Journal Homepage: - www.journalijar.com
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)
Article DOI: 10.21474/IJAR01/9716
DOI URL: http://dx.doi.org/10.21474/IJAR01/9716

RESEARCH ARTICLE

BORDERLINE BRENNER TUMOR OF THE OVARY: A CASE PRESENTATION.

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Manuscript Info

Manuscript History
Received: 09 July 2019
Final Accepted: 12 August 2019
Published: September 2019

Key words:-
Brenner tumor, borderline Brenner tumor, ovarian tumor.

Abstract

Brenner tumors (BTs) are rare ovarian tumors which are a part of the epithelial stromal tumor group of ovarian neoplasms. Most of the BTs are benign and usually asymptomatic. BTs stand for the 1.4-2.5% of ovarian tumors. The benign ones are the most frequent, representing about 95%, the borderline represent about 5%, and the malignant ones less than 1%. Borderline BTs are usually bigger than benign BTs and individuals typically represent with symptoms related with a unilateral ovarian mass. We present the case of a 53-year patient who was diagnosed with right ovary of borderline BT ovarian tumor. The surgical treatment led to a complete cure of the patient, so that the yearly ultrasound reexamination did not trace the presence of any tumoral relapse.

Introduction:-

Brenner tumors (BTs) are defined by Fritz Brenner as oophoroma folliculare ovarii in 1907, and comprise 5% of benign tumors of the ovary [1]. They are comprised of layers of urothelium-like epithelial cells, that are encircled by condensed fibrous stroma and are thought to rise from superficial epithelium of the ovary . that suffers transitional metaplasia. BTs comprise nearly 1.4-2.5% of tumors of the ovary [2]. World Health Organization categorized BTs into 3 groups: malignant, borderline and benign. The benign ones are the most frequent, representing about 95%, the borderline represent about 5%, and the malignant ones less than 1% [3]. Borderline BTs are epithelial tumors that appear as cellular islands or irregular epithelial masses that predominate in the cystic areas, differentiated by a dense conjunctive tissue at the periphery.

Case Presentation :

A 53-year-old postmenopausal female patient referred to our clinic with the complaints of pains in the right iliac fossa and in the hypogastrium, and abdominal distension. The pains started insidiously about six months before, progressively intensifying. Medical history of the patient was unremarkable. the clinical examination showed the presence in in the right iliac fossa and in the hypogastrium of a mass with an average consistence, sensitive, slightly mobile. The gynecological examination highlighted a closed cervix, lesion-free, normal sized uterus, surrounded posteriorly and to the right by a tumoral formation of about 10–15 cm in diameter, elastic, sensitive, with low mobility. The left adnexal area was free of any masses.The magnetic resonance imaging (MRI) revealed the presence in the right ovarian of a wide cyst lesion measuring; Figure 1(A frontal cut B sagittal cut) 8×12 cm

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containing haemorrhagic zones with very coarse and irregular tissue vegetations measuring 6 / 6,5cm (Figure 1A ,B). Preoperative tumor marker CA-125 was measured as 40 kU/L.

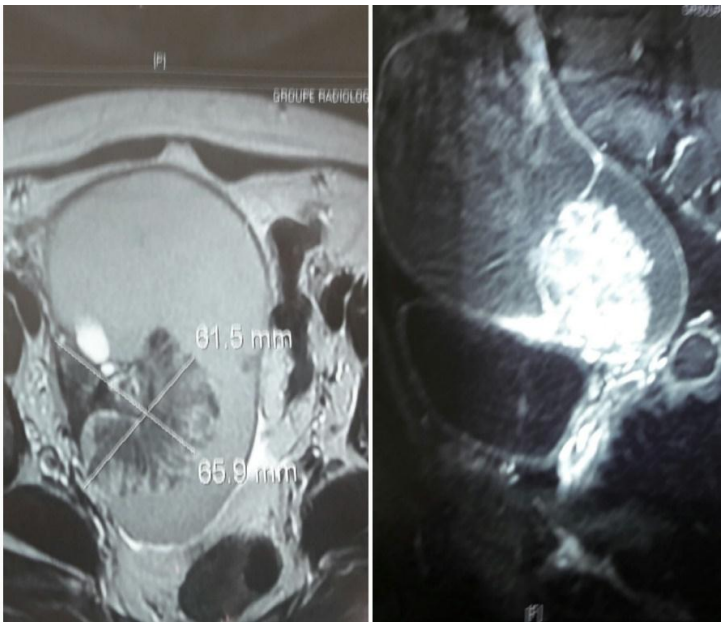

Figure 1:-Pelvis MRI scans showing a large right ovarian cyst lesion with coarse and irregular tissue vegetations.

Midline laparotomy was performed. Abdominal exploration revealed a 30 cm-bulky tumor originating from the right ovary (Figure 2). Contralateral ovary was apparently normal. The patient underwent total abdominal hysterectomy,bilateral salpingoophorectomy, infracolic omentectomy, appendectomy, and multiple peritoneal biopsies were also performed.

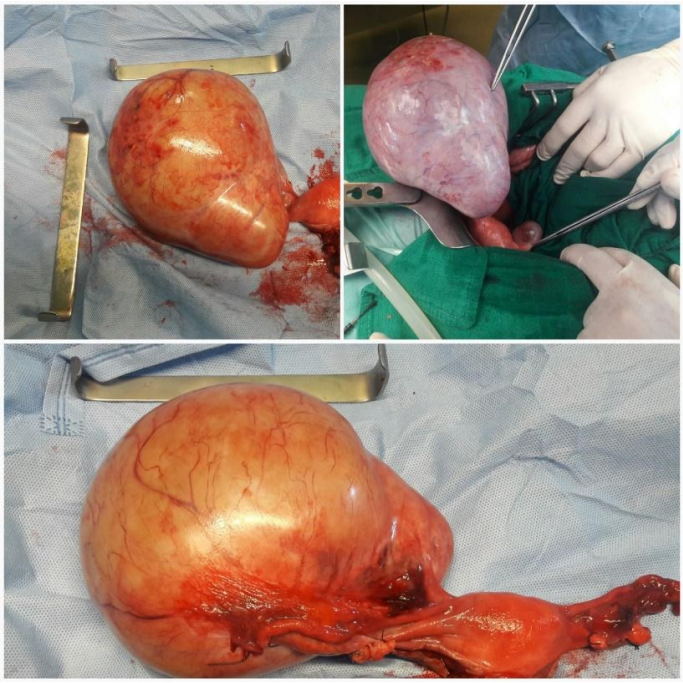

Figure 2:-tumor originating from the right ovary.

On gross pathological examination, the pathologically proven mass was 21x15x8cm in diameter. The cross-section was exist up of a large cystic cavity, and serosal mucus emptied through it. It was observed with solid area in this

district. This area was firm white and approximately 4x4cm in size. The microscopic study highlighted the presence of papillary projections and solid nests of transitional cells surrounded by an abundant fibromatous stroma (Figures 3 and 4). Transitional cells showed acidophil or pale cytoplasm, and mild nuclear atypia. The cellular mitoses were rarely highlighted (Figure 5); extensive sampling ruled out infiltration. Therefore, the definitive pathological examination showed a Brenner borderline ovarian tumor with atypia which was classified as FIGO stage IA. No adjuvant treatment was recommended. the follow-up while one year so far based on clinical and ultrasound examination did not trace the presence of any tumoral

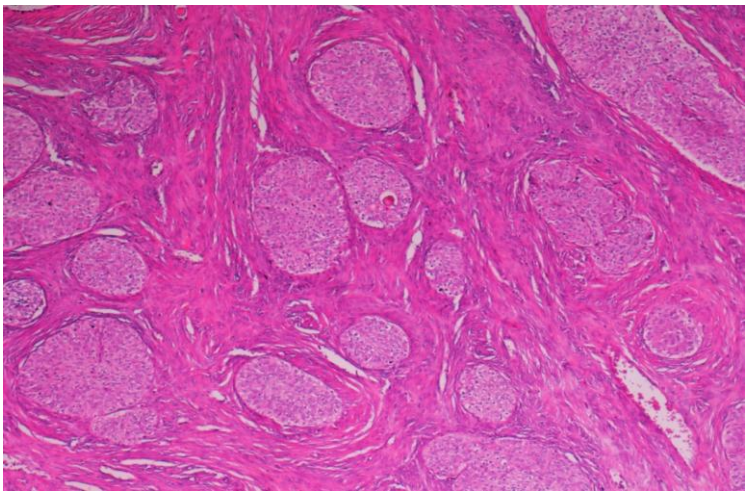

Figure 3:-Solid nests of transitional epithelial cells with pale cytoplasm, surrounded by an abundant fibromatous stroma. HE staining ×40.

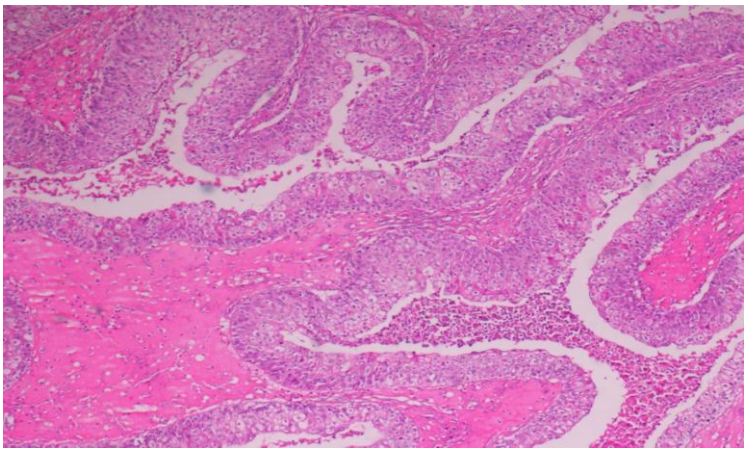

Figure 4:-Tall Tumoral papillae with pale cytoplasm. HE staining, ×40.

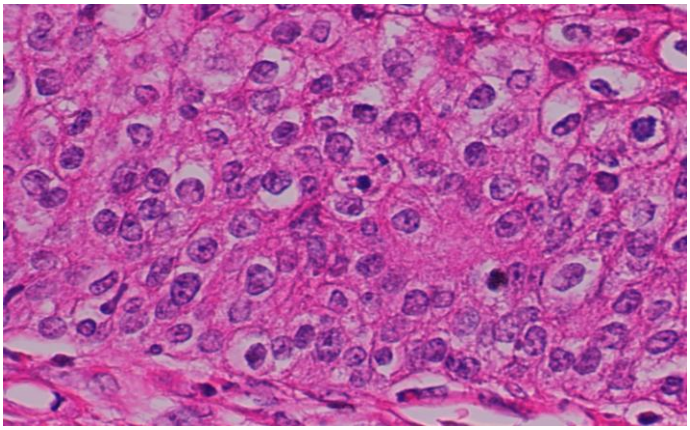

Figure 5:-Papillary transitional cellular component with mild nuclear atypia and rare mitosis. HE staining ×400.

Discussion:-

Brenner tumor is uncommon tumor arising from surface epithelium , It constitutes 1.4%–2.5% of all ovarian tumors and has a predilection for the postmenopausal woman. Borderline Brenner tumors are rare; they represent only 4–5% of the total of Brenner tumors [2]. The average age is 50 years with 71% of the patients being more than 40 years [4].

in 1889 Macnaughton-Jones describe BT for the first time [5] .In 1907 Brenner described a new type of ovarian tumor which he designated oophoroma folliculare. He believed that this type was the most mature form of the folliculoid granulosa-cell tumor [6]. However R. Meyer [7] reinvestigated the available material and showed that the Brenner tumor is macroscopically, as well as microscopically, a well defined tumor of the ovary, and has no relation to the granulosa-cell tumor. Roth and Sternberg described Brenner borderline ovarian tumors or APBOTs in 1971 [8].

The origin and hormonal activity of tumor have many controversies. It was suggested that these tumors arise from Walthard cell nest. [9] Other suggestions related to the origin are the rete ovarii germ cells, germinal epithelium, , gonadal stroma or from the follicular structures, but perhaps the most acceptable is that the tumor is formed from the urinary tract epithelium, metaplasia of the germinal epithelium or by arising from the mesonephric remnants [9].
The BTs are designated in the WHO 2003 classification by the group of transitional cell tumors. The BTs or transitional cell carcinomas are divided into benign, borderline or malignant . borderline Brenner tumors, usually associated with a benign Brenner tumor, are characterized by papillary structures with a fibro-vascular core covered by a transitional epithelium. The transitional-type cells of the Brenner tumors are histologically similar to the cells of the Walthard rests. A new classification of borderline BTs is suggested: grade 1 (borderline, not otherwise specified) and grade 2-3 (borderline with intra-epithelial carcinoma) [10].

Brenner tumor of the ovary is generally asymptomatic. Although they are predominantly solid on imaging , association with serous and mucinous cystadenomas is up to 30% [11].It is usually an incidental pathological finding. Among symptomatic patients, common symptoms include a palpable pelvic mass, pelvic pain, and vaginal bleeding. Bilaterality is seen only in 5 to 7 % of the cases. Most of the time it is found to be unilateral Bilaterality is seen only in 5%–7% of the cases, Most of the time it is found to be unilateral [12].

In imaging studies, Borderline Brenner tumors can grow up to 5–20 cm in size, They are characteristically cystic and unilocular or multilocular with cauliflower-like papillomatous masses protruding into one or more of the locules as was seen in our case. Malignant Brenner tumor may be solid or cystic with mural nodules; they usually do not have any distinctive features [13].

Microscopically, they are formed of a dense fibrous stroma with epithelial nests of transitional cells resembling those lining the urinary bladder. Complex cystic tumors contain varying amounts of stroma and are more commonly found with borderline or malignant histologic findings. The fibrous component is more prominent in benign lesions than in borderline or malignant tumors [14]. The papillary fibrovascular cores are covered by transitional-type epithelium that may exhibit the same histological changes observed in the transitional cell tumors of the urinary bladder .

The surgical resection of the whole Brenner tumor is the habitual treatment and no other treatment is needed any more. If malignant BT has been discovered a more suitable surgical treatment is needed as well as an adjuvant chemotherapy.

Brenner borderline tumors have an excellent prognosis with a survival rate of 99 % and 97 % of cases at 5 years and 10 years respectively [15]. However, malignant BT has a poor prognosis with a survival rate of 35 to 40 % at 5 years [16].

Conclusion:-

Borderline tumors of the ovary Brenner are extremely rare and curative surgically . The final histopathological examination is mandatory for diagnosis. Therefore, it would be necessary to better characterize these lesions, from a molecular point of view. Although they do not show a tendency to evolve into more aggressive malignancies, very little is known about cell biology that determines its pathogenesis. It seems necessary to identify all cases diagnosed in a database, and in order to harmonize the treatment of this rare disease.

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