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Mature Ovarian Teratoma about a Case

Khalid Lghamour[1*], Amina Lakhdar[1], Najia Zraidi[1], Aziz Baidada[1]

[1]Gynecology-Obstetrics and Endoscopy Department, Maternity Souissi, University Hospital Center IBN SINA, University Mohamed V, Rabat, Morocco

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***Corresponding author:** Khalid Lghamour
Gynecology-Obstetrics and Endoscopy Department, Maternity Souissi, University Hospital Center IBN SINA, University Mohamed V, Rabat, Morocco

Abstract **Case Report**

We report a case of mature ovarian teratoma in a 36-year-old nulliparous patient who presented for one year with menstrual cycle disorders. The diagnosis was suspected by pelvic ultrasound and MRI and confirmed by anatomopathological study with absence of histological signs of malignancy.

Keywords: Mature ovarian teratoma, dermoid cyst, germ cell tumor, cystectomy, malignant transformation.

INTRODUCTION

Mature ovarian teratoma (MOT) or dermoid cyst is the most common ovarian germ cell tumor, derived from totipotent germ cells. It is sometimes bilateral and carries a risk of malignant transformation. Diagnosis is suspected by pelvic ultrasound and MRI, and confirmed by pathology. Torsion is the most frequent serious complication and a major cause of mortality [1]. Treatment ranges from abstention and surveillance to cystectomy or oophorectomy, depending on size. Recurrence is possible and sometimes associated with the appearance of bilateral and multiple dermoid cysts [2].

CASE REPORT

A 36-year-old nulliparous patient with a history of Behçet's disease under treatment for 15 years, who presented with menstrual cycle disorders of the spaniomenorrhea type. Pelvic ultrasound showed a cystic image with a mixed hyperechoic component suggestive of a teratoma of the right ovary measuring 3,60/3,23 cm. Pelvic MRI was consistent with a right ovarian teratoma. Tumour markers (CA 125, alpha-feto-protein (AFP), HCG) were normal. The patient underwent laparotomy cystectomy with pfannenstiel incision, suturing and haemostasis of the right ovarian parenchyma. Opening of the cyst after cystectomy revealed a fatty content with the presence of phanera and the rokitansky nodule. The cyst and its wall were sent for anatomopathological study. Post-operative management was straightforward, and the patient was given a follow-up appointment on discharge from our hospital.

Anatomopathology showed a mature ovarian teratoma with no histological signs of malignancy.

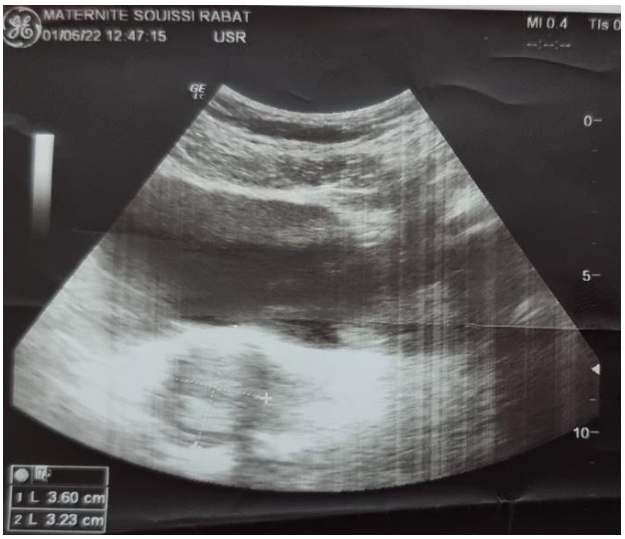

Figure 1: Pelvic ultrasound showing a cystic image with a mixed hyperechoic component suggestive of a teratoma of the right ovary measuring 3.60/ 3.23 cm

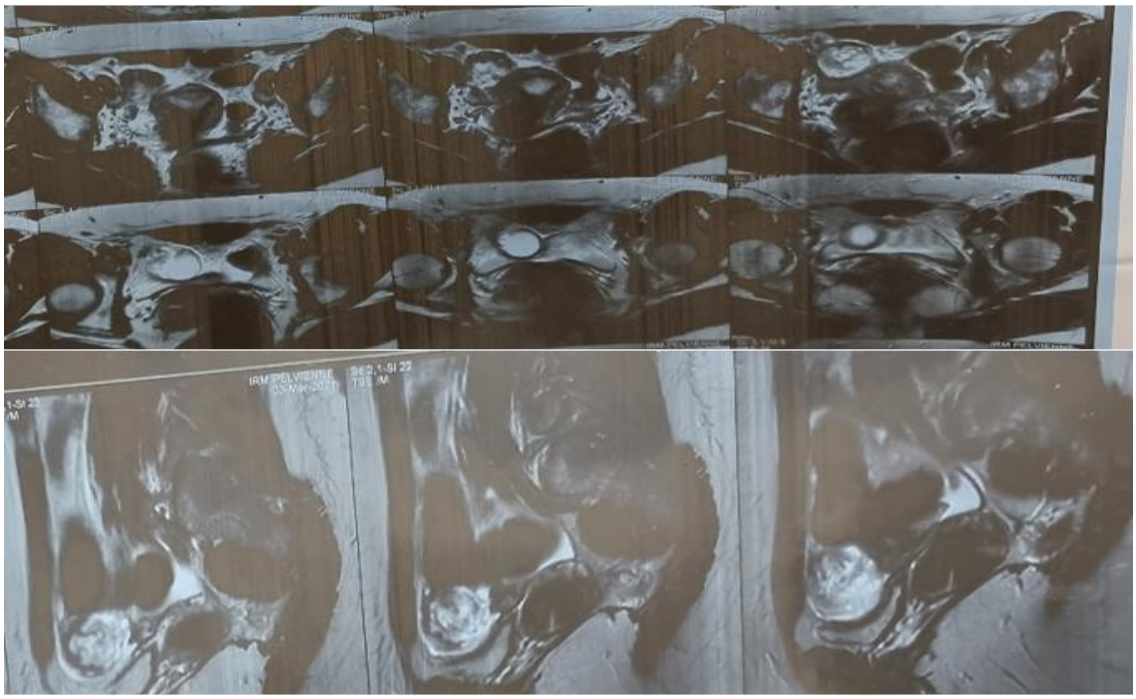

Figure 2: Pelvic MRI showing a right ovarian teratoma measuring 3,2/ 3,2 cm

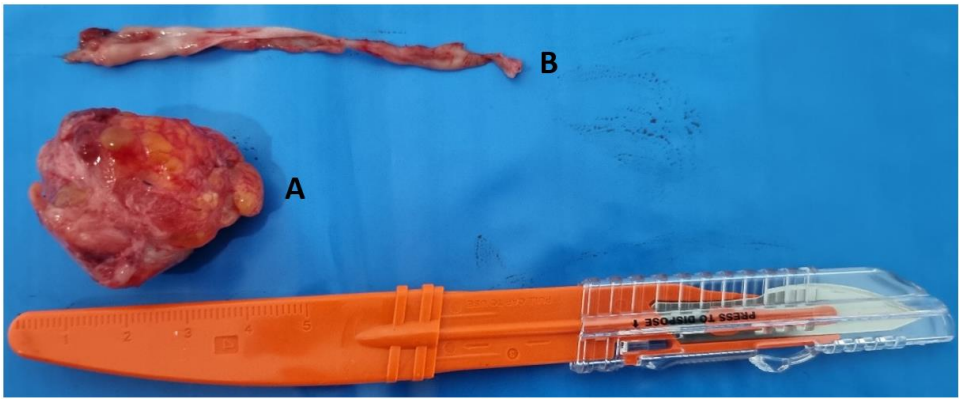

Figure 3: Right ovarian teratoma measuring 3,6/ 3,23 cm (A), cyst wall measuring 7/0,5 cm (B). Both surgical specimens were sent for anatomopathological study

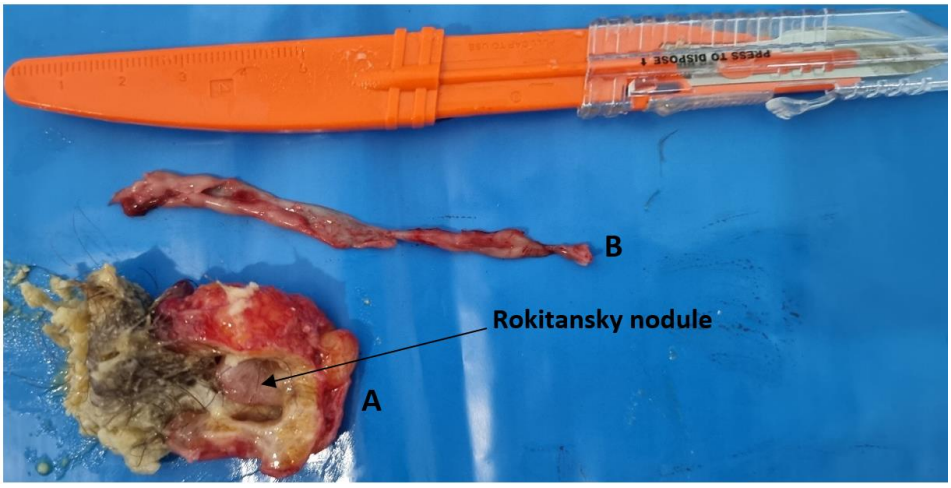

Figure 4: Mature teratoma of the right ovary of fatty content with presence of hair inside the cyst (A) and rokitansky nodule, cyst wall (B)

DISCUSSION

Germ cell tumors rank 2nd among ovarian tumors after epithelial tumors. Teratomas are most common in young women, and are mainly located in the ovaries. Occasionally, they can be found in the brain, in the pituitary or epiphysis, or even in the mediastinum or retroperitoneum.

An ovarian teratoma is a benign or malignant germ cell tumor derived from pluripotent germ cells. It is composed of tissues derived from one or more of 3 embryonic cell lineages: the ectoderm, which gives rise to nervous tissue, skin covering, pilosebaceous appendages and teeth; the mesoderm, which gives rise to fat, muscle, bone and cartilage; and the endoderm, which gives rise to intestinal or bronchial epithelium and thyroid tissue.

There are 3 types of teratoma, depending on tissue differentiation: mature teratomas are the most common, while immature and monodermal teratomas are much rarer.

Mature teratoma is the most common benign ovarian tumor, accounting for 99% of ovarian teratomas and 10-20% of benign ovarian cysts. It is predisposed to the right ovary [3], and is sometimes bilateral in 8-14% of cases [4]. It is a benign solid tumor composed solely of mature tissue. It tends to affect younger women. It is composed of at least 2 of the 3 stem cell lineages. It frequently presents in a cystic form (dermoid cyst) containing a solid portion corresponding to Rokitansky's nodule, made up of a mixture of mature tissues from the 3 embryonic layers (dander, teeth or calcifications, muscle or nerve tissue, etc.). The cyst is usually rich in fat, an almost pathognomonic sign of a teratoma. Fat is present in a teratoma in 2 forms: sebum, produced by the pilosebaceous appendages and filling the cyst cavity (liquid fat), and the fatty tissue visible in the walls of the cyst or in the Rokitansky nodule (adipocytes), sometimes associated with granulation tissue (lipophagic granuloma). In the case of cystic teratomas without sebaceous content (serous or mucinous liquid content), it is particularly important for diagnosis to look for fat in the cyst walls or within the Rokitansky nodule.

Mature ovarian teratomas (MOT) are often asymptomatic. It may manifest as menstrual cycle disorders such as spaniomenorrhea, pelvic pain, or as an inaugural complication : compression with urinary signs and transit disorders, torsion, hemorrhage, rupture or infection.

Imaging remains the mainstay of the diagnosis of mature teratomas of the ovary. Pelvic ultrasound shows a cystic, solid or mixed mass, while pelvic MRI better characterizes the tumour in view of its fatty component and calcifications. Imaging is not sufficient to differentiate between mature and immature teratomas [5]. Pelvic CT remains the examination of choice in the diagnosis of a MOT, with better analysis of fat density, protrusion, calcifications or teeth, and remains superior to ultrasound and MRI [6].

If MOT is suspected, it is not necessary to measure tumor markers. On the other hand, in cases of suspected malignant germ cell tumor, it is recommended that CA 125, AFP, HCG and LDH tests be performed, along with a thoraco-abdomino-pelvic CT scan.

For asymptomatic dermoid cysts smaller than 4 to 6 cm, abstention and surveillance are an option. On the other hand, surgery (cystectomy by laparoscopy or laparotomy, or sometimes oophorectomy, depending on the size of the teratoma) is essential for cysts that are symptomatic, large or change on imaging. Indeed, the risk of torsion increases with size, and mature teratomas may degenerate into immature teratomas in 1-3% of cases [7], mainly in older post-menopausal women and for lesions larger than 10 cm.

Immature teratoma of the ovary is a malignant tumour of germline origin, first described in 1960 by Thürlbeck and Scully [8], containing a variable amount of immature embryonic tissue, usually neuro-ectodermal tissue [9]. Immature teratomas account for 3% of all teratomas, 1% of all ovarian cancers and 20% of germline ovarian malignancies [10, 11]. Immature tumours have a more malignant potential [12].

Mature cancerized teratoma of the ovary is defined as a dermoid cyst in which a malignant tumor develops on one of its mature components. Squamous cell carcinoma is the malignant transformation most frequently reported in the literature [6, 13, 14]. It is often revealed by a pelvic mass, sometimes associated with urinary or digestive compressive signs, depending on the stage [6, 14], and sometimes with intestinal obstruction [15].

No diagnostic criterion can confirm malignancy before anatomopathological study, but certain clinico-biological and radiological elements predictive of malignancy have been stated by several authors. The main criteria pointing to malignant transformation are the patient's age and the size of the MOT. The risk of transformation is significantly related to age, and the peak frequency of degeneration is between 45 and 60 years of age. Carcinogenesis of a MOT should always be suspected in postmenopausal women [6, 14, 16].

A tumor size greater than 9.9 cm is highly suggestive of malignancy in 86% of cases, according to some authors [16], whereas the risk of malignant transformation is low if the size of the MOT is less than 6 cm [6, 17].

Another important criterion is the growth rate of the cyst, which can be monitored by ultrasound. Any increase in the size of a dermoid cyst during the menopause, or any growth greater than 2 cm per year

during genital activity, should raise the suspicion of malignant transformation [6].

Some radiological criteria for malignant transformation have been stated, such as invasive growth with irregular margins crossing the enhanced teratoma wall after contrast injection, detection of solid elements within a liquid content and the presence of areas of necrosis and hemorrhage [6, 17].

Squamous cell carcinoma (SCC) associated antigen is the most sensitive marker for suspected malignancy [17, 18]. CA 19-9 and CA 125 are increased in 50% of cases of carcerized dermoid cysts [19].

The finding at laparotomy of foci of haemorrhage and necrosis or invasion of neighbouring organs are also criteria that may point to malignancy [13, 18].

Diagnosis of certainty relies on careful analysis of the surgical specimen to detect the presence, nature and extent of any malignant contingent [18].

A mature teratoma carcinized into squamous cell carcinoma has a better prognosis than transformation into a sarcoma or melanoma [13, 17].

According to a study by Peterson *et al.*, [20], cancerized mature teratomas metastasize in 64% of cases, with preferential involvement of the colon. Metastases may also occur in the peritoneum, rectum, sigmoid, para-aortic and pelvic lymph nodes or small intestine.

CONCLUSION

MOT is a benign germ cell tumor, often asymptomatic, suspected on pelvic ultrasound and MRI, and confirmed by histology. Carcinogenesis is rare, and often occurs in the menopausal period, so strict surveillance is required if treatment is withheld; recurrence is possible after cystectomy, and may be associated with bilateral and multiple cysts.

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