



Malignant mesothelioma of the tunica vaginalis testis: A rare cause of hydrocele

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ABSTRACT

Mesotheliomas of the tunica vaginalis testis are very uncommon tumors, with rare cases published in the literature. This report demonstrates a case in which such a tumor was diagnosed in a 50-year-old man who presented to the emergency room with mild, acute scrotal pain and swelling, without previously known scrotal pathology. It is noted that sonographers should be aware of the typical characteristics that allow for suspecting malignancy in scrotal sonography performed in the emergency setting; this was particularly important in this case. Surgical pathology analysis of the right radical orchiectomy specimen confirmed the diagnosis.

1. Introduction

Malignant mesothelioma of the tunica vaginalis testis is an uncommon neoplasm of the scrotum and still not fully comprehended. In the case described in this report, we emphasized the role of ultrasound in the investigation of testicular lesions and their signs of malignancy, especially in patients with painful hydrocele, a common condition that should be properly evaluated.

2. Case presentation

A 50-year-old man presented to the emergency room, complaining of slightly painful right scrotal edema for one month, suspicious for hydrocele. He had a history of smoking and bladder inverted papilloma, diagnosed three years prior, which was treated through transurethral resection. He underwent scrotal ultrasonography, which showed a solid vegetation lesion on the head of the right epididymis, measuring 2.1 cm, showing blood flow on color Doppler, associated with ipsilateral hydrocele and increased thickness of the inner lining of the scrotal wall, matching his physical examination (Figs. 1 and 2).

The patient was submitted to elective scrotal exploration performed through a right inguinal approach. During the procedure, after drainage of the hydrocele, an ill-defined nodule was found on epididymal head. This was associated with implants on the vaginal tunica. Intraoperative frozen section biopsy demonstrated a proliferative lesion suspected of a

mesothelial or epithelial lineage of indeterminate behavior. Therefore, it was chosen to perform a radical right orchiectomy.

The histopathology findings of the epididymal head nodule revealed neoplastic changes of the tunica vaginalis, which was characterized by tumor cells with vesicular nuclei and prominent nucleoli, disposed in cohesive growth, and the presence of tubulopapillary structures, with infiltrative borders and areas of necrosis (Fig. 3).

Immunohistochemistry study demonstrated expression, by the tumor cells, of cytokeratin, WT-1, calretinin and podoplanin corroborating the diagnosis of malignant epithelioid mesothelioma. There was no evidence of spermatic cord infiltration (Fig. 3).

Clinical tumor staging showed no metastases, and there was no evidence of recurrence or metastases after six months of follow-up.

3. Discussion

Germ cell tumors are the most common types of testis malignancies. The diagnosis of malignant epithelioid mesothelioma in this case was confirmed through typical morphological findings, and supported by an immunohistochemistry panel with expression of tumor markers classically described in mesotheliomas.

Malignant mesothelioma of the tunica vaginalis testis is extremely rare. Less than 300 cases of this histological type of scrotal tumor have been described ever since its first description in 1957.¹

As in other mesotheliomas, it is estimated that asbestos exposure is a

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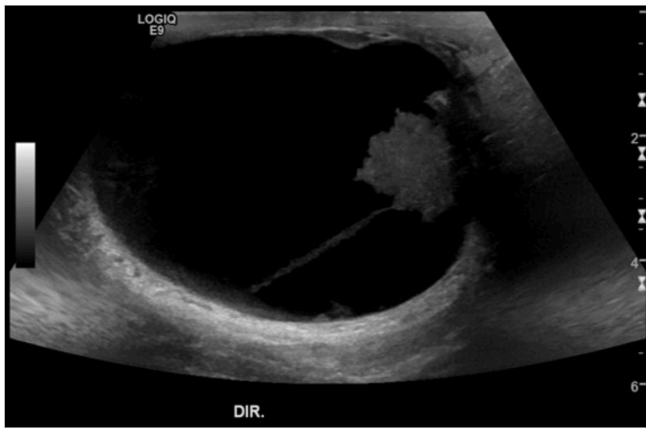


Fig. 1. Ultrasound, 14Hz linear probe virtual convex image: Vegetation-like lesion on the right epididymal head, with irregular margins and external septation, associated with ipsilateral hydrocele, thickness and hyperechogenicity of the internal lining of the scrotum wall.

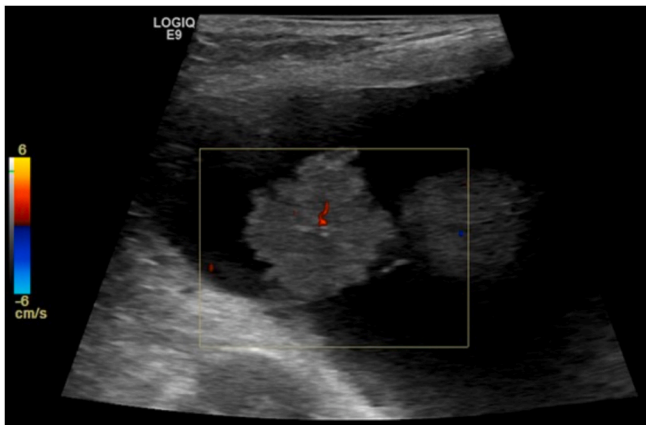


Fig. 2. Ultrasound, 9Hz linear probe virtual convex image: Color Doppler study exhibits internal flow. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

risk factor, although this association is not clear, as in our case.² In addition, chronic inflammatory processes have also been suggested to be possible cause of malignant mesothelioma.³

The clinical manifestations are nonspecific, with painless scrotal mass and hydrocele being described, even at an advanced stage. It can be triggered by trauma, infectious disease, or in rare cases, testicular tumor. Most of the reported cases can be associated with an extratesticular mass and can be evaluated by ultrasound as the first-line imaging modality in testicular abnormality evaluation (sensitivity 92–98% and specificity 95–99.8%). However, like the clinical presentation, the ultrasound features are nonspecific and commonly atypical. Usually, the presence of vascularization by color Doppler study and size equal to or greater than 1.5 cm is suspicious and allows for surgical management.⁴

The early preoperative histological diagnosis is rare, and it is usually carried out intra- or postoperatively, due to nonspecific symptoms and the absence of a tumor marker before surgery. First-line therapy should be surgical in cases of early disease, and radical inguinal orchiectomy appears to be the ideal treatment. In spite of the morbimortality associated to this tumor it can potentially be cured by early and aggressive surgical treatment.

4. Conclusion

Some scrotal neoplastic lesions can present with testicular hydrocele as the first symptom, and ultrasound is usually the imaging modality of choice. Therefore, when a lesion is found, it is important that radiologists be familiarized with typical malignant features, so that the patient can be timely referred to the best treatment options.

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Authors' contributions

Murilo de Sá Barrêto Callou Peixoto: Conceptualization, Writing - Original Draft; **Mateus Kleinsorgen Bernardo Soares:** Writing - Review & Editing; **Bruna Brandão Libânio:** Writing - Original Draft, Supervision; **Kamila Seidel Albuquerque:** Writing - Review & Editing, Project administration; **Carlos Eduardo Bacchi:** Writing - Review &

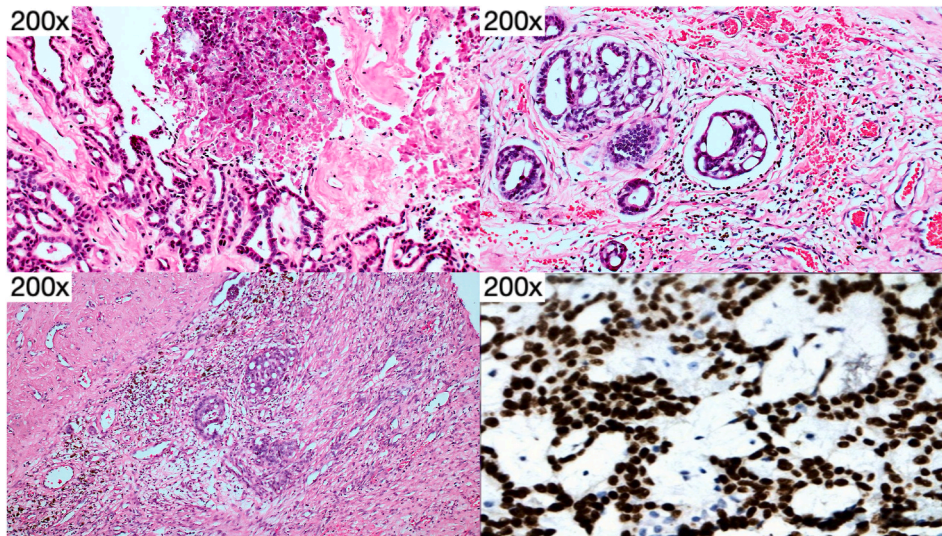


Fig. 3. Pathology findings of the orchiectomy specimen: Top left (200x), hematoxylin and eosin slide showing extensive areas of tumor necrosis; top right (200x), lymphatic invasion by tumor cells; bottom left (200x), stromal invasion of blocks of malignant mesothelioma tumor cells associated with desmoplastic reaction; bottom right (200x), immunohistochemistry study showing nuclear expression of WT1.

Editing, Resources.

Declaration of competing interest

The authors declare having no competing interests regarding the publication of this work.

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