

Malignant Spermatic Cord Mesothelioma

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Abstract

We report a case of a 71 year old man who presents to our hospital with a non-painful enlargement of the right testicle and an indurated area over the testis. The patient has a working history of asbestos exposure. Scrotal sonography shows a right hydrocele and a heterogeneous mass at the right spermatic cord. Abdominal CT scan confirms the presence of a suprastesticular oval mass of 14.5 × 4.7 cm which reaches the inguinal canal and seems to depend on the spermatic cord.

The patient undergoes right orchiectomy. Histological examination shows an infiltrating malignant papillary spermatic cord mesothelioma.

CT scan reveals signs of right pleural mesothelioma with ipsilateral pleural effusion, pleural implants, multiple lymphadenopathies and an anterior pneumothorax. A pleural biopsy reveals the presence of malignant epithelioid mesothelioma.

The comparison of both neoplasms hints at a similarity in their immunohistochemical profile and morphology.

The patient receives first line chemotherapy with six cycles of cisplatin/pemetrexed, having obtained a maintained partial response and an illness progression-free interval of 3 months. However, in the last CT scan, one-two interaortocaval lymph nodes are detected, which were not previously evidenced, so active surveillance is maintained.

Keywords: Mesothelioma; Malignant; Spermatic cord; Pleura

Introduction

Malignant mesothelioma is a primary tumor originating from the mesothelial cells that constitute the different serous membranes in the body [1].

The most common is pleural mesothelioma (65-70%), followed by peritoneal (20-30%) and pericardial (5%) one. Much rarer is the derivative of the tunica vaginalis of testis [1,2].

Mesothelioma is a very aggressive tumor; the unfortunate outcome is directly related to exposure to asbestos, especially in pleural mesothelioma (70-80%) [1,2]. There is also a benign variant of mesothelioma, usually derived from the pleura, in which healing is possible [2].

The latency period between asbestos exposure and tumor detection varies between 20 and 40 years. The incidence depends on the historical use of such material, being higher in the U.S. and the UK, where up to 3000 and 1800 new cases are detected each year respectively [2].

Case Report

We report a case of a 71 year old man who presents to the Virgen del Rocío University Hospital in Seville, Spain, with a non-painful enlargement of the right testicle and an indurated area over the testis. The patient has a working history of asbestos exposure.

Testicular ultrasound shows the presence of a right hydrocele with echoes inside, and in the spermatic cord, an elongated mass that goes over it without introducing into the abdominal cavity. This mass has a heterogeneous appearance with septations inside, cystic areas and high vascularization (Figure 1). It is needed to establish a differential diagnosis between chronic inflammation of the spermatic cord and tumor processes. Tumor markers are negative.

Abdominal CT scan confirms the existence of a suprastesticular oval mass of 14'5 × 4'7 cm, which reaches the inguinal canal and seems to depend on the spermatic cord. It has a heterogeneous solid density, without calcifications. Likewise, there is some adjacent reactive nodal lymph (Figure 2).

Therefore, it is decided to perform the surgical removal of the lesion by right inguinal orchiectomy (Figure 3), carried out by two urologists. Histological examination of the piece obtained shows an infiltrating lesion composed of epithelioid-looking cells with abundant cytoplasm, eosinophilic and vacuolated enlarged nuclei with prominent nucleoli, loose connective shaft lining vascular papillae. Vascular invasion is evident. It is, therefore, a malignant mesothelioma of the spermatic cord, papillary type.

The comparison of both neoplasms hints at a similarity in their immunohistochemical profile. It demonstrates positive staining for calretinin, Wilms' tumour gene-1 (WT1), cytokeratin CK AE1/AE3 and CK7.

Extension study is conducted by thoracic CT scan, which detects signs of right pleural mesothelioma with ipsilateral pleural effusion, pleural implants, multiple lymphadenopathies and an anterior

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Figure 1: Doppler color sonography shows heterogeneous and moderately vascularized solid mass in the right spermatic cord.



Figure 2: Abdominopelvic CT scan shows the presence of an oval suprastesticular mass of 14.5 × 4.7 cm which seems to depend on the spermatic cord (arrow). There are also some adjacent reactive lymph nodes.

pneumothorax. Pleural thoracoscopic for biopsy, evacuation of the effusion and pneumothorax and talc/pleurodesis of the cavity is performed.

The pathological analysis of the pleura reveals epithelioid malignant mesothelioma.

Comparing the two neoplasias, a similarity in the immunohistochemical profile and morphology is observed. However, in the case of the spermatic cord neoplasia, pseudopapillary pattern predominates, while in the pleural one, it has a solid epithelioid disposition.

The patient is derived to the Oncology Department to complete treatment with chemotherapy. Up to date, the patient has received six cycles of first-line cisplatin/pemetrexed, having obtained a maintained partial response and an illness progression-free interval of 3 months. However, in the last CT scan, one-two interaortocaval lymph nodes are detected, which were not previously evidenced, so active surveillance is maintained.

Discussion

Paratesticular mesothelioma is a very rare localization of malignant mesothelioma. It occurs mainly in men aged 60-80 years old, although it has also been reported in children. The main presentation is an enlarged scrotum with hydrocele in 55% of cases and a firm, painless paratesticular mass in 30% of them, as it occurs in our patient. Most of these lesions originate from the tunica vaginalis, and only a few cases come from the epididymis or spermatic cord (less than 10%) [1-3].

Occupational or familiar exposure to asbestos has been shown in a 35-40% of cases. Another risk factors are trauma, long-term hydrocele, and herniorrhaphy [4].

There are cases of bilaterality, as well as simultaneous involvement of the serous membranes of different cavities (pleura, pericardium or peritoneum) [3,5].

The differential diagnosis from the clinical point of view must be established with other testicular tumors, hydrocele, epididymitis, inguinal hernia, spermatocele or adenomatoid tumor [6].

Definitive diagnosis is histological, by pathological analysis of the surgical piece [2] by complementary techniques, as immunohistochemistry and electronic microscopy [7], which has become the gold-standard in ovunque mesothelioma localizations, showing its characteristic sinuous and branched villi in the cell surface [2].

Paratesticular malignant mesothelioma is usually pure epithelial or mixed type, with very few pure sarcomatous cases, which may lead to erroneous diagnosis of soft tissue sarcoma. The architectural pattern is usually papillary (as in our case) or tubulo-papillary. Pure papillary variant tends to have a more benign behavior [2,8,9]. They present positive immunohistochemical stains for cytokeratin CKAE1/AE3, CK7, CK5/6, EMA, thrombomodulin, K2-40, calretinin and WT1 and negative one for CK20, BerEP4, B72'3, MOC-31 and Leu M1 [1].



Figure 3: Surgical piece: A 14cm length yellowish mass depending on the spermatic cord with intermittent areas of firm and friable consistency.

Paratesticular malignant mesothelioma is an aggressive neoplasm capable of extensive local invasion and lymph node or hematogenous metastases already present even at diagnosis. Local recurrence is 60% at 2 years. The overall mortality occurs in 30% cases after a median survival of 24 months, being the main predictor factor the age at diagnosis (poor prognosis if more than 60 years). Furthermore, the tumour's histological pattern and differentiation seems to play an important role in the prognosis. Well-differentiated papillary mesothelioma seems to have a better prognosis than diffuse malignant mesothelioma. At the immunohistochemical level, no study to date has compared the expression of different markers between diffuse malignant mesothelioma and well-differentiated papillary mesothelioma. However, several markers have been reported to be more commonly expressed in diffuse malignant mesothelioma than in reactive mesothelium: p53, Ki-67, GLUT-1. The choice treatment is radical orchiectomy and extension study with CT and even local biopsy when metastases are suspected [3,7,10-12].

Conclusion

Spermatic cord mesothelioma is a very rare localization of malignant mesothelioma, with an aggressive behavior and related with asbestos exposure in much of the cases.

In our case, it is given the exceptional circumstance of the diagnosis of a pleural mesothelioma ten months later. Although the possibility of multicentric origin can not be ruled out, the timing and the absence of respiratory symptoms suggests that the spermatic cord was the first site affected followed by the extension to pleura.

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