CASE REPORT

An incidental finding of benign Brenner tumor in mucinous cystadenoma of ovary: a case report

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Abstract:

Ovarian tumors are common neoplasia in women. Ovarian carcinoma accounts for the 7th cause of mortality and morbidity in females. Surface epithelial tumors are the most common type of ovarian tumor. Mucinous tumors comprise 20% to 25% of the ovarian neoplasms. Brenner tumor of the ovary consist of 1-2% of all ovarian neoplasms and is usually benign. About 30% of Brenner tumors coexist with an ovarian mucinous neoplasm, a well-recognized combination that has been rarely reported. Accurate diagnosis and exclusion of malignancy are essential in large ovarian tumors, especially in tumors with solid components. We describe a case of an incidentally diagnosed Brenner tumor in a sizeable mucinous cystadenoma of the ovary to inform the clinicians about the co-occurrence of such a tumor so they remain vigilant in ruling out malignancy for better management as well as prognostication.

Keywords: Tumor, Ovary, Cystadenoma

Introduction:

Ovarian tumors are common neoplasia in women. Ovarian carcinoma is the 7th cause of mortality and morbidity in females [1]. According to the tissue of origin, the World Health Organization classified ovarian cancer into an epithelial surface tumor (65%), ovarian germ cell (15%), sex cord tumor (10%), metastatic ovarian tumor (5%), and miscellaneous ovarian tumor (5%) [1]. Brenner tumor of the ovary, previously known as transitional cell tumor is a subtype of ovarian surface epithelial tumor which contains neoplastic epithelial cells resembling urothelium and is usually benign [2]. It was first defined by Austin and Norris in 1987 and constitutes between 1-2% of all ovarian neoplasms [3]. The average age at presentation is approximately 50 years [4]. They can occur with other surface epithelial tumors or benign teratomas, most commonly associated with mucinous tumors (20%) [5-6]. Coexistence of mucinous and Brenner tumors is a well-recognized combination though it has been reported rarely [6]. We describe a case of an incidentally diagnosed Brenner tumor in a large mucinous cystadenoma of the ovary to inform the clinicians about the co-occurrence of such a tumor so they remain vigilant in ruling out malignancy for better management as well as prognostication.

Case Report

A 60-year-old female presented to the Gynecology Outpatient Department (OPD) on 08/01/2021 with complain of abdominal pain since 2 months. The abdominal pain was gradual, progressive, and diffuse without any gastrointestinal symptoms. She then developed post-menopausal bleeding for two days. Hence, the patient was admitted to the Gynecology ward for further investigations and

detailed evaluation. The patient has been menopausal for 15 years. She had four live births without any abortions. There was a history of laparoscopic tubal ligation. On per-abdominal examination, an abdominopelvic mass was palpated, which was approximately 24 weeks in size. The mass was non-tender on palpation. On per-speculum examination, the cervix was fleshy. Her hemoglobin was 9.7g/dl with mild microcytic hypochromic red blood cell morphology on peripheral blood smear examination. There was neutrophilic leucocytosis and normal platelet count. Tumor markers, CEA, CA-125, Beta-HCG, and AFP were within the normal range. Rest biochemical laboratory investigations and chest X-Ray were normal. Ultrasonography showed the presence of a large, well-defined cystic lesion of 16.0×10.0 cm without internal vascularity with few thick internal septations in the midline pelvis, suggesting the possibility of a cystic ovarian mass. A computed tomography scan revealed a cystic lesion of 17.3×14.7×9.9 cm in size in the right pelvis, possibly arising from the right adnexa. Endometrial curettage material showed changes of endometrial hyperplasia without atypia, and endocervical curettage material revealed changes of chronic non-specific cervicitis. A large multicystic right ovarian tumor was seen intra-operatively. A right ovarian mass with the right fallopian tube was received for a frozen section in the histopathology laboratory. Grossly, the ovary was enlarged (18.5 × 15.0 × 7.0 cm) and weighed 1.37 kg. The outer surface was smooth and mildly lobulated. On cutting, straw-colored seromucous fluid poured out. The cut surface was multicystic with a focal yellowish-white solid area measuring 4.0 × 1.5 × 1.0 cm (Figure 1). A frozen section taken from the right ovarian cyst wall with a solid area showed a fibrous cystic wall lined by multi-layered transitional epithelial cells without atypia. Focally subepithelial nest of transitional epithelial cells with sclerotic stroma was identified. The nuclei of tumor cells were oval with small nucleoli. The cysts were lined by columnar epithelium, having basally placed benign nuclei with abundant mucin-containing cytoplasm (Figure 2). On the frozen section, the tumor was negative for malignancy and diagnosed as a mucinous cystadenoma with a component of the Brenner tumor. Specimens of the uterus with

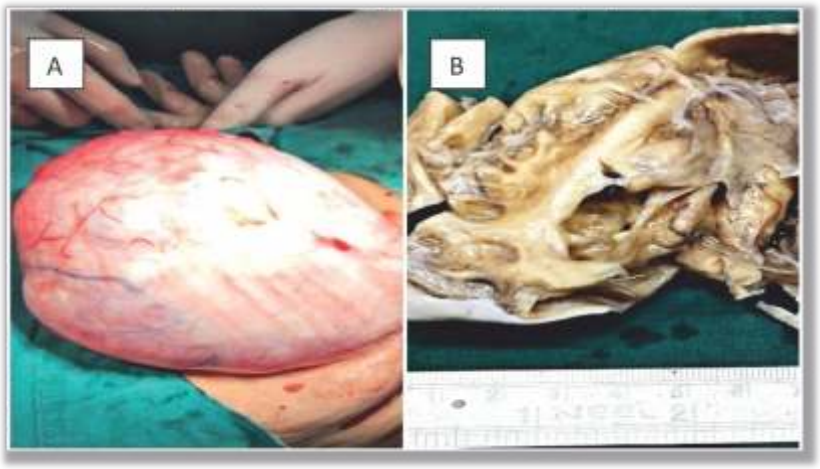

Figure 1: (A) Gross ovarian tumor (B) Cut surface showing focal yellow-whitish solid area

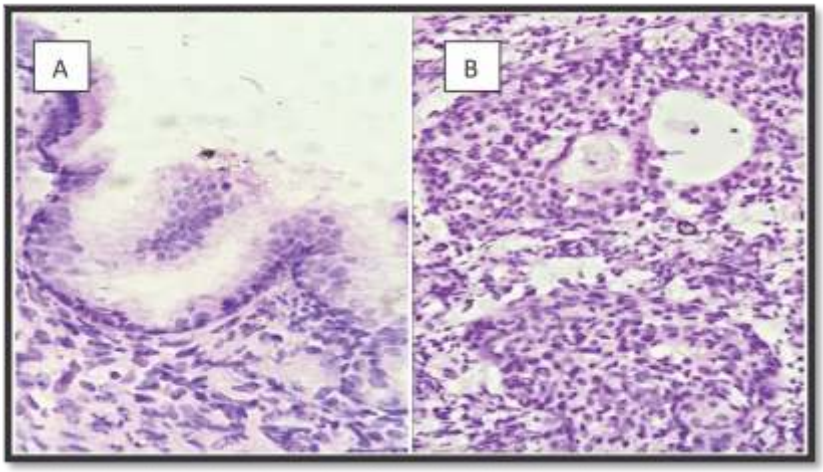

Figure 2: (A) Cyst wall showing benign mucinous epithelium, H&E stain (40×) (B) Epithelial nest showing lumen, H&E stain (40×)

cervix with left ovary and left fallopian tube were followed for histopathological examination. The left ovary, cervix, and both fallopian tubes had no significant abnormalities**.** The diagnosis given in the frozen section was confirmed on routine histopathology examination. The patient was followed up for one year by physical examination and ultrasonography with a good clinical outcome. There is no evidence of recurrence.

Discussion

Surface epithelial tumors are the most common type of ovarian tumor [7]. Mucinous tumors comprise 20% to 25% of ovarian neoplasms [2]. Brenner tumor of the ovary is not a common surface epithelial tumor. About 30% of Brenner tumors arise in association with an ovarian mucinous neoplasm. There are various theories of its histogenesis, suggesting its origin from the granulose cells of the Graffian follicle or follicular epithelium, rete ovarii, and mesonephric remnants, Walthard cell rest, and coelomic epithelium, but their accompaniment with the other surface epithelial tumor (mostly mucinous cystadenoma) strongly favors a surface epithelial histogenesis [8-9]. Both the tumors occur mainly in middle adult life and are uncommon before puberty or after menopause. Among symptomatic patients, common symptoms include vaginal bleeding, a palpable pelvic mass, and pelvic pain. It is usually an incidental pathological finding. Endometrium may show changes of hyperplasia, leading to postmenopausal bleeding [2-5].

Present case showed similar symptoms, and endometrial hyperplasia was reported in the curettage material. In this case, the Brenner tumor was found incidentally in a cystic mucinous ovarian tumor. As per literature, a Brenner tumor is a solid tumor on gross examination and histologically benign [5]. Histomorphologically, benign Brenner tumors have solid and cystic epithelial nests of transitional cells with dense fibroblastic stroma. The nuclei of cells are oval with distinct nucleolus showing longitudinal grooves (coffee-bean cells). The cytoplasm is generally clear. There are microcytes formed lined by metaplastic columnar epithelium resembling mucinous cystadenoma [5]. When there is crowding and stratification of the lining epithelium with

nuclear atypia without invasion it is known as a borderline Brenner tumor. A tumor showing a malignant epithelial component with cellular atypia is known as a malignant Brenner tumor [5]. Cases of borderline and malignant Brenner tumors have been reported but they are rare (2-5%) and there is no confirmed tumor marker for diagnosis [10]. Brenner tumor may show positivity for keratin, EMA, CEA, and GATA3 [5].

In postmenopausal females, these benign tumors are managed by abdominal hysterectomy with bilateral salpingo-oophorectomy. In postmenopausal women and patients with large-sized ovarian neoplasms, a frozen section is required to rule out malignancy. This was done in our case.

Conclusion

Brenner tumor of the ovary is rare, incidentally detected, and usually accompanied by a surface epithelial tumor, mucinous cystadenoma. Recognition of this tumor and exclusion of malignancy by frozen section has paramount significance as it is surgically resected and has a better prognosis. In the case of benign tumors, surgical resection is the treatment of choice. Histopathological examination remains the gold standard for early diagnosis as well as to exclude accompanied malignancy.

References

1. Shabir S, Gill PK. Global scenario on ovarian cancer – Its dynamics, relative survival, treatment, and epidemiology. *Adesh Univ J Med Sci Res* 2020;2(1):17-25.
2. Ellenson LH,Pirog EC.The female genital tract.In: Singh MK,Kumar V, editors. Robbins& Cotran Pathologic basis of disease. 10th ed. South Asia Edition.India: Elsevier, Inc;2020.p.985-1036
3. Austin RM, Norris HJ. Malignant Brenner tumor and transitional cell carcinoma of the ovary: A comparison. *Int J Gynecol Pathol* 1987; 6(1):29-39.
4. Ingin RJ, Andola SK, Zubair AA. Transitional cell carcinoma of ovary: Case series and review of literature. *J Clin Diagn Res* 2014; 8(8): FD07–FD08.
5. Gilks B. Rosai and Ackerman's Surgical Pathology. 11th ed. Philadelphia(PA): Elsevier, Inc; 2018. Chapter 35, Ovary: 1367-1433.
6. Sridevi S, Rao VM, Kumar SS, *et al*. Mucinous cystadenoma with Brenner tumor: A case report. *J Evid Based Med Healthcare* 2015;2(4): 455-458.
7. Nerune SM, Potekar RM, Deshpande VR. Seromucinous cystadenoma of ovary – a rare case report. *J Krishna Inst Med Sci Univ* 2017; 6(3):115-117.
8. Pradhan P, Mohanty L, Pradhan D, Pujari S, Kar A. Benign brenner tumor of ovary with mucinous cystadenoma: A case report. *Asia J Pharm Health Sci* 2017; 7:1643-1646.
9. Tafe LJ, Muller KE, Ananda G, Mitchell T, Spotlow V, Patterson SE *et al*. Molecular genetic analysis of ovarian brenner tumors and associated mucinous epithelial neoplasms: high variant concordance and identification of mutually exclusive RAS driver mutations and MYC amplification. *Am J Pathol* 2016;186(3):671-677.
10. Nazari F, Dehghani Z. Coexistence of benign Brenner tumor with mucinous cystadenoma in an ovarian mass. *Iran J Pathol* 2020; 15(4): 334-337.

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