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Malignant mesothelioma of the tunica vaginalis testis - A Rare Case Report and Review of Literature

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Abstract

Malignant mesothelioma of tunica vaginalis forms 1%–5% of cases of all malignant mesotheliomas. Exposure to asbestos is a strong risk factor for the development of mesothelioma. We present an extremely rare case of testicular mesothelioma presenting with left testicular enlargement with a history of asbestos exposure for 30 years. Left radical inguinal orchidectomy was performed, and pathological examination revealed malignant mesothelioma of the tunica vaginalis of the testis. Malignant mesothelioma of the tunica vaginalis is a rare tumour but it poses a diagnostic challenge that can imitate common inguinal or scrotal illnesses such as hydrocele. Thus, it is very important to involve past exposure history, physical examination, imaging studies, pathological examination and immunohistochemical staining to confirm the diagnosis of malignant testicular mesothelioma.

Key message: Diagnosing a primary malignant tumor of the tunica vaginalis testis may be difficult. Physical examination, imaging studies, pathological examination and immunohistochemical staining are required to confirm the diagnosis of malignant testicular mesothelioma.

Keywords: Malignant mesothelioma, tunica vaginalis, testis

Introduction

Malignant mesothelioma of the tunica vaginalis testis also known as paratesticular mesothelioma is an extremely rare and aggressive tumor representing 0.3% to 5% of all malignant mesotheliomas.[1] Malignant mesotheliomas are rare tumors arising from the coelomic epithelium at the pleura, peritoneum, pericardium and tunica vaginalis testis.[2]

Asbestos exposure, trauma, herniorrhaphy, and a long-standing hydrocele have all been linked to the

disease.[3]Because of its rare and sometimes ambiguous gross appearance, diagnosing mesothelioma of the tunica vaginalis testis can be difficult. It should be investigated in the differential diagnosis of testicular masses because it is often deadly. We present a case of malignant mesothelioma of the tunica vaginalis with a review of the literature.

Case report

An 85 years old patient was admitted to our hospital for testicular mass. The patient reported progressive scrotal enlargement with discomfort in the left testis and severe groin pain for 1 year. A firm palpable testicular tumour of 15 x 6 cm was discovered on the left hemiscrotum during the physical examination. Patient gave history of working in steel industry for 30 years, which suggested asbestos exposure for long period. The total blood count, kidney, and liver functions were all normal. The levels of alpha-fetoprotein and beta-human chorionic gonadotropin were both within normal limits. The LDH levels were increased. The computed tomography (CT) showed large heterogeneously enhancing mass lesion in the left scrotal sac.[fig 1] Testis was not seen separately, so the impression of neoplastic etiology was given

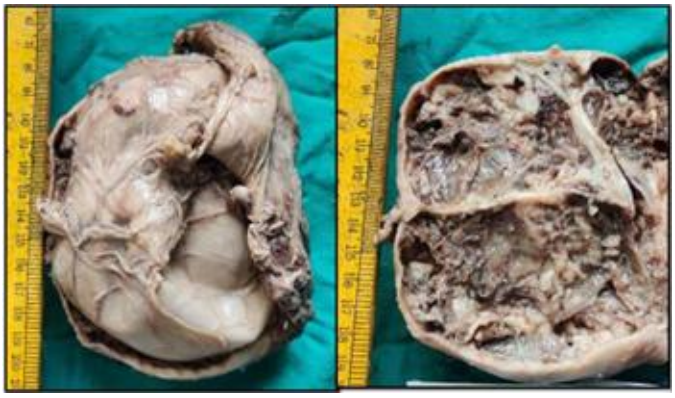

Fig. 1: The computed tomography (CT) showed a large heterogeneously enhancing mass lesion in the left scrotal sac suggestive of the neoplastic lesion.

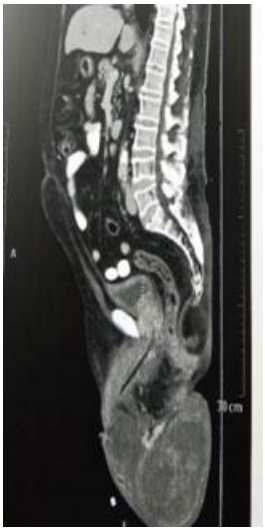

Fig. 2: Gross-Testicular mass measuring 15 x11 x6 cm with thickened tunica. Cut surface showed multiloculated solid cystic appearance, cyst wall 2-3mm thick with rough inner surface showing papillary excrescences and friable necrotic tissue.

The contralateral testis was normal. The patient underwent left radical orchiectomy. We received a specimen of left testicular mass measuring 15 x11 x6 cm and a spermatic cord 12 cm in length. Externally tunica was thickened and cut surface showed multiloculated solid cystic appearance, cyst wall 2-3 mm thick with rough inner surface showing papillary excrescences and friable necrotic tissue.[fig.2]

Microscopy showed a tumor having papillary and sheet-like solid growth pattern lined cells that have moderate amount of eosinophilic cytoplasm.[Fig.3].

The neoplastic cells were classically cuboidal with scant to moderate amounts of eosinophilic cytoplasm with few showing prominent nuclei and showing few mitotic figures. Due to solid and papillary architecture in such elderly male, spermatocytic seminoma and lymphoma were also kept differential. The immunohistochemical markers like LCA(leucocyte common antigen) and calretinin were done. The immunohistochemical study

revealed strong expression of calretinin. [Fig 4]. Other marker LCA was negative

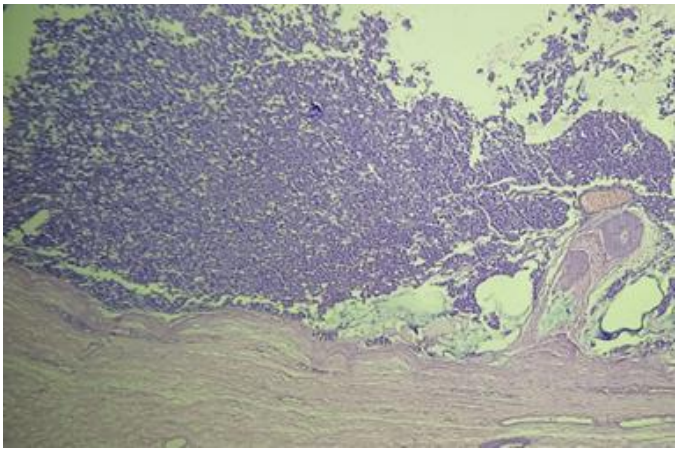

Fig. 3: Sheetlike solid growth pattern with cells that have a moderate amount of eosinophilic cytoplasm (HematoxyZlin-eosin, original magnifications ×10).

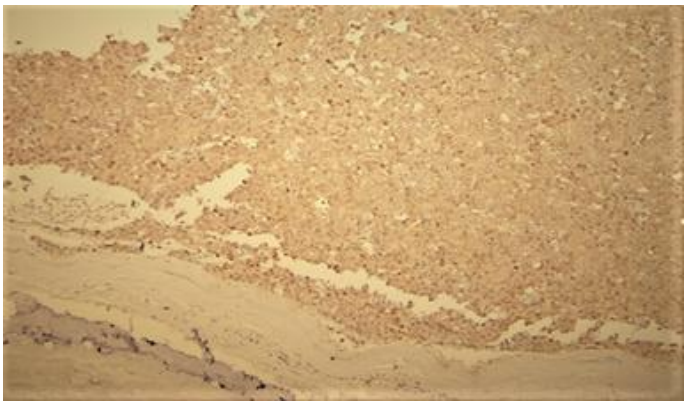

Fig. 4 : Strong positive nuclear and cytoplasmic immunostaining for calretinin.(IHC original magnifications

Discussion

Malignant mesothelioma of the tunica vaginalis is a rare disease most commonly seen in the sixth and seventh decades of life, while 1/3 of instances have been observed in people younger than 44 years of age. [4]

In 1957, Barbera and Rubino2 described the first case of mesothelioma of the tunica vaginalis testis (MTVT), and since then, fewer than 230 cases have been reported.[5]

Unilateral, insidious, painless enlargement of the scrotum, and hydrocele is the initial presentation (56.3%);however, some patients present with a paratesticular solid mass (32.8%). Thickening of the tunica vaginalis on ultrasonography and gross examination is an important sign of this disease.[6]

Jones et al reported a positive occupational asbestos exposure history in 41% of 27 reviewed cases proving asbestos as a strong risk factor for the development of mesothelioma.[7]

Other risk factors suggested in the pathogenesis of this disease are long-standing hydrocele, trauma, herniorrhaphy, and potassium bromate in drinking water, exposure to ionizing radiation using thorotrast. Multiple cytogenetic abnormalities such as losses of 1p, 3p, 6q, 9q, and monosomy 22 and HLA B27 association have been implicated. [6,8]

Testicular malignant mesothelioma has two subtypes- pure epithelioid (60–75%) and biphasic histologic (20–40%) and only a few cases of pure sarcomatoid differentiation were identified. The tumour usually shows papillary, tubulopapillary or well-differentiated solid growth with or without spindle cell proliferation.

The immunohistochemical profile of testicular mesotheliomas is similar to those that arise from the pleura and is typically positive for calretinin, Wilms tumor antibody (WT1), epithelial membrane antigen (EMA), thrombomodulin, and CK7, variably positive for CK5/6, and negative for carcinoembryonic antigen (CEA) and cytokeratin 20 (CK20).[6,9]

The differential diagnosis of testicular mass is broad and should include both benign and malignant tumors that can arise in the testis.The major differential diagnosis includes mesothelial hyperplasia, either the reactive or the inflammatory type which is limited to serosa with no invasion and has bland cytology.

Another differential diagnosis is the adenomatoid tumor, which has the same origin and has a cystic appearance with a round to oval or slitlike tubules and cords which are lined by flat to columnar cells with moderate amounts of eosinophilic or vacuolated cytoplasm without atypia. In contrast, malignant mesotheliomas are usually larger and have a diffuse and infiltrative growth pattern with marked cytologic atypia.[6,10]

Occasionally, germ cell tumors of the testis such as spermatocytic seminomas, embryonal carcinomas, intratubular germ cell tumors or carcinoma of the rete testis may be considered in the differential diagnosis when the tumor is infiltrating into the testicular parenchyma.

In our case, spermatocytic seminoma and lymphoma were close differential as considering elderly male with histologic features of solid sheets of cells with nuclear atypia and prominent nucleoli, IHC marker calretinin and LCA, helped in diagnosing.

Calretinin expression in both the nucleus and the cytoplasm is a reliable indication for mesothelial origin.[9]

Lopez et al suggested radical inguinal orchidectomy to be the optimum treatment. Adjuvant therapy with systemic chemotherapy and radiotherapy might provide a better overall survival rate in advanced disease.[11]

The severity of the illness process at the time of presentation is the most important prognostic factor. Preoperative diagnosis is frequently impossible due to the lack of precise clinical symptoms, tumor markers, and diagnostic criteria on imaging. In most cases, a radical inguinal orchidectomy with lifelong follow-up is the preferred treatment to reclaim your content fast and effectively.

In summary, diagnosing a primary malignant tumor of the tunica vaginalis testis may be difficult. Physical examination, imaging studies, pathological examination and immunohistochemical staining are required to confirm the diagnosis of malignant testicular mesothelioma.

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