

CASE REPORTS

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Testicular epidermoid cyst: about a case report and a review of the literature

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Abstract

Background: The testicular epidermoid cyst is an exceptional benign tumor. The presumptive diagnosis is facilitated by the development of medical imaging (echo-Doppler, elastography, contrast-enhanced ultrasound, MRI). The confirmatory diagnosis is histological.

Case presentation: We report the case report of a 37-year-old man who had a history of repetitive orchitis. He had complained of right scrotal discomfort for 6 months with no associated urinary symptoms. We performed an extemporaneous biopsy given the uncertain diagnosis (Fig. 3), and the histological examination was in favor of a mature teratoma. This prompted us to perform a right orchidectomy. The postoperative was simple. The final histological examination tipped in favor of an epidermoid cyst of the testicle. The patient was seen again at one month, and his clinical examination was normal.

Conclusion: The testicular epidermal cyst is a rare benign tumor of the testicle. Currently, conservative surgery has become the gold standard thanks to the development of medical imaging to differentiate between the both forms of TEC, and it retains certain limits which lie in the differential diagnosis with the teratoma requiring large multicenter studies to better characterize these two entities.

1 Background

The testicular epidermoid cyst (TEC) is a rare, non-teratomatous benign tumor. Accordingly, clinical management has been a matter of controversy. It has been hypothesized that two different types of TECs exist.

The development of medical imaging has radically changed the management of the TEC from the orchidectomy to a conservative treatment and also made it possible to make the differentiation diagnosis with the teratoma.

This case report is a new observation whose interest lies in the benignity of the cyst and especially its pre-operative distinction with the teratoma for testicular conservation.

2 Case presentation

A 37-year-old man had a history of repetitive orchitis. He had complained of right scrotal discomfort for 6 months with no associated urinary symptoms.

A clinical examination showed the presence of a firm, regular, oval, painless and non-inflammatory right testicular swelling.

Scrotal ultrasound objectified a large oval formation, occupying almost the entire testicle which measures 65 mm in regular contours, well limited, of echostructure substantially hypoechoic, finely heterogeneous, full of microcalcifications and avascular (Fig. 1).

Scrotal MRI revealed the presence of a cystic testicular mass (Fig. 2).

The tumor markers (alpha fetoprotein, lactate dehydrogenase and choriogonadic hormone) were normal.

We performed an extemporaneous biopsy given the uncertain diagnosis (Fig. 3), and the histological examination was in favor of a mature teratoma. This

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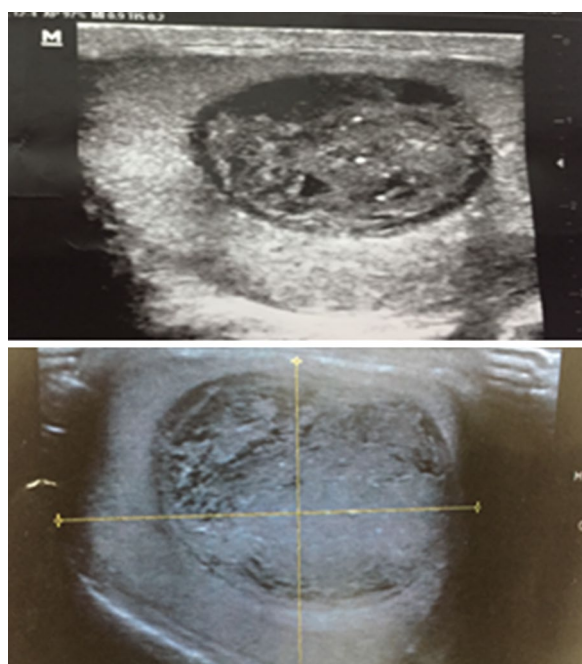


Fig. 1 Testicular ultrasound showing a large intra-testicular mass of 65 mm

prompted us to perform a right orchidectomy. The postoperative was simple.

The final histological examination tipped in favor of an epidermoid cyst of the testicle. The patient was seen again at one month, and his clinical examination was normal.

3 Discussion

The testicular epidermoid cyst was first described in 1942 by Dockerty and Prestly, generally well circumscribed, of germinal origin, representing about 1% of all testicular tumors, and these tumors can occur at any age, but are more common in the second to fourth decades [1, 2]. Squamous cysts can be multiple or bilateral [3].

The usual clinical presentation is a chance discovery of a painless testicular mass, the right side being the predominant side [4].

Four theories [5–8] have been studied describing the potential etiology of testicular epidermoid cysts. First, several studies have claimed that these cysts are of teratomatous origin originating from a monodermal proliferation of epidermal cells. A second theory supported is described as a metaplasia of the epidermal cells of the rete testis secondary to an obstruction of the epidermal tube. However, the different locations of the reported cysts do not support this theory. The third is the development of epidermoid cysts from the keratinization of the rete testis. This theory does not describe the development of squamous metaplasia of the epithelium seen on histology. Finally, the fourth theory is the movement of squamous cells derived from embryological skin from the scrotum to the testes. However, there is still a lack of evidence to support this theory.

An ultrasound classification can be considered useful for classifying the histological type of testicular tumors [9] (Table 1).

In the Chang et al., the results indicated that epidermoid cysts were statistically more frequently associated with smaller tumor size and mainly cystic components. Teratomas are complex tumors derived from the three layers of germs, including the endoderm, mesoderm and ectoderm. The current hypothesis holds that although

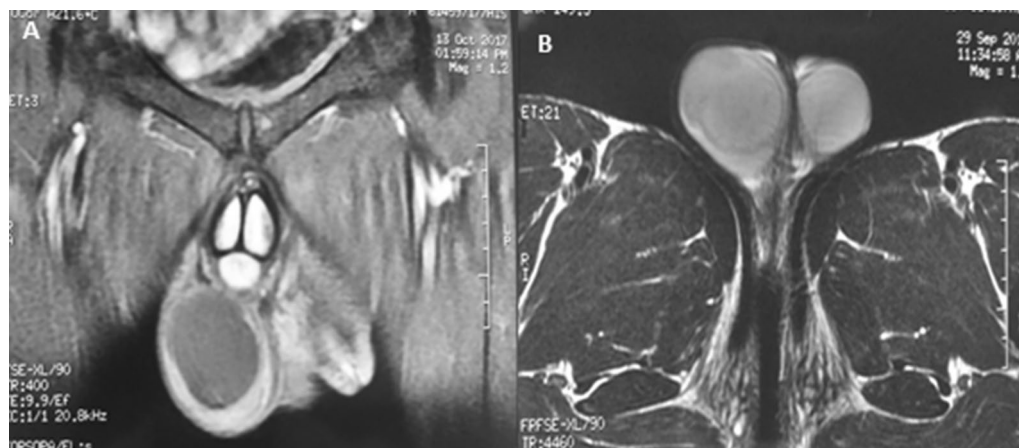


Fig. 2 Coronal (a) and axial (b) section of magnetic resonance imaging objectifying an intra-testicular cystic mass



Fig. 3 a–d Intraoperative aspect of a testicular epidermal cyst

the histogenesis of epidermoid cysts is controversial, monodermal teratomas can occur without endodermal or mesodermal components. This hypothesis could explain the considerable similarities between epidermoid cysts and teratomas when evaluated by ultrasound [10].

In MRI, an epidermoid cyst usually shows a low intensity with a focus of the intermediate central signal on the T1-weighted images and appears as a mass of high heterogeneous signal intensity surrounded by a rim of low signal intensity on the T2-weighted images. A low signal strength peripheral rim was noted on the T1- and

T2-weighted images, which gave a target appearance. Because the lesion is avascular, no improvement in contrast is expected after administration of contrast [11].

Four histological criteria are established to confirm the diagnosis of TEC: (a) The lesion must be located in the testicular parenchyma; (b) the composition of the central cyst must consist of keratinized debris of the amorphous material; (c) inside the cyst, teratoids or components of the dermal appendages should not exist; and (d) there should be no scars in the parenchyma adjacent to the epidermoid cyst [12–16].

Table 1 Anatomico-radiological classification of testicular tumors

	Hypervascular	Hypovascular	Avascular
Type I: elliptical to lobular nodular lesion	SGCT	Leidygom PTT	EC
Type II: scattered diffuse lesion	SGCT LHT		
Type III: lesion containing an internal cystic component	NSGCT SGCT	NSGCT	NSGCT
Type IV: lesion containing echogenic foci	NSGCT	NSGCT	
Type V: lesion mixed with cystic components and echogenic foci	NSGCT	NSGCT	EC
Type VI: an extra-albuginal lesion		PTT	

SGCT seminomatous germ cell tumor, NSGCT non-seminomatous germ cell tumor, LHT lymphoid and hematopoietic tumors, EC epidermoid cyst, PTT paratesticular tumors

The management of epidermoid cysts has evolved over the past decade, with the previous standard of orchidectomy having been replaced by conservative enucleation or keyed resection in cases with characteristic radiological features and negative tumor markers. Tumor markers (alpha fetoproteins and beta hCG) are always normal in case of isolated TEC [17].

Epidermal cells, unlike teratomatous lesions, are benign, do not metastasize and do not reproduce.

No reported cases of local recurrence or metastasis have been found in the literature, so conservative attitude has recently become the treatment of choice. This treatment method requires a partial orchidectomy followed by an extemporaneous biopsy to exclude the malignancy. If the pathology is reported as benign, the procedure can be terminated; however, if the final pathology describes a teratoma or malignant pathology, a radical orchidectomy is necessary [18, 19].

Conservative surgery depends mainly on the type of epidermoid cyst. They can occur in two different forms, the benign subtype called “simple TEC” and the other subtype representing an epidermoid cyst that occurs in association with invasive germ cell tumors (GCNIS) called “complex TEC” [20].

4 Conclusion

The testicular epidermal cyst is a rare benign tumor of the testicle.

Currently, conservative surgery has become the gold standard thanks to the development of medical imaging to differentiate between the both forms of TEC, and it retains certain limits which lie in the differential diagnosis with the teratoma requiring large multicenter studies to better characterize these two entities.

Abbreviations

TEC: Testicular epidermoid cyst; MRI: Magnetic resonance imaging; hCG: Human chorionic gonadotropin.

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AS wrote the manuscript, and TK, KE, AK and AIAA corrected the manuscript. All authors read and approved the final manuscript.

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Ethics approval and consent to participate

The patient gave his verbal consent to participate in this study. The ethics committee of faculty of medicine of Rabat gave us a verbal agreement. The reference number is not applicable.

Consent for publication

The patient gave his informed and free consent for the publication of this study. That proof of consent to publish from study participant can be requested at any time.

Competing interests

The authors declare that they have no conflicts of interest in connection with this article.

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