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A Rare Case of Malignant Brenner Tumor of the Ovary

Shilpa Kaushal[1],Suman Singh Chandel[2], Deepika Raina[3], Neha Bhardwaj[4]

[1]Medical Officer, Department of Radiotherapy and Oncology, Dr. RPGMC, Kangra at Tanda, Himachal Pradesh, India
[2]Assistant Professor, Department of Pathology, Dr. RPGMC, Kangra at Tanda, Himachal Pradesh, India
[3]Senior Resident , Department of Radiotherapy and Oncology, Dr. RPGMC, Kangra at Tanda, Himachal Pradesh, India
[4]Medical Officer, Health & Family Welfare Department, Himachal Pradesh, India

Corresponding Author: Neha Bhardwaj

ABSTRACT

Background: The ovarian Brenner tumors (BT) are a part of surface epithelial group of ovarian neoplasms. BT of the ovary is very rare, mostly benign, small and unilateral. Malignant Brenner tumors (MBT) are extremely rare. It is difficult to diagnose MBT both radiographically and histologically. Differential diagnosis includes transitional cell carcinoma of ovary and other BT. Herein we report a case of unilateral MBT of ovary in a reproductive age group woman and its features are briefly discussed.

Keywords: Malignant Brenner tumor, ovarian cancer**,** transitional cell carcinoma

INTRODUCTION

Primary malignant tumors of the ovary are a heterogeneous group which include the surface epithelial ovarian cancers (60%-65%), germ cell tumors (20%) and sex cord- stromal tumors (5%). [1] Transitional cell tumors of the ovary represent about 2% of all the ovarian tumors and they are classified as Brenner tumors (BT) and transitional cell carcinomas (TCC) on the basis of histopathological pattern. BT are subclassified into benign, borderline (proliferative) or malignant categories. [2]

The ovarian BT is rare tumors comprising 1-2% of all ovarian neoplasms. Malignant Brenner tumors (MBT) are extremely rare, comprising <5% of all BT. [3]

CASE HISTORY

A 40 years old premenopausal multiparous woman came with complains of pain in right side of lower abdomen since 1 month. Patient had undergone left sided salpingo-oophorectomy for serous cystadenoma about 2 years ago. Complete records of past surgery were not available.

At the time of examination, her vitals were stable. On per abdomen examination, tenderness was present in right iliac region. On per speculum examination, vaginal wall and cervix were found to be normal. On per vaginal examination, mass of size ~ 8 cm × 8 cm was felt which seemed to be arising from pelvis with restricted mobility. Uterus was not felt separately. Rest of the general and systemic examination was normal.

Routine investigations were normal including complete haemogram, liver and renal function tests and chest X-Ray. Pelvic and abdominal ultrasonography revealed a complex right adnexal lesion of size 9.0 cm × 4.6 cm × 7.3 cm with mixed echogenicity having both solid and few cystic components along with internal septations. Gross free fluid was present in pelvis and abdomen.

Contrast- enhanced computed tomography (CECT) of abdomen and pelvis showed solid- cystic multiloculated mass lesion (predominantly solid) involving right adnexa measuring 9.7 cm × 8.3 cm × 9.3 cm

with thick internal septations. The mass lesion was abutting posterior wall of uterus and anterior wall of sigmoid colon and rectum. There was gross ascites and multiple peritoneal deposits with largest of size 2.5 cm × 1.8 cm with omental caking and mesenteric fat stranding. Multiple subcentimetric lymph nodes were seen in peripancreatic, perigastric, retroperitonem, iliac, left superficial inguinal and mesenteric region.

Preoperatively, her CA 125 measured 416.5 U/mL (normal=0-35 U/mL). Ascitic fluid showed presence of malignant cells. A provisional diagnosis of carcinoma ovary was made. Exploratory laparotomy was planned.

On laparotomy, right ovarian mass of size 9 cm × 7 cm was found. Omental caking was present along with involvement of, bladder base, uterus, right tube, right ovary, Pouch of Douglas and exptraperitoneal tissue. Total abdominal hysterectomy with right salpingo-oophorectomy with omentectomy was performed.

On gross examination, the uterus with cervix measured 9 cm × 4 cm × 4 cm. Tubo-ovarian mass with attached fimbrial end was tan brown to grey white in color and measured 10 cm × 7 cm × 4 cm. Cut surface of mass revealed both solid and cystic consistency.

Microscopic examination from the tubo-ovarian mass revealed tumor epithelial cells arranged in nests with oval nuclei and moderate amount of cytoplasm. The cells showed focal areas of necrosis, marked nuclear atypia and atypical mitotic figures in between tumor nests and vascular channels (Fig. 1). Stromal invasion was noted (Fig.2). Outer half of myometrium had infiltration of malignant epithelial cells. Sections from fimbrial end showed involvement of wall by tumor cells. Omentum showed multiple tumor deposits. Cervix and endometrium were free from tumor. Final diagnosis of MBT of right ovary was made.

Post operative levels of CA 125 after 4 weeks trended down to 102 U/mL. The patient was started on adjuvant chemotherapy with paclitaxel and carboplatin.

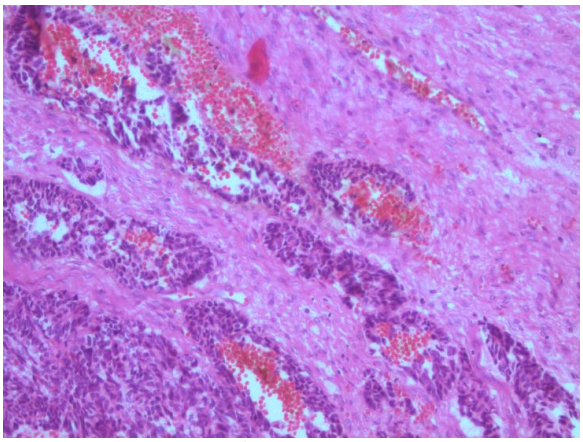

Figure 1: Tumor cells infiltrating the stroma (H & E, 100X)

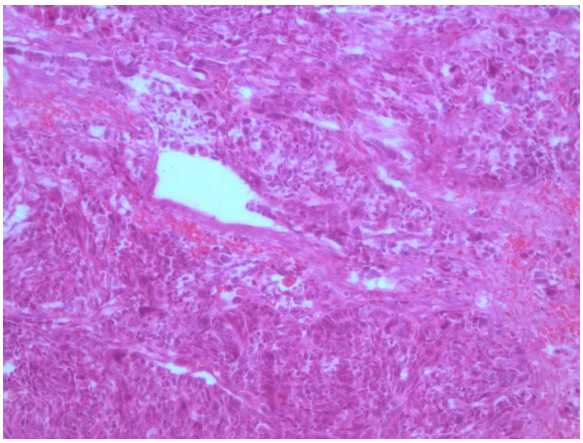

Figure 2: The tumor nests showing marked nuclear atypia (H&E, 200X)

DISCUSSION

BT is an uncommon subtype of transitional epithelial tumors of ovary. The majority is benign and malignant forms are very uncommon. [4] The average age at presentation is 50 years with 71% of the patients above 40 years. Grossly, these tumors vary greatly in size and are usually small, unilateral, firm, solid gray white with cystic spaces. [5, 6] In contrast to average age of presentation, in our case age of presentation is 40 years. Grossly, mass was tan brown to grey white measuring 10 cm × 7 cm × 4 cm. Cut surface of mass revealed both solid and cystic consistency.

The criteria proposed by Hull and Campbell in 1973 for diagnosis of MBT which states that (i) Frankly malignant histological features must be present, (ii)

There must be an intimate association between the malignant element and a benign BT, (iii) Mucinous cystadenoma should preferably be absent or must be well separated from both benign and MBT, and (iv) Stromal invasion by epithelial elements of MBT must be demonstrated. [7] The present case fulfilled all the criteria.

Microscopically, the characteristic feature of benign BT is sharply demarcated epithelial nests in a dense fibrous stroma. The epithelial cells are transitional cell type, characterized by a relatively uniform population of stratified cells with prominent cell borders and pale to eosinophilic cytoplasm. The nuclei are oval displaying longitudinal nuclear grooves (coffee-bean appearance), often with small nucleoli. In MBT, the epithelial nests are more angulated than benign BT. [4]

By definition, TCC of the ovary and MBT are composed of epithelial cells morphologically resembling urothelium. At matched stage, the prognosis of MBT is relatively favourable as compared to TCC of the ovary; therefore, TCC of ovary should be differentiated from MBT. [8] In addition to not having a benign Brenner component, TCC lacks the prominent stromal calcification common in most benign BT and MBT. [4] Thus, extensive tumor sampling helps in making an accurate diagnosis.

There are no consistent tumor markers for MBT. In some patients, CA 125 may be elevated but it is not correlative to stage or tumor burden. [9] In few patients with MBT, CA 125 or squamous cell carcinoma (SCC) antigen are raised along with CA72-4. [10]

Published data that differentiates the imaging characteristics between benign and malignant BT is very limited. Brenner tumors manifest mostly as a solid mass or as a multilocular cystic mass with a solid component. The solid component show mild homogeneous enhancement on post contrast CT and MRI. Extensive amorphous calcification is seen within the solid component. [11]

Early stages MBT are candidates for complete surgical resection. Involvement of surrounding tissues and metastases into other structures is less common. There is no standard treatment protocol available due to its rarity. [12]

CONCLUSION

MBT of the ovary is a rare entity. It is important to differentiate it from TCC and other benign BT of ovary. Detailed histopathological examination helps in making the diagnosis. This particular case presented in a relatively younger age group with advanced stage disease which is less commonly seen.

Declarations
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Conflict of interest: None

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