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Bilateral Ovarian Malignant Brenner Tumor: A Case Report with Literature Review

S. Amouzoune[1*], A. Belbachir[1], S. Berrada[1], C. Ahouissoussi[1], Y. Khimari[2], K. Harou[2], A. Soumani[2], H. Rais[1]

[1]Department of Anatomy Pathology, Mohammed VI University Hospital, Marrakech, Morocco

[2]Department of Gynecology, Mohammed VI University Hospital, Marrakech, Morocco

[*]**Corresponding author:** S. Amouzoune, Department of Anatomy Pathology, Mohammed VI University Hospital, Marrakech, Morocco Email: salma8amz@gmail.com

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Abstract

Brenner tumor of the ovary is very rare, mostly benign, small, and unilateral. Malignant Brenner Tumor (MBT) is much rarer. We present a patient aged 50 years, with no specific pathological history who presented in consultation for chronic pelvic pain. Pelvic ultrasound demonstrated a bilateral latero-uterine mass of suspicious appearance with local infiltration with peritoneal carcinosis and an ascites of average abundance. The pathological examination had concluded in a bilateral brenner tumor, endometrium, omentum are all invaded. Brenner tumors are rare ovarian tumors, first described by McNaughton-Jones in 1898 and then named by Frits Brenner in 1907. MBT presents similarly to other ovarian cancers (abdominal distension, abdominal pain, bulk symptoms and relative vague symptomatology). All histopathological diagnoses were performed according to the criteria described by Hull and Campbell. Tumors express several immunohistochemical markers of urothelial differentiation including uroplakin III, thrombomodulin, GATA3, p63, as well as cytokeratin 7. The primary treatment modality is surgical excision. This study discussed the clinical, pathological characteristics and treatment of MBTs.

Introduction

Ovarian Brenner tumors are relatively rare, comprising 1% to 3% of all ovarian neoplasms [1]. Brenner tumor of the ovary is a relatively uncommon neoplasm. The average age at presentation is 50 years with 71% of the patients being more than 40 years [2]. It has a predilection for the postmenopausal woman. According to WHO, depending on the histopathological pattern, they are classified as benign, borderline or malignant Brenner tumors, and transitional cell carcinomas [3]. Although Brenner tumors are usually discovered incidentally, patients occasionally present with symptoms such as a palpable mass or pain [4]. They are usually unilateral; bilateral lesions are found in 5-14% of cases [4]. Brenner tumor is a fibroepithelial tumor composed of transitional epithelial cell nests, similar to bladder epithelium [5]. The conventional treatment modality is surgical resection; however, only a little information is available on the definition, biology, optimal treatment, and prognosis of Malignant Brenner Tumors (MBTs) [6].

Case Report

Patient aged 50 years, with no specific pathological history, nulligeste, presented in consultation for chronic pelvic pain, pelvic ultrasound had objectified a suspected bilateral ovarian tumor of 5cm / 5cm on each side, with thickened wall and endokytic vegetations with ascites, vascularized with doppler, abdomino-pelvic CT demonstrated a bilateral latero-uterine mass of suspicious appearance with local infiltration with peritoneal carcinosis and an ascites of average abundance. An exploratory laparotomy made, which had found an unilateral white-cystic tumor of greyish white appearance, irregular wall adherent to the neighboring structures, infiltrating the right broad ligaments, rectum and douglas sac with nodules at the omentum And peritoneal carcinosis, a total hysterectomy without adnexal preservation with cytological sampling and an omentectomy with multiple parietal biopsies were performed. The pathological examination had concluded in a bilateral malignant brenner tumor, endometrium, omentum are all invaded (Figure 1). The Immunohistochemistry staining results

were positive for: WT-1, cytokeratin 7 and negative for cytokeratin20, and p63 (Figure 2).

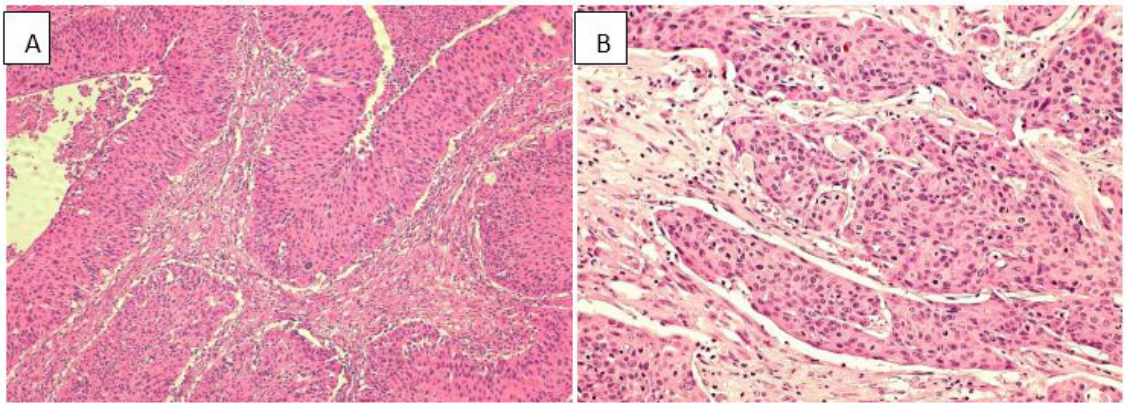

Figure 1: (A): Benign Brenner tumor shows solid and cystic nests of bland epithelial cells that resemble a transitional epithelium surrounded by abundant dense fibroblastic stromal tissue. (Hex10; **(B):** Malignant Brenner tumor component shows a cytologically malignant component with stromal invasion (He x 40).

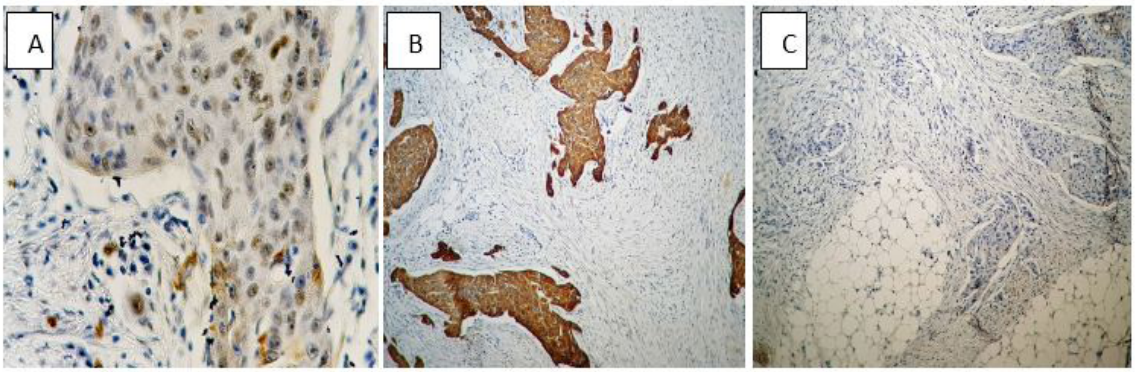

Figure 2: Immunohistochemical stains were performed to rule out other tumors. Wt1 (A) CK7 (B) are positive. CK20 (C) is negative. Controls were reactive. The results of the stain support the diagnosis of primary ovarian tumor consistent histologically with malignant Brenner tumor.

Discussion

Ovarian neoplasms are a heterogeneous group composed of tumors showing epithelial, germ cell, and sex cord stromal differentiation. The ovarian Brenner Tumor (BT) represents a rare epithelial ovarian neoplasm and accounts for 1-2% of all ovarian neoplasms [7] They are rare ovarian tumors, first described by McNaughton-Jones in 1898 and then named by Frits Brenner in 1907 [6]. In 2013, Kuhn, et al. suggested a fallopian tube origin for Brenner tumors based on morphologically identical cilia on the fallopian tube and ovarian surface, as well as a very similar immunohistochemistry profile in the two tissues [8]. Brenner tumors are usually benign tumors, although there is a wide spectrum between benign and malignant features [4]. MBT presents similarly to other ovarian cancers (abdominal distension, abdominal pain, bulk symptoms and relative vague symptomatology) [9]. Patients typically present with disease confined to the ovary or surrounding tissue with lymphatic spread being less common [10].

A recent retrospective analysis showed that the median tumor size for MBT was 10 cm (10); however, tumor sizes vary with some sources suggesting these neoplasms are typically much smaller (< 2 cm) (10). Usually, benign Brenner tumors are unilateral and malignant Brenner tumors are bilateral [4]. Diagnosing Brenner tumors with imaging studies is difficult because the tumor's appearance is nonspecific [4]. In general, it has been shown on CT imaging to have nonspecific findings, most consistently reported as a mild-moderate enhancement with evidence of amorphous calcification confined to the solid component [11]. Malignant Brenner tumors are not associated with findings consistent with hemorrhage or necrosis; however, these features, along with a thick irregular wall, thick septa and papillary projections are typical features of malignant epithelial ovarian tumors [7].

All histopathological diagnoses were performed according to the criteria described by Hull and Campbell [12], which complemented Idelson's [13] criteria as follows: (a) presence

of malignant histological features; (b) presence of an intimate association between malignant and benign components or a borderline Brenner tumor (in the absence of a benign or borderline Brenner component, the tumor should be classified as a transitional cell

Carcinoma; (c) absence of mucinous cystadenomas or separation of the mucinous cystadenomas from both the benign tumor and the MBT; and (d) demonstration of stromal invasion by epithelial elements of the MBT [6]. The brenner tumor cells have hyperchromatic, pleomorphic nuclei and numerous mitotic figures, and they are characterized by destructive stromal invasion [4]. Furthermore, associated tumor types (most commonly mucinous cystadenoma) must either be absent or geographically distinct from the MBT [12]. Immunohistochemical stains were performed to rule out other tumors. CA125, CK7 and WT-1 are positif [7]. The primary tumor on the differential diagnosis of MBT is Transitional cell carcinoma. Despite their shared transitional cell phenotype, there is considerable evidence that these two tumors represent distinct pathologic and clinical entities. On imaging and gross examination, TCC lacks the calcifications typically seen in MBT [7]. The TCC is characterized by the presence of nuclei with distinct nuclear grooves (so-called “coffee-bean” shapes) and can be aided with immunohistochemical demonstration of urothelial marker expression (such as GATA3, uroplakin III, thrombomodulin, and p63) [14]. There is one report on the retroperitoneal metastatic spread of MBT, which was initially limited to the unilateral ovary without regional or distant metastasis [6]. Thus, a biopsy of pelvic lymph nodes should be recommended, even if the tumor is localized only to the unilateral ovary without metastasis. Unilateral oophorectomy is the procedure of choice only for benign Brenner tumors in patients who desire ovarian conservation [6]. Ben Aissia, et al. reported that metastasis occurs in half of the cases and are mostly locoregional [15].

The treatment for Brenner tumor is essentially surgical. Surgical staging should be done if a tumor has malignant potential. The role of lymphadenectomy is not yet clear because of the rare occurence of malignant Brenner tumors. It is reported that the rate of lymph node metastasis was 5.1% and lymphadenectomy was not associated with any improvement in survival [10], and Han, et al. [6] reported that the majority of malignant Brenner tumors presented with localized disease (stage I). Depending on surgical staging, adjuvant or neoadjuvant chemotherapy is indicated, however, most authors report low histologic good completion rates, excluding multi-chemotherapy based on platinum salts [16]. Combining paclitaxel-carboplatin would be highly recommended [9]. The prognosis depends on the stages of FIGO, so in stages I survival is estimated at 88% at 5 years. However, malignant Brenner tumors of advanced stages are poor prognosis with an average survival at 5 years not exceeding 40% [17]. The factors of poor prognosis associates, Young age, advanced stage and tumor residue, it should be noted that in 80% of the cases discovered are good prognosis seen the early diagnosis in stage I.

Conclusion

The malignant Brenner tumor is an extremely rare diagnosis of fortuitous discovery, the prognosis of which remains reserved given the late detection. In the absence of a therapeutic standard, management is essentially surgical. The indication of chemotherapy remains questionable and rests on a poly adjuvant chemotherapy, several protocols remain uncommitted due to the very low incidence of this malignant form, unlike the benign forms of which the therapeutic arsenal is well codified and the prognosis generally remains very Good.

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