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BRENNER TUMOR OF THE OVARY- AN INCIDENTAL FINDING: A CASE REPORT

Rizwana Sharmin[1*], Sabrina Razzaque[1], Tamanna Choudhury[1], Akhtarun Nessa [2]

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Reviewed by

Asma Ul Hosna
Ahsania Mission Medical College
Dhaka, Bangladesh.

Shovana Talukder
Medical College for Women & Hospital
Dhaka, Bangladesh.

*** Corespondence**
Rizwana Sharmin
Email: rizwanasharmin63@gmail.com
Orcid ID: https://orcid.org/0009-0004-4467-1073

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ABSTRACT

The commonest type of tumors of the ovaryis the surface epithelial stromal tumors. The ovarian Brenner tumor is a rare type of surface epithelial stromal tumor which accounts for about 1%-2% of all tumors of the ovary. These tumors (Brenner tumors) are benign in majority of cases but can be borderline and malignant as well. Brenner tumors may be solid or cystic, usually unilateral in 90% of cases and are diagnosed incidentally.We are reporting a rare benign Brenner tumor with a combination of mucinous cystadenoma.

Keywords: Ovarian tumor, Surface epithelial stromal tumor, Brenner tumor, Mucinous cystadenoma.

INTRODUCTION

Brenner tumors are unusual variety of surface epithelial stromal neoplasms of the ovary, and accounts for approximately 1%–2% of all ovarian neoplasms[1-3]. According to the World Health Organization (WHO) classification, Brenner tumor can be benign, borderline or malignant in nature[4, 5]. However, majority are benign, usually small in size (less than 2cm), solid and unilateral. Bilaterality is seen in only 5%–7% of cases. In very rare cases they occur in other locations like testis[6].

The patients with Brenner tumors are postmenopausal with an average age incidence of more than 50 years. However, these tumors can occur in younger women as well. Patients usually do not have any symptoms. However, the patient can present with symptoms which are not specific such as abdominal distension, pelvic mass, or, less commonly, postmenopausal bleeding, which often raises suspicion for malignancy[7]. Tumors are found incidentally during routine bimanual pelvic examination, imaging or surgery done for other indications[6]. As Brenner tumors do not have typical clinical, radiological or laboratory findings, so diagnosis can be challenging. To differentiate between benign and malignant adnexal masses becomes difficult, as radiological findings and tumor markers are not always conclusive particularly in complex cystic lesions[7]. Histopathological examination is necessary for definitive diagnosis after surgical removal. On microscopic examination the characteristic features of these tumors are nests of transitional (urothelial-like) epithelial cells in a background of a compact fibrous stroma [8].

Among all the tumors of the ovary only 10%-15% are mucinous neoplasms.The benign mucinous neoplasms which have cystic component are mucinous cystadenoma.They are cystic lesions characterized by a lining of tall, columnar epithelial cells (lacking cilia) with apical mucin vacuoles[8,9]. The coexistence of a Brenner tumor with a mucinous cystadenoma in the same ovary is a recognized but relatively a rare phenomenon. In about 20% of cases Brenner tumors occur along with serous or mucinous cystadenomas or benign cystic teratomas [3,10].

1* Department of Pathology, Medical College for Women & Hospital, Dhaka, Bangladesh.
Email: rizwanasharmin63@gmail.com, Orcid ID: https://orcid.org/0009-0004-4467-1073
[Corresponding Author].
1 Department of Pathology, Medical College for Women & Hospital, Dhaka, Bangladesh.
2 Department of Gynae & Obs, Medical College for Women & Hospital, Dhaka, Bangladesh.

We are reporting a benign Brenner tumor simultaneously present with mucinous cystadenoma in an eighty-year-old woman. She complained of postmenopausal bleeding and an adnexal mass, clinically and radiologically suggesting a complex ovarian cyst. This case underscores the importance of thorough evaluation by histopathology for the correct diagnosis and appropriate management, especially in elderly patients where malignancy is a major concern. By reporting this case we want to create wareness among the pathologists and the gynecologists about the occurrence of such combined ovarian tumors.

CASE REPORT

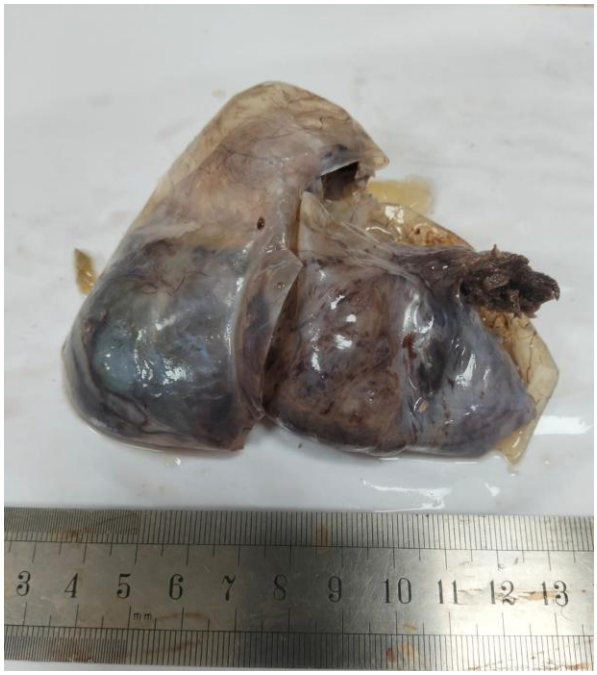
A lady of eighty years of age from Brahmanbaria district of Bangladesh, reported to the Gynecology outpatient department (OPD) of Medical College for Women and Hospital (MCWH), Uttara, Dhaka in mid March 2026 with the complaints of post menopausal bleeding for 7 days with loss of appetite. She had menopause for about 20 to 25 years and her last childbirth was 26 years ago. She has been suffering from hypertension and bronchial asthma.

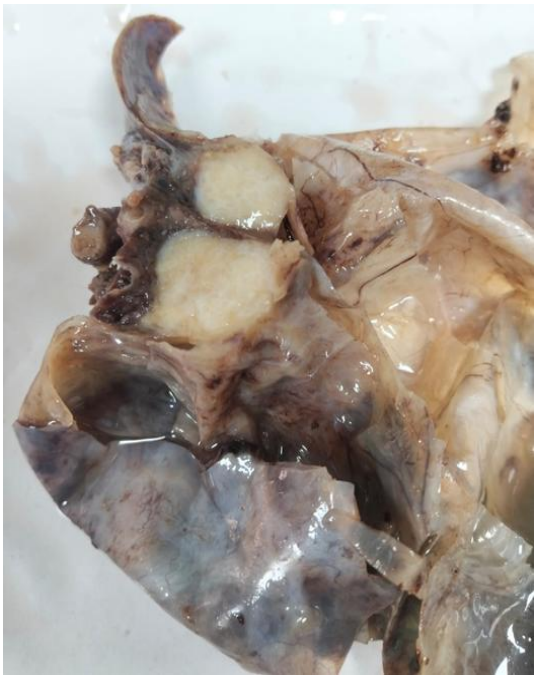
The patient was examined in the Gynecology OPD. She was of poor body built and anemic. Per abdominal examination, no definite lump was found. On bimanual examination, a mass could be felt, through the right lateral and anterior fornix about 5.0 x 4.0 cm in dimension, was mobile and non tender. Uterus was bulky and another mass partly cystic and partly solid was found (10.0X8.0 cm) not separated from the uterus. There was no nodule in the pouch of Douglas. Rectal mucosa was free on rectovaginal examination.

Upon investigation, her hemoglobin was 10.3 gm/dl and ESR was 65 mm in the first hour. However, other parameters of complete blood count (CBC) were normal. Her random blood sugar (RBS), serum creatinine, thyroid stimulating hormone, routine examination of urine wasdone. All the test results were within normal range. Chest X-ray was also normal. Tumor markers (CEA, CA 19-9, CA 125) were done and all were within normal range. Ultrasonogram (USG) of the lower abdomen done commented as suggestive of right ovarian complex cyst. Transvaginal ultrasonogram revealed one large thick walled cystic area (7.8X6.6X7.7 cm; volume 210 cc) and commented it as abdominopelvic cyst possibly of right adnexal origin. Spiral Computerized Tomography(CT) scan of the whole abdomen revealed a right sided well-circumscribed lesion (10x8 cm) in the adnexal region and the impression was a right ovarian complex cyst, likely hemorrhagic.

The patient was advised hospitalization for management. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed.

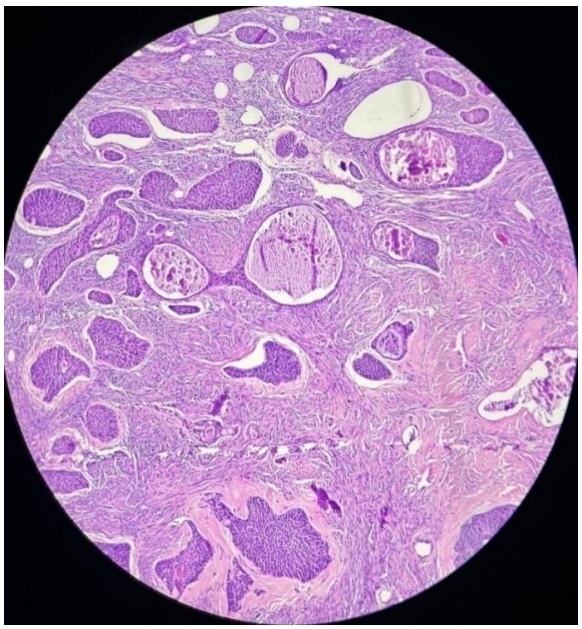
The excised specimen was sent to the histopathology laboratory of MCWH for examination. The specimen was received in formalin,and consisted of a total abdominal hysterectomy with both sided adnexae. The uterus measured 7.0 x 4.5 x 3.0cm. On opening the uterine cavity was symmetrical and well maintained and the cervix was unremarkable. The larger ovary measures 8.0 x 8.0 cm with 7.0 cm long fallopian tube. The outer surface was smooth; on opening it revealed multilocular cystic spaceswith a solid area measuring 2.0x1.5cm. The cystic spaces contained material mucoid in nature. The maximum wall thickness was about 0.2cm (Figure 1 a and b).

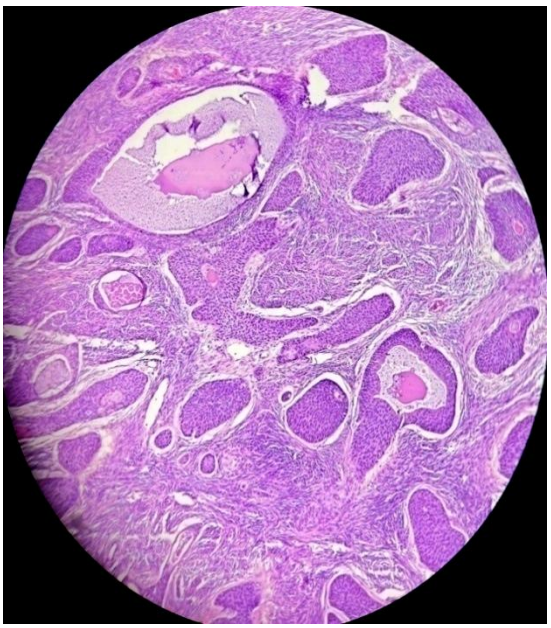




1a 1b

Figure 1: (a & b) Gross pictures of the ovarian mass, showing both cystic and solid areas





2a 2b

Figure 2 (a & b): Microscopic sections showing features of a benign Brenner tumor. Nests of urothelial cells present in a fibrous stroma. Some microcyst formation with central eosinophilic material also seen (H&E stain X 200).

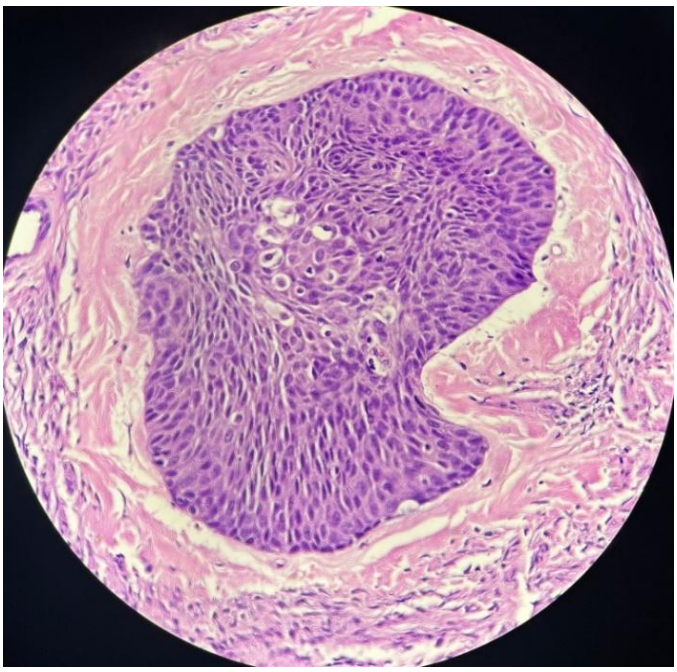


Figure 3: Microscopic section showing high power view of urothelial cell nest in fibrous srtoma (H&E stain X100)

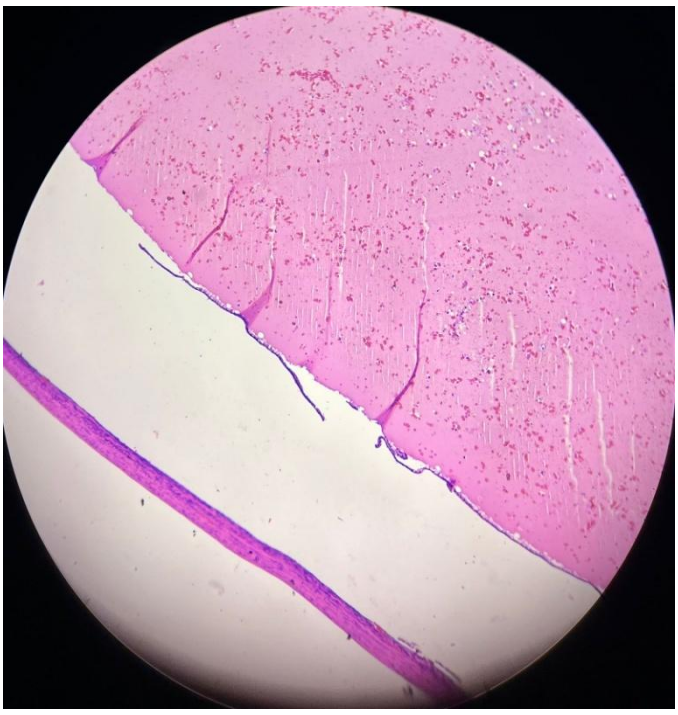


Figure 4: Microscopic section showing cyst lining with columnar cells with apical mucin and mucoid material (H&E stain X100)

The other ovary measures about 3.0x2.0x1.0cm with 5.0 cm long fallopian tube. The cut surfaces of the smaller ovary and both the fallopian tubes were unremarkable. Representative blocks were submitted for processing. Sections from the larger ovary showed a cyst wall lined by tall columnar epithelial cells with nuclei basally placed. Sections from the solid partof the right ovary showed features of Brenner tumor composed of bland urothelial (transitional-type) epithelium with fibrous stroma. In focal areas there was microcyst formation with areas

of calcification (Figure 2a and b, 3, 4). The section of uterine wall showed presence of Monckeberg medial calcific sclerosis. The uterine cervix showed features of chronic cervicitis with squamous metaplasia. The smaller ovary and both the fallopian tubes were unremarkable. No evidence of malignancy was seen.

The final histopathological diagnosis was Brenner tumor, benign along with mucinous cystadenoma. The postoperative period of the patient was uneventful, and she was released from the hospital with proper advice of follow up.

DISCUSSION

In 1907, Fritz Brennera German physician and pathologist first described in detail about the Brenner tumor [1,2]. Brenner tumors are unusual variety of surface epithelial stromal tumors of ovary.Brenner tumor accounts for less than 2% of alltumors of ovary. They occur predominantly in postmenopausal women, most often during the fifth to seventh decades of life. In this case, the patient was an eighty-year-old postmenopausal woman[1-3].

In most of the cases, Brenner tumors are small, solid, unilateral, and frequently asymptomatic. However, when the patients are symptomatic, may present withabnormal uterine bleeding, a pelvic mass, or pelvic pain [1, 11]. In the present case, the chief complaint of the patient was postmenopausal bleeding. The tumor was solid and unilateral, and measured approximately 2.0 cm.

With advancing age, the likelihood of malignancy increases, and the presence of an adnexal mass poses a diagnostic challenge both clinically and radiologically. Postmenopausal bleeding, as seen in this patient, often raises suspicion for endometrial or ovarian malignancy and therefore necessitates thorough evaluation[12]. Nevertheless, benign ovarian tumors such as mucinous cystadenoma and Brenner tumor may occasionally present with nonspecific or misleading clinical features, making preoperative diagnosis difficult.

Radiological modalities, including USG and CT scan, play an essential role in the evaluationof massesin adnexal region. However, Brenner tumors typically lack distinctive imaging features and may appear as solid or complex cystic lesions [13,14]. In the present case, imaging findings suggested a complex adnexal cyst.

Tumor markers such as CA-125, CEA, and CA 19-9 are commonly within normal range in benign Brenner tumors. However, the association between these tumors and serum marker levels remains poorly defined. In this patient, these tumor markers were done and all were within normal ranges [14].

Final diagnosis depends on histopathological evaluation by microscopic examination. In this case, there were characteristic nests of transitional (urothelial-like) epithelium within a dense fibrous stroma, in association with mucinous cystadenoma.With all these features the diagnosis was cofirmed as a benign Brenner tumor in coexistence with mucinous cystadenoma. The absence of cytological atypia, stromal invasion, or other malignant features further supported its benign nature. Additional findings such as calcification and cystic changes, which are known to occur in Brenner tumors, were also observed in this case [15]. The presence of microcystic spaces lined by metaplastic columnar epithelium containing eosinophilic secretions [3]further corroborated the diagnosis.
The coexistence of Brenner tumor with mucinous cystadenoma, although uncommon, is a recognized phenomenon. Several studies done previously reported that there is an association

with mucinous tumors in approximately 10%–20% of cases [3,6]. It has been thought that mucinous components can arise through metaplastic transformation of Brenner tumor epithelium, although the exact histogenesis remains uncertain [3].

Surgical excision remains the treatment of choice. Total abdominal hysterectomy with bilateral salpingo-oophorectomy is generally recommended in postmenopausal women,particularly when malignancy cannot be excluded preoperatively [3]. The prognosis of benign Brenner tumors is excellent, with an extremely low risk of recurrence following complete resection [1].

CONCLUSION

This case is noteworthy due to the advanced age of the patient, the presentation with postmenopausal bleeding, and the rare Brenner tumor coexisting with mucinous cystadenoma. It emphasizes the significance as well as the importance of considering rare benign entities in the differential diagnosis of complex adnexal masses and underscores the crucial role of histopathological evaluation in establishing the final diagnosis.

CONFLICT OF INTEREST

There is no conflict of interest.

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