Scrotal pain as the first clinical manifestation of testicular seminoma: A case report

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KEYWORDS

Seminoma;
Ultrasonography;
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Abstract Seminomas are the malignant testicular tumors most commonly diagnosed in young adult males. It consists of undifferentiated cells derived from the embryonic gonad. The tumor presents as a scrotal mass that may or may not be associated with pain. On ultrasonography, the mass appears hypoechoic with well-defined margins and an echo structure that tends to be homogeneous. Color Doppler studies reveal rich vascularization. This report describes a case of seminoma that presented with scrotal pain. The typical findings on ultrasonography and color Doppler were fundamental for correct diagnosis of this tumor.

Sommario Il seminoma è il più frequente tra i tumori maligni del testicolo tipico, dell'età giovane-adulta. È costituito da cellule indifferenziate provenienti dalla gonade embrionale. Si manifesta con massa scrotale associata o meno a dolore. Ecograficamente appare ipoecogeno, con ecostruttura tendenzialmente omogenea e margini netti; all'esame Color Doppler è dotato di ricca vascolarizzazione.

Viene presentato un caso di seminoma con comparsa di dolore in sede scrotale come prima manifestazione; l'eco-color-Doppler in cui la lesione presentava caratteristiche tipiche, è risultato dirimente per la diagnosi.

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Introduction

Seminomas are the most frequently diagnosed malignant tumor of the testicle. They arise from undifferentiated cells found in the embryonic gonad [1]. Three histological variants are recognized: anaplastic (the most malignant), spermatocytic, and the classic (or typical) variant, which is

the most common. The incidence of these tumors peaks between the ages of 20 and 35 years [2]. Patients generally present with a scrotal mass that may or may not be painful. The mass is often noted following minor trauma to the scrotum. Intratumoral hemorrhage can cause localized pain and tenderness; in other cases, there may be a sensation of heaviness in the gonad. In the initial stages, the symptoms may be vague or completely absent. Seminomas metastasize to the bone, and bone pain is sometimes the only symptom of the tumor [3].

The development of malignant testicular tumors is favored by a number of different factors: racial (incidence is higher among white subjects), hereditary, embryologic

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(the most common of which is cryptorchidism), and inflammatory processes. In contrast, trauma and torsion are not believed to predispose the testicle to malignancy although they may lead to the discovery of an occult testicular tumor [4].

Scrotal pain is commonly caused by torsion of the spermatic cord, orchiepididymitis, or trauma, but it is rarely associated with tumors. The pain caused by torsion of the spermatic cord is sudden in onset, intense, and localized to one hemiscrotum. Orchiepididymitis presents with progressively severe pain that may or may not be associated with micturitional disturbances; in cases of neoplastic disease pain is atypical. However, the characteristics of scrotal pain associated with a given pathology can vary, and the clinical presentation is thus merely suggestive of the etiology.

In the presence of a firm mass associated with pain at the level of the scrotum, the possibility of a testicular tumor should always be considered. The first examination to be performed is ultrasonography. On ultrasonography, small seminomas appear hypoechoic with a uniform echo structure and clear-cut margins. As the tumor grows, it tends to become less homogeneous, and cystic spaces may develop (necrosis and colliquation) [4].

Case report

A 30-year-old white male presented with a 1-month history of scrotal pain. Self-palpation had revealed a firm painless mass in the right testicle. Physical examination confirmed the presence of a firm, moderately tender mass at the level of the right testicle. Ultrasonography disclosed a solid intraparenchymal mass measuring 2×3 cm, which was located posteriorly in the upper third of the right testicle and caused moderate deformation of the testicular margins. The mass was hypoechoic with an inhomogeneous echo structure (Fig. 1a) and appeared richly vascularized on the color Doppler examination (Fig. 1b). A diagnosis of testicular neoplasm was made. The tumor was surgically resected and the histological diagnosis was typical seminoma.

Ethical approval for this study was granted by the Medical Research Ethics Committee of our Institute, and informed consent was obtained from the patient.

Conclusions

Seminomas are relatively common tumors, and early diagnosis is very important for treatment and prognosis [6]. The testicle is an oval-shaped organ that is examined sonographically with transverse and longitudinal scans that include evaluation of the sheath and the epididymis. Color Doppler studies should also be used to evaluate the presence of normal and pathological vascularization. In light of its sensitivity and non-invasiveness and the absence of contraindications to its use, ultrasonography is currently the method of choice for diagnosis of testicular tumors [4,5]. Its value is more limited in the differential diagnosis of these tumors because seminomas, Leydig's tumors, lymphomas or leukemia of the testicle all appear as inhomogeneous hypoechoic hypervascularized nodules. Anechoic, hemorrhagic, necrotic areas and calcifications are more

Fig. 1 (a) Ultrasonography revealed an inhomogeneous hypoechoic lesion in posterior aspect of the upper third of the right testicle, which caused moderate deformation of the testicular margins; (b) the mass appeared richly vascularized on the color Doppler examination.

frequent in Leydig's tumors, and patients presenting with testicular leukemia and lymphomas are generally older than those with seminomas. Other types of testicular lesions such as focal orchitis, orchiepididymitis, or hemorrhages can also resemble tumors [4]. Depending on the clinical and sonographic features of the case, magnetic resonance imaging and/or biopsy (generally performed under general anesthesia) may also be necessary. The case presented here confirms the sensitivity of ultrasonography in the differential diagnosis of scrotal pathology, especially those forms associated with pain, and it demonstrates the value of this imaging modality as a first-line study of scrotal swelling and as a conclusive study for typical testicular tumors.

Conflict of interest

The authors have no conflict of interest.

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