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Case Report

Malignant Brenner Tumour – A Rare Entity

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Abstract
Malignant Brrenner Tumour of ovary is an extremely rare tumour that morphologically resembles Urothelium. Most Brenner tumours are benign with only 2-5% being malignant. Here we present a case of 42 year old women with an abdominal mass diagnosed as ovarian tumour. She underwent total abdominal hysterectomy with bilateral salpingo oophorectomy. Histopathological examination finally led to the diagnosis of Malignant Brenner tumour. We report this case due to its rarety and due to the limited nature of the data and definitional variations.
Keywords: *Malignant Brenner Tumour, management, malignancy.*

Introduction

Ovarian carcinoma pose a major cause of morbidity and mortality in gynecological patients. Brenner tumour is a relatively uncommon neoplasm accounting for 1.4- 2.5% of all ovarian tumours. Most Brenner tumours are benign with only 2-5% being malignant[1]. It can present at any age but majority of neoplasms arise between fourth and eighth decade with a peak incidence in the fifth decade. Malignant Brenner tumour has a prelidiction for post menopausal women. It is generally believed that these tumours originate from the coelomic epithelium of the ovary which undergoes a metaplastic process inorder to form the typical urothelial like epithelial elements of the neoplasm[2]. The WHO classified Brenner tumours into 3 categories: benign, borderline and malignant [2].The malignant component of the tumour which shows heterogeneous epithelial growth and atypia with intervening stroma consists of transitional cells, squamous or undifferentiated carcinoma or an admixture of these types[3]. Malignant Brenner tumour often demonstrates positivity for Uroplakin III, Thrombomodulin and Cytokeratin and negative for CK20. Because of the rarety and variable histological criteria there is no established tumour markers for Malignant Brenner Tumour[3]. Here we discuss a case of unilateral Malignant Brenner Tumour in the reproductive age group.

Case Presentation

A 42 year old woman attended the gynecology OPD of Govt. Medical College, Thiruvananth-apuram with complaints of watery discharge p/v since one and a half years. She also had complaints of pain abdomen, menorrhagia and polymenorrhoea of one year duration. There were

no other comorbidities. Her elder sister died of ovarian malignancy 5 years back, the histopathology report of which is not available. Her routine blood investigations were as follows:
Hb 10.9 grams, TC – 11400/mm^3, DC - P_{60} L_{36} E_4, Platelet count- 3.5 lakhs and ESR – 90 mm/hr
All other investigations were within normal limits.
CA 125 - 1875 IU
On perabdominal examination a firm to hard non tender and mobile lump was palpable in the pelvic region.
USG abdomen was done which showed a cystic mass lesion of 12x9 cm size in the left adnexa with thick wall(0-2mm)with few septations.

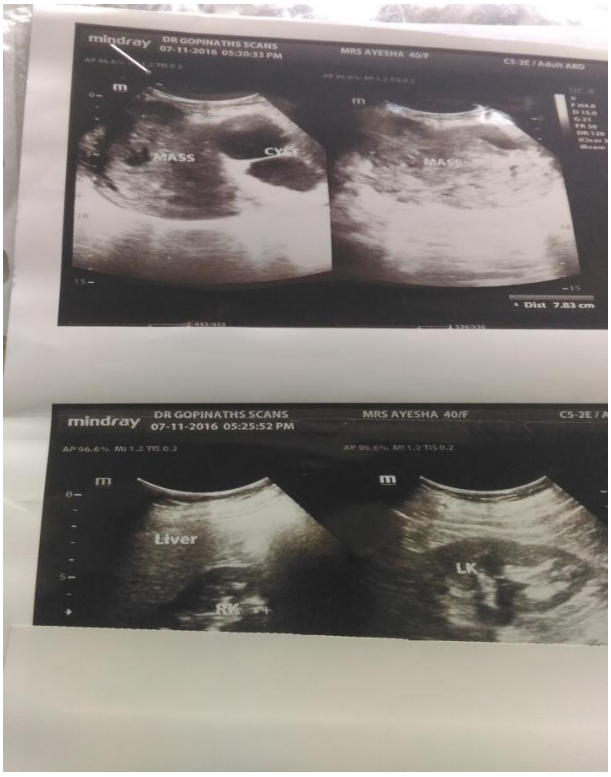

Figure 1: US scan

MRI was done which showed a huge solid and cystic space occupying lesion seen filling the central pelvis and lower abdomen reaching upto the level of inferior renal poles of 20x13x10 cm with solid and cystic component. She underwent TAH with BSO.
Per operatively there was a mass in the left adnexa 20x15x10 cm infiltrating the sigmoid colon. There was 100ml ascitic fluid. The specimen was sent for histopathological study.

Gross Findings

We received uterus with attached cervix and right ovary and omentum. Left ovary was received separately which weighed 510grams and measured 16x11x5cms. Surface was nodular with ruptured capsule. Cut section showed solid and cystic areas. Solid area measured 10x8 cm which was soft, grey white and friable with areas of necrosis. Cystic areas measured 11x9cm. Inner wall was shaggy and brownish. Endometrial cavity showed a polyp. Right ovary measured 2.5x2x0.5 with corpus albicans. Subserous fibroid was noted. Cervix on cut section was unremarkable.

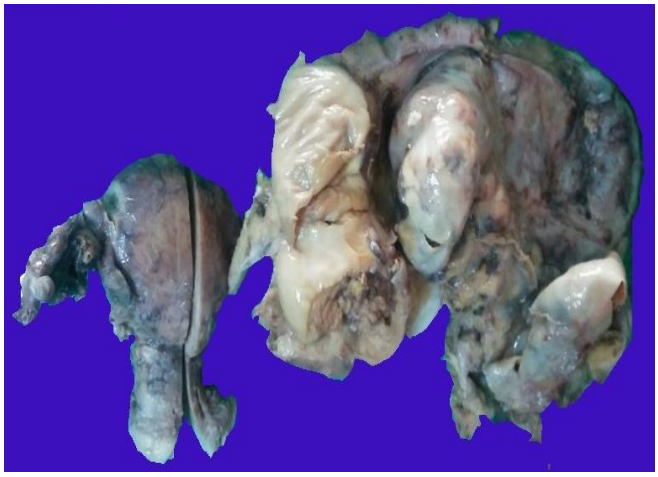

Figure 2: TAH with BSO specimen showing an enlarged left ovary, surface of which is nodular with ruptured capsule

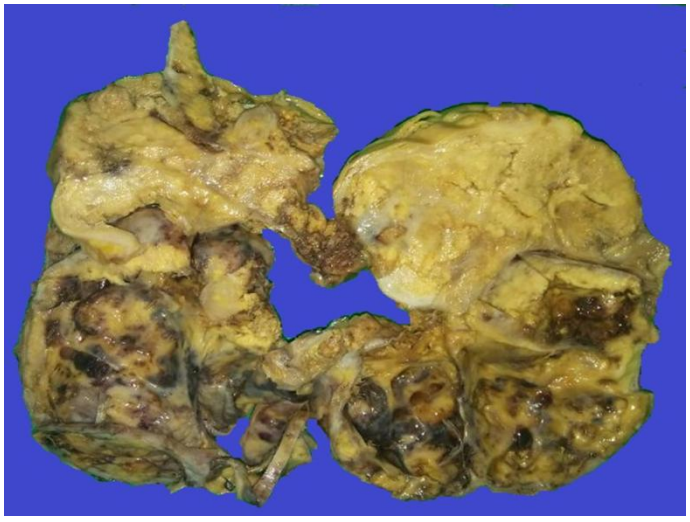

Figure 3: Cut surafce of left ovary showing a solid and cystic mass which is grey white, soft and friable with areas of necrosis

Microscopy

Section from left ovary shows an infiltrating neoplasm composed of cells arranged predominantly in broad papillary pattern, nest and in sheets. Individual cells (urothelium like) in papillary areas are round to oval with moderate cytoplasm, with vesicular nuclei, some with prominent nucleoli. Cells arranged in sheets are separated by fibrous bands. Cells are round to oval to spindle with pleomorphic nuclei with moderate cytoplasm. Bizzare cells and tumour giant cells are noted. Mitosis 3 per 10 hpf noted. There are dense areas of necrosis. Capsule was ruptured. Right ovary showed corpus albicans. Uterus showed proliferative endometrium, Adenomyosis and leiomyoma. Cervix showed chronic cervicitis with squamous metaplasia. Omentum free of neoplasm.

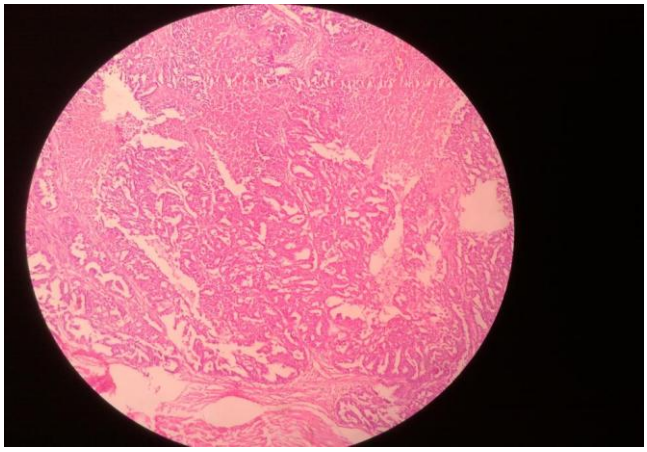

Figure 4: Ovary shows a neoplasm composed of cells arranged predominantly in broad papillary pattern nests and shades

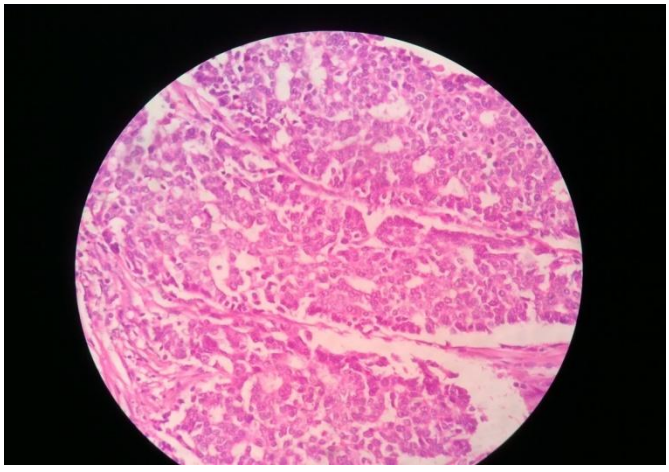

Figure 5: High power view showing round to oval cells with vesicular nuclei with moderate cytoplasm

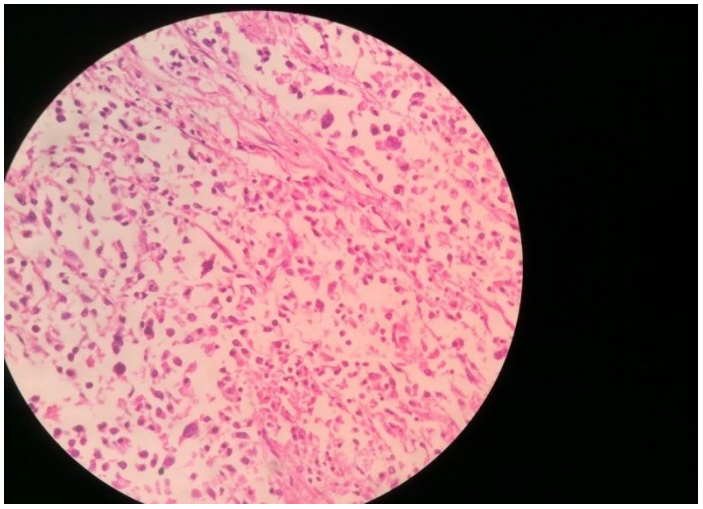

Figure 6: Cells arranged in sheets with round to oval to spindly cells with pleomorphic nuclei and moderate cytoplasm bizzare cells and tumour giant cells noted

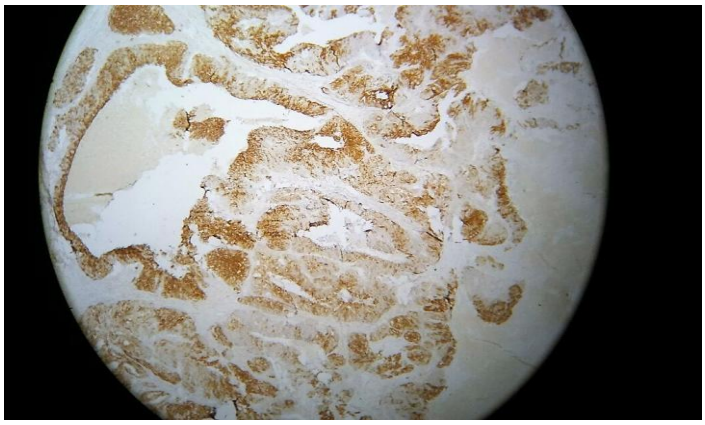

Figure 7: IHC – cell shows strongly diffusely positivity for CK7

Discussion

The first Malignant Brenner tumour was described in 1945 by Von Numers[4]. Malignant Brenner tumour is a very rare malignancy and closely resembles transitional cell carcinoma of urinary bladder with squamous and undifferentiated variants[5]. These tumours are typically large with a medium diameter of 16-20 cm and typically have a solid component resembling benign Brenner tumour as well as cyst containing papillary polypoid masses[6]. Malignant Brenner tumours show stromal invasion associated with a benign or borderline Brenner tumour component. The invasive element is usually high grade TCC or squamous cell carcinoma. Benign Brenner

tumour admixed with serous or mucinous carcinoma should not be diagnosed as Malignant Brenner tumour.

Endometrial hyperplasia has been reported to coexist in 4-14% of women who have Brenner tumours[7]. Fox etalpresented cases of MBT with abnormal vaginal bleeding[8]. In our case the patient presented with watery discharge, polymenorrhoea and menorrhagia. Peritoneal effusion is rare in MBTs found in only 10% of patients[9]. In this case there was 100 ml of ascitic fluid which was negative for malignant cells.

The Criteria proposed by Hull and Campbell in 1973 for diagnosis of MBT are as follows:

1. Frankly malignant histological features must be present.
2. There must be an intimate association between malignant element and benign Brenner tumour.
3. Mucinous cystadenoma should preferably be absent or must be well separated from both benign and MBT.
4. Stromal invasion by epithelial elements of MBT must be demonstrated[10].

Currently surgery is the primary therapeutic modality for Malignant Brenner tumour. CA 125 is a useful tumour marker for disease progression and treatment efficacy monitoring. In our case CA 125 was increased and was 1875 IU. Ryback etal reported the mortality of Malignant Brenner tumour was approximately 55% and mean survival time was one year[11]. Malignant Brenner tumour confined to the ovary (stage I) had an excellent prognosis with 5 year survival rate of 88% as reported by Austin etal[12].

Conclusion

Malignant Brenner tumours are typically unilateral high grade tumours localized to the ovary. The mainstay of treatment is surgical resection but exact regimen and benefit of adjuvant therapy remain unknown. Therefore early diagnosis and treatment is the most effective method for prognosis in MBT. CA125 is a useful marker for disease progression and treatment efficacy monitoring. Patients with tumours confined to the ovary have an excellent prognosis while those with extra ovarian spread is associated with poor outcome.

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