour manifests with an adenofibromatous architecture demonstrating a cellular component of smooth contoured nests comprised of bland epithelial cells encompassed within benign fibromatous stroma [3,4]. Borderline or malignant Brenner tumours morphologically recapitulate low grade papillary urothelial tumour of urinary bladder. Neoplasm appears to be configured of papillary fronds layered by transitional-like epithelium [3,4]. Grossly, benign Brenner tumour emerges as a circumscribed, miniature lesion < 2 centimetre magnitude. Cut surface is fibrous and uniform. Focal calcifications may occur. Borderline and malignant Brenner tumours represent with a smooth extraneous surface and appear as fleshy, polypoid masses protruding into various cystic cavities. Tumours appear enlarged with a magnitude exceeding >10 centimetres [3,4]. Upon microscopy, benign Brenner tumour delineates smooth contoured cellular nests constituted of bland transitional epithelium enmeshed within a fibromatous stroma. Constituent transitional cells are impregnated with uniform, elliptical nuclei with a longitudinal nuclear groove. Mucinous epithelium may be impacted within centric zone of tumour cell nests along with configuration of microcysts. Tumefaction may be layered by focal ciliated or non specific glandular epithelium. Nearly 10% neoplasms appear concurrent with mucinous cystadenoma. Focal calcification is commonly observed [3,4]. Borderline Brenner tumour demonstrates papillary architecture wherein papillae are coated with multiple layers of transitional epithelium. Cytological atypia is preponderantly low grade and variable. Occasionally, moderate or marked cytological atypia may appear. A component of benign Brenner tumour is frequently discerned [3,4]. Malignant Brenner tumour is accompanied by stromal invasion with carcinomatous transitional cells. Irregular cell nests and singular cells appear to infiltrate ovarian stroma. Foci of squamous or mucinous differentiation may be encountered. A component of benign or borderline Brenner tumour appears concurrent with the malignant counterpart [3,4].

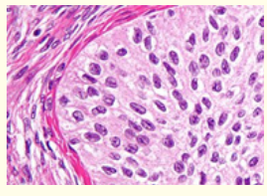

Figure 1: Brenner tumour demonstrating centric cellular nests composed of uniform transitional epithelial cells surrounded by fibromatous stroma [8].

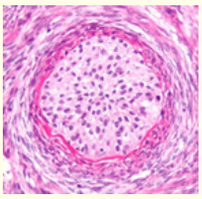

Figure 2: Brenner tumour constituted of centric areas of transitional epithelium circumscribed by concentric rings of fibrous tissue [9].

	WT1	ER	GATA3	p63
MBT	-	-	+	+
HGSC	+	+	-	-
Primary SCC	-	-	-	+
SCC arising in MT	-	-	-	+
Endometrioid carcinoma	-	+	-	-
Metastatic SCC	-	-	-	+
Metastatic urothelial carcinoma	-	-	+	+

Table 1: Differential diagnosis and immunohistochemistry of Malignant Brenner tumour [3].
SCC: Squamous Cell Carcinoma; MBT: Malignant Brenner Tumour; MT: Mature Teratoma; HGSC: High Grade Serous Carcinoma

Brenner tumour appears immune reactive to p63 and GATA3. Benign and borderline Brenner tumours appear immune reactive to wild type p53 whereas malignant Brenner tumour may expound a mutant pattern staining [5,6]. Tumour cells appear immune non reactive to oestrogen receptors (ER), progesterone receptors (PR) and Wilms tumour receptor 1(WT1) [5,6].

Benign Brenner tumour requires segregation from neoplasms as endometrioid adenofibroma, adult granulosa cell tumour or carcinoid tumour. Borderline or malignant Brenner tumours necessitate distinction from high grade serous carcinoma with transitional architectural pattern, squamous cell carcinoma, endometrioid borderline tumour or carcinoma, squamous cell carcinoma with distant metastasis or urothelial carcinoma with distant metastasis [5,6]. Benign Brenner tumour is incidentally discovered within an ovary excised for concurrent medical/surgical indications. Borderline and malignant Brenner tumour is commonly detected upon surgical excision of an adnexal mass. Upon plain radiography, a nonspecific solid or solid and cystic ovarian mass is encountered [6,7]. Brenner tumour is appropriately treated with surgical modalities as oophorectomy. Adjuvant therapy appears superfluous for treating benign or borderline Brenner tumour. Advanced stage of malignant Brenner tumour appears to benefit from adjuvant chemotherapy [6,7]. Benign and borderline Brenner tumour is associated with a benign biological course. Borderline lesions are exceptionally associated with localized tumour reoccurrence [6,7].

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8. Image 1 Courtesy: Libre Pathology

9. Image 2 Courtesy: International Journal of Gynaecological Cancer.