A RARE PRESENTATION OF BENIGN BRENNER TUMOR OF OVARY: A CASE REPORT

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ABSTRACT: BACKGROUND: Brenner tumors are rare ovarian tumors accounting for 2-3% of all ovarian neoplasms and about 2% of these tumors are borderline (proliferating) or malignant. These tumors are commonly seen in 4th-8th decades of life with a peak in late 40s and early 50s. Benign Brenner tumors are usually small, <2cm in diameter and often detected incidentally during surgery or on pathological examination. We report a case of a large, calcified benign Brenner tumor in a 62 year old postmenopausal woman who underwent total hysterectomy with bilateral salpingo oopherectomy for a large pelvic mass extending to the abdomen.

KEYWORDS: Benign, Borderline or Proliferating and Malignant Brenner tumors, Transitional cell carcinoma, Cystic and Solid tumors, Mucinous cyst, Calcification.

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INTRODUCTION: Brenner tumors are rare ovarian tumors constituting between 2-3% of all ovarian neoplasms. About 6-7% is bilateral. Most of these tumors are benign, <2cm in size and usually located in the cortex. Sometimes they may present as a mural nodule in a mucinous cystadenoma, mature cystic teratoma or rarely struma ovarii.[1] They may also be seen in association with transitional cell tumors of urinary bladder.[2] Borderline and malignant Brenner tumors are usually larger than benign Brenner tumors.

Some patients with Brenner tumors may show signs of hyper estrinism. 10-15% cases show mild endometrial hyperplasia and the patient may present with menorrhagia or postmenopausal bleeding.

CASE REPORT: A 62 year old lady presented with complaints of a mass per abdomen for the past 8 years and difficulty in micturition since 2 years. She was diabetic and HBs Ag+Ve. She attained menopause at 40 years of age and there was no history of menorrhagia or post-menopausal bleeding. Per abdominal examination revealed a large pelvic mass extending to the abdomen corresponding to 28 weeks of gestation. Ultrasound scan showed a large heterogeneous mass lesion with post acoustic shadowing in the pelvis extending to abdomen suggestive of a sub serous fibroid.

CT scan revealed abnormal uterus with atrophic ovaries. There was a large mass measuring 21x12x16 cm near the fundus indenting bowel loops. With this radiologist considered the possibility of a large sub serous fibroid.

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Total hysterectomy with bilateral salpingo oopherectomy was done.

On macroscopic examination uterus and attached left ovary were atrophic. A large, hard soft tissue mass was received separate measuring 22x16x12 cm. External surface of the mass was bosselated. One atrophic ovary and fallopian tube were seen stretched over the external surface. We encountered extreme difficulty in cutting the specimen. Cut surface was firm to hard, grey white, solid with extensive areas of calcification. From macroscopic examination we considered the possibility of a large sub serous fibroid with adherent ovary and fallopian tube showing extensive calcification.

Microscopic examination showed atrophic uterus with chronic cervicitis and squamous metaplasia. Sections from the soft tissue mass showed a neoplasm composed of solid and cystic islands of benign transitional epithelial cells set in an abundant fibrous stroma admixed with foci of calcification. With this we made the diagnosis of benign Brenner tumor of right ovary and atrophic uterus with chronic cervicitis and squamous metaplasia.

DISCUSSION: Brenner tumors belong to the group of transitional cell tumors of the ovary which include benign, borderline (proliferating, proliferative) and malignant Brenner tumors and pure transitional cell carcinoma of ovary (without a Brenner component). Most of these tumors are benign, <2% being borderline or malignant. Pure transitional cell carcinoma of ovary is very rare and accounts for 1% of surface epithelial carcinomas of ovary.

Benign Brenner tumors are usually unilateral, small (<2cm) and solid. These tumors are usually well circumscribed with a firm grey white or yellowish white cut surface closely resembling that of a fibroma or thecoma. Occasionally benign tumors may be partly cystic and some tumors may be hard and gritty due to calcification. Microscopy shows solid and cystic nests of epithelial cells

resembling transitional epithelium surrounded by abundant dense, fibroblastic stroma. The cells have oval nuclei with distinct nucleoli. Nuclear grooves may be present, stroma may show focal hyalinization and calcific plaques. 10-15% cases show luteinized cells in the stroma and are associated with features of hyperestrinism.

Brenner tumors can be seen in association with mucinous cyst adenoma, struma ovarii or strumal carcinoid. Benign Brenner tumor with large mucinous cyst may be misdiagnosed as mucinous cyst adenoma unless transitional cells at the periphery of the mucinous cells are identified.

IMMUNO HISTO CHEMISTRY: The cells show cytoplasmic positivity for keratin, EMA or CEA. Scattered argyrophilic cells positive for chromogranin and 5HT may be present.

Borderline or proliferating or proliferative Brenner tumors are usually unilateral, larger than benign ranging from 8-30cm in diameter and partly cystic with polyps and friable papillae. Projecting into the lumen, Papillary structures are lined by transitional epithelium. Lining cells resemble grade 1 to grade 3 papillary urothelial carcinoma of urinary tract. There is no invasion into the stroma. A benign Brenner component is also present. Mucinous cells may be present.

Borderline Brenner tumors composed of grade 1 malignant urothelial cells are designated as borderline tumors (not otherwise specified)[3] and tumors with grade 2 or 3 malignant urothelial cells are regarded as borderline tumors with intra epithelial carcinoma.[4]

There are only a few cases of borderline Brenner tumors which produced local recurrence or metastasis, all other reported lesions pursued a relatively benign course. So unilateral salpingo oopherectomy is considered adequate treatment for these tumors.

Malignant Brenner tumors are usually unilateral, 5-25 cm in diameter and predominantly cystic with solid areas.

Microscopy shows grade 1 to grade 3 nests of urothelial carcinoma or focal squamous cell carcinoma irregularly infiltrating into the stroma. Mucinous component may be present. According to WHO recommendation irregular infiltration into the stroma is the most important diagnostic criteria for malignant Brenner tumor.

Borderline and malignant Brenner tumors may be difficult to be distinguished from metastatic urothelial carcinoma from urinary bladder. A careful search for benign Brenner tumor nests or mucinous cells should be done to rule out the possibility of metastasis.

Pure form of transitional cell carcinoma (TCC) accounts for only 1% of surface epithelial carcinomas. A carcinoma of transitional type not associated with benign Brenner tumor is called a transitional cell carcinoma of ovary. Primary TCC may mimic metastatic TCC from urinary bladder. In difficult cases immunohistochemistry will aid in the diagnosis. Urinary tract TCC cells are reactive for CK 20 and thrombomodulin in contrast to primary ovarian TCC.

It is difficult to differentiate primary high grade TCC of ovary from other poorly differentiated surface epithelial carcinomas. TCC is more aggressive, but responds to chemotherapy better and has got a higher survival rate compared to other high grade advanced ovarian cancers.

Sonologically Brenner tumors may be confused with other solid neoplasms like fibroma/thecoma or leiomyoma. Sonographic studies showed peripheral calcification in many benign Brenner tumors.[5,6] In our case also the radiologist considered the possibility of a large subserous fibroid following ultrasound and CT scan studies.

Generally benign Brenner tumors are small lesions usually <10cm in diameter. Larger size of the tumor is suggestive of malignant potential of the tumor. However it is possible to have a completely benign, large Brenner tumor. Therefore we cannot rule out the possibility of a benign Brenner tumor even when the tumor is very big.

CONCLUSION: Brenner tumors are rare ovarian neoplasms accounting for 2-3% of all ovarian tumors. Benign Brenner tumors are usually small and solid whereas borderline and malignant Brenner tumors are usually larger and cystic with solid areas. But it is possible to have a completely benign large Brenner tumor. Therefore benign nature of the lesion should not be excluded even when the ovarian tumor is very large.

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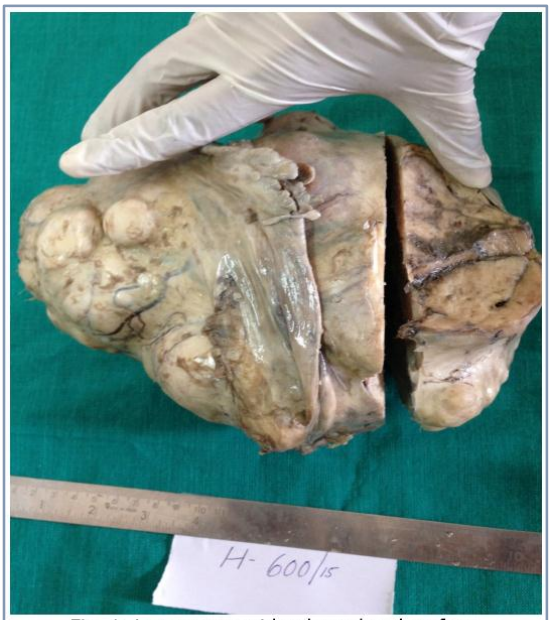

Fig. 1: Large mass with a bosselated surface, ovary & tube seen stretched over the surface

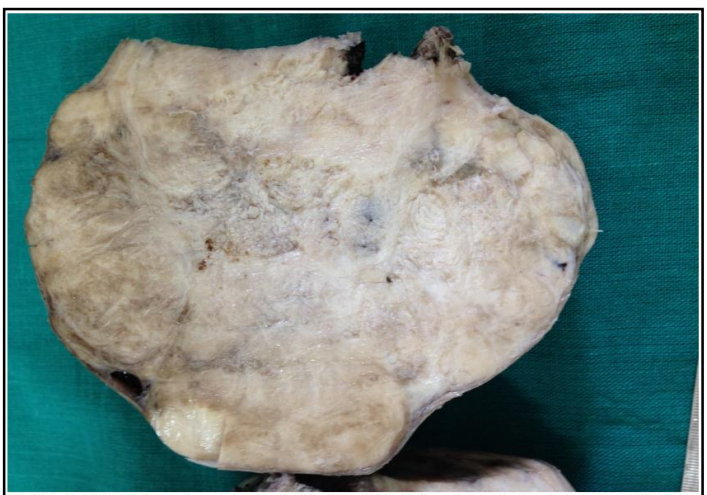

Fig. 2: Cut surface showing gray white & yellowish firm to hard whorled areas with extensive calcification

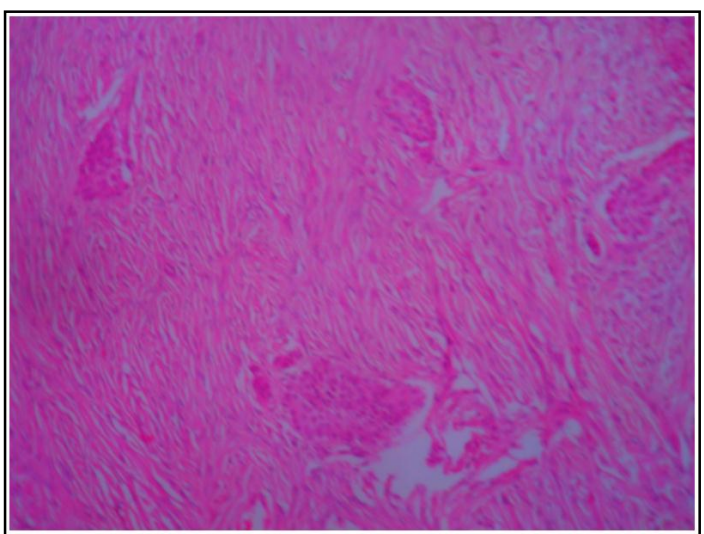

Fig. 3: Islands and nests of benign transitional cells in a background of abundant fibroblastic stroma

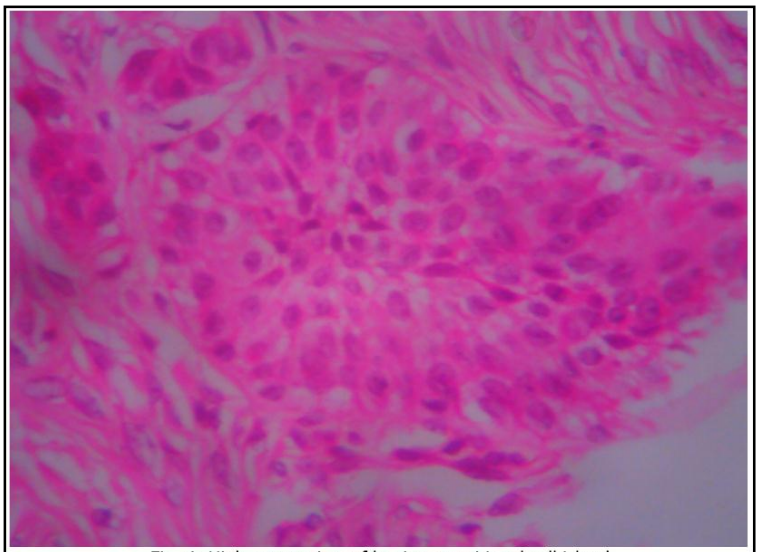

Fig. 4: High power view of benign transitional cell island showing cells with uniform nuclei, some showing nuclear grooves