

# Borderline Mucinous Tumor with Benign Brenner Tumor in an Ovarian mass - A Case Report and Review of Literature

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## ABSTRACT

Different groups of neoplastic and non-neoplastic conditions arise from the ovaries and the epithelial tumors such as Mucinous and Brenner tumors are rare neoplastic category. We present a case report of 72 year old postmenopausal woman who presented with progressively worsening abdominal discomfort and distention, diagnosed with huge Borderline Mucinous Tumor associated with Benign Brenner Tumor and also review the reported articles about this rare occurrence. Mucinous neoplasms of the ovary represent 10%–15% of ovarian neoplasms and about 80% of them are benign. Brenner tumors are a relatively rare epithelial neoplasm of the ovary that usually affect postmenopausal women and most of them are benign. Coexistence of Borderline Mucinous tumor with Benign Brenner tumor is a rare mixed epithelial tumor of the ovary.

**Keywords:** Mucinous cystadenoma, Brenner tumor, Ovarian tumor

## INTRODUCTION

The ovary can be involved by a different group of neoplastic and nonneoplastic conditions. The World Health Organization

classifies ovarian neoplasms into 13 distinct subtypes. Epithelial tumors are the most common category (65%), followed by germ cell (15%), sex cord–stromal (10%), metastases (5%) and miscellaneous. Surface epithelial tumors are sub-categorised by cell types as serous, mucinous, endometrioid, etc and by atypia as benign, borderline (atypical proliferation, low malignant potential) or malignant.<sup>[1]</sup>

Ovarian mucinous neoplasms comprise 10%–15% of ovarian neoplasms and are divided into benign, borderline, and malignant groups. Benign mucinous neoplasms include mucinous cystadenoma and mucinous adenofibroma and account for 80% of cases.<sup>[2]</sup> Brenner tumors are a relatively rare ovarian epithelial neoplasm, contributes 1.4–2.5% of all ovarian tumors and they usually affect postmenopausal women, and majority(99%) are benign.<sup>[3]</sup> About 20% coexist with serous or mucinous cystadenoma.<sup>[4]</sup>

This is a case report of a 72-year-old female patient diagnosed with Brenner tumor that was discovered incidentally associated with a giant borderline mucinous tumor of the ovary.

Table 1: Clinicopathological characteristics of reported cases

	Magbool M et al. <sup>[5]</sup>	Nazari F et al. <sup>[6]</sup>	Dougherty D et al. <sup>[7]</sup>	Rajshree D.K. et al. <sup>[8]</sup>	Pradhan P. et al. <sup>[9]</sup>	Anoedward et al. <sup>[10]</sup>	Sridevi S. et al. <sup>[4]</sup>
<b>YEAR</b>	2022	2020	2018	2017	2017	2017	2015
<b>AGE</b>	56	58	57	67	52	59	52
<b>CLINICAL PRESENTATION</b>	abdominal discomfort and distention	abdominal pain and distention	Pelvic discomfort	distension of abdomen	Abdominal pain	Abdominal distention	Pelvic discomfort
<b>COURSE DURATION</b>	3 months	6 months	3 months	6 months	6 months	3 months	1 month
<b>LOCATION</b>	Left ovary	Right ovary	Left ovary	Left ovary	Right ovary	Right ovary	Left ovary
<b>SIZE</b>	27 × 25.5 × 15cm	20x13cm	40x22x27cm	25x11x10cm	25 × 20 × 18 cm	25 × 15 cm	8x7x5cm
<b>DISEASE</b>	Mucinous Cystadenoma with Benign Brenner Tumor	Mucinous Cystadenoma with Benign Brenner Tumor	Borderline Mucinous cystadenoma with Benign Brenner tumor	Mucinous Cystadenoma with Benign Brenner Tumor	Mucinous Cystadenoma with Benign Brenner Tumor	Mucinous Cystadenoma with Benign Brenner Tumor	Mucinous Cystadenoma with Benign Brenner Tumor

## CASE REPORT

A 72 year old postmenopausal woman G4P4, k/c/o HTN for 1 year, presented to our center on 12<sup>th</sup> August 2022, with a 5 months history of progressively worsening abdominal discomfort and distention with complain of constipation and dysuria. Past history stated vaginal hysterectomy (without Bilateral salphingo-oophorectomy) done 4-5 years back for prolapsed uterus. On examination patient was conscious cooperative and oriented to time, place and person with general examination within normal limits (wnl), Per Abdomen examination was soft, no organomegaly palpated, well-defined mass in lower abdomen reaching upto umbilicus was palpable. Patient was advised Abdominopelvic sonography that detected large thick-walled complex cystic lesion 18x16x12cm with thick septations and echoes in pelvis reaching upto umbilicus-suggestive of (s/o) ovarian mass with mild bilateral (B/L) hydronephrosis. Other pelvic organs were unremarkable.

For further evaluation, dated 30<sup>th</sup> August 2022, patient underwent CECT Abdomen stating large complex mass with minimally enhancing peripheral solid mural mass 16x13x17.7cm with thick enhancing septa s/o mucinous cystadenoma of ovary with mild B/L hydronephrosis due to compression. Patient's pre operative workup for hemogram, blood sugar, chest x-ray was wnl, Tumor markers CA-125 was 33.7U/ml

(normal – 0 to 35ng/ml) and CEA-2.5ng/ml (normal – 0 to 2.5ng/ml) were wnl.

Patient was then planned for Explorative laparotomy + excision of ovarian mass (intraoperative frozen) followed by omentum resection. On 14<sup>th</sup> September, 2022 patient underwent surgery, Frozen sections of entire ovary was sent to pathology dept, Pathological gross evaluation identified intact ovarian mass measuring 25x15.5x13cm with cut section of solid as well as cystic lesion. Large nodular area measures 10x7x6cm with firm surface, another solid nodule is mucinous, multilocular measuring 9.5x7cm, cyst measures 14.5cm in length. Microscopic examination of histological sections of left ovarian mass stated mucinous cystic ovarian tumor predominantly benign epithelial cells with areas of micropapillary fronds with nuclear stratification focally seen as shown in figure 1, s/o possibility of borderline mucinous tumor with benign Brenner tumor. More sections were advised to rule out invasion.

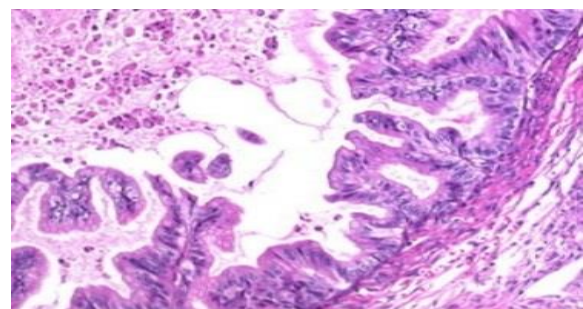


Figure 1: Histopathological section shows complex mucinous epithelial architecture showing micropapillary fronds

On routine histological evaluation, final diagnosis stated mucinous cystic tumor of borderline malignancy with areas of benign mucinous cystadenoma along with benign Brenner tumor with transitional cell nests embedded in a dense fibrous stroma.

## DISCUSSION

Epithelial tumors, are the most important group of neoplasms and have been thought to derive from the ovarian surface epithelium. It is now accepted that the epithelial tumors of the ovary have diversity in histogenesis. Epithelial ovarian tumors are subclassified based on cell type as serous, endometrioid, clear cell, mucinous, seromucinous, or transitional (Brenner).<sup>[11]</sup>

Ovarian mucinous neoplasms consist of a lower percentage than serous neoplasms, representing approximately 10–15% of all ovarian tumors and majority about 80% of these lesions are benign.<sup>[12]</sup>

Brenner tumors are rare epithelial ovarian tumors. They are frequently identified incidentally following resection of other lesions, 30% of Brenner tumors exist as combined lesions. The lesions frequently present in postmenopausal patients with a mean age 60 years.<sup>[13]</sup> Although the relationship between ovarian mucinous tumor and Brenner tumor is well known, there are few reported cases of the coexistence of these two types of ovarian tumors in the literature.<sup>[4]</sup>

Here we review 7 case reports of mucinous neoplasm of ovary with Brenner tumor. The clinicopathological features of these cases are shown in Table 1.

All the presented patients were postmenopausal women with progressive abdominal distension and pelvic discomfort. The disease course was  $\leq 6$  months in all cases. All the ovarian masses were unilateral and six of them were huge mass (more than 20 cm) and only in one case the mass was less than 10 cm. In term of laterality Right:Left ovary ratio was found 4:3.<sup>[4,5,6,7,8,9,10]</sup>

Our patient was also a post-menopausal woman with history of 5-month progressive

abdominal discomfort and distention with huge 18 × 16 × 12 cm left ovarian mass who underwent explorative laprotomy with left adnexal excision and pathological diagnosis of borderline mucinous tumor associated with benign Brenner tumor was made.

Ovarian mucinous tumors are divided into benign (mucinous cystadenoma), borderline, and malignant (mucinous carcinoma); majority mucinous tumors are benign or borderline. Grossly, they tend to grow larger than the serous types and are partially or completely cystic, multiloculated and have a smooth surface. Viscous material of mucoid nature is present in the lumen. The epithelium is referred to as intestinal and is characterized by an epithelial lining with a picket fence appearance, Paneth cells and endocrine cells. The distinction between benign and borderline mucinous tumor is based on the presence of cytologic atypia and stratification which is present in borderline type.<sup>[11]</sup>

Brenner tumors consist of solid and cystic nests of epithelial cells resembling transitional epithelium (urothelium) surrounded by an abundant stromal component of dense, fibroblastic nature microscopically. The epithelial cells have sharply defined outlines with oval nucleus and a small but distinct nucleolus and longitudinal grooves with clear cytoplasm.<sup>[11]</sup>

## CONCLUSION

The case report and review of literature is for creating awareness among the surgeons and pathologists about coexistence of ovarian mucinous tumors and Brenner tumor.

### *Declaration by Authors*

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