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Well-Differentiated Papillary Mesothelioma of the Tunica Vaginalis Testis

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Abstract

Well-differentiated papillary mesothelioma (WDPM) is an uncommon mesothelial tumor rarely from the tunica vaginalis of testes. Hereinafter, we report a 38-year-old male with ultrasound findings of several lumps located within the testicular sheath and testicular hydrocele. The patient underwent surgery to remove the mass, and the histological characteristics suggested WDPM.

Keywords: Well-differentiated papillary mesothelioma; Tunica vaginalis testis; Ultrasound

Abbreviations: WDPM: well-differentiated papillary mesothelioma

Case Presentation

A 38-year-old man presented with a history of chronic painless enlargement of the left hemiscrotum for 2 months. He denied any trauma, urethral discharge, sexual or asbestos exposure, and there was no previous smoking or alcohol use. Physical examination revealed a grossly enlarged left hemiscrotum with fluctuance and both testes were palpable and appeared normal size. The laboratory examination were all within normal limits. Ultrasonography demonstrated fluid accumulation in the left tunica vaginalis and multiple polypoid masses, 14 mm×13 mm maximum size, located on the tunica vaginalis testis (Panel A and B). Color Doppler flow images detected vascularity within both the stalks and the masses (Panel C). Contrast enhanced ultrasound displayed moderate enhancement of contrast agent in the masses (Panel D). The above lesions were confirmed by pelvic magnetic resonance imaging, which showed no evidence of metastatic disease. Initially, a paratesticular neoplasm was suspected. A left hydrocelectomy and excisional biopsy of the tunica vaginalis masses were performed. Pathological examination revealed multiple soft papillary lesions ranging from 1 mm to 14 mm in diameter on the tunica vaginalis testis, which showed pale yellow surfaces with firm and smooth palpation. Microscopically, the masses were composed of multiple branching, papillary structures with a fibrovascular core, the former lined with a single layer of bland cuboidal cells. The matrix was edemaous and mucoid, and no necrosis, hemorrhage or atypical mitosis were observed (Panel E and F). Given the lack of evidence for significant stromal invasion, a diagnosis of WDPM was made. The recovery from surgery was uneventful and the patient was discharged a week later from our hospital. At his 3-month follow-up visits, he remained asymptomatic without any adverse events.

Mesothelioma is a tumor derived from mesothelial cells covering the visceral surface, which usually develops in the peritoneum and pleura [1]. Paratesticular mesothelioma accounts for less than 1% of all mesothelioma cases, which could be further subdivided into malignant mesotheliomas, mesothelial hyperplasia, and WDPM [2,3]. WDPM rarely involves the tunica vaginalis, and approximately one-third of cases have a history of asbestos exposure [4]. Most WDPM patients suffer from scrotal pain or swelling, while the most common presenting symptom is hydrocele. Typically, the lesion is characterized as a firm, painless testicular mass from a few millimeters to 3 cm size, often occurring in conjunction with recurrent hydrocele, mostly unilateral [5]. Microscopically, it shows dendritic papillary structure with a single layer of flat epithelial cells. Immunohistochemistry is positive for cytokeratin and epithelial membrane antigens [6,7]. A small percentage of patients present with metastatic disease, most commonly involving the retroperitoneal, inguinal, and iliac nodes [8]. For WDPM, ultrasound is the preferred screening

method because of its simple and economical advantages. On the ultrasound imaging, WDPM generally appears massively enlarged scrotum with thickening of overlying skin, irregular edge effusion in the scrotum, and multiple soft-tissue lesions of mixed echo attached to the scrotal wall and extended to the tunica vaginalis. A small amount of blood flow signals can be seen in the lesions on color Doppler flow images [9].

WDPM is considered as a lesion of low malignant potential, and radical orchiectomy is the preferred treatment, which can achieve good survival results. Given the chance of progression to a truly malignant lesion, radical orchiectomy is the preferred treatment [10]. WDPM is easily differentiated from mesothelial hyperplasia, which usually has no fibrovascular core and lacks papillary structures. Malignant mesotheliomas is highly aggressive and likely to appear local invasion to other scrota structures and distant metastases, which is the reliable feature for malignant mesotheliomas. And only WDPM can display papillary or tubular papillary structures, bland nuclear cytology, infrequent mitoticactivity, single cuboidal epithelium and absence of stromal invasion [11].

As a rare testicular tumor, WDPM usually appears not aggressive and accompanied by an indolent clinical behavior, for which ultrasound is a convenient, fast and efficient diagnostic method. And timely evaluation should be considered in patients with a paratesticular mass with associated hydrocele (Figure 1).

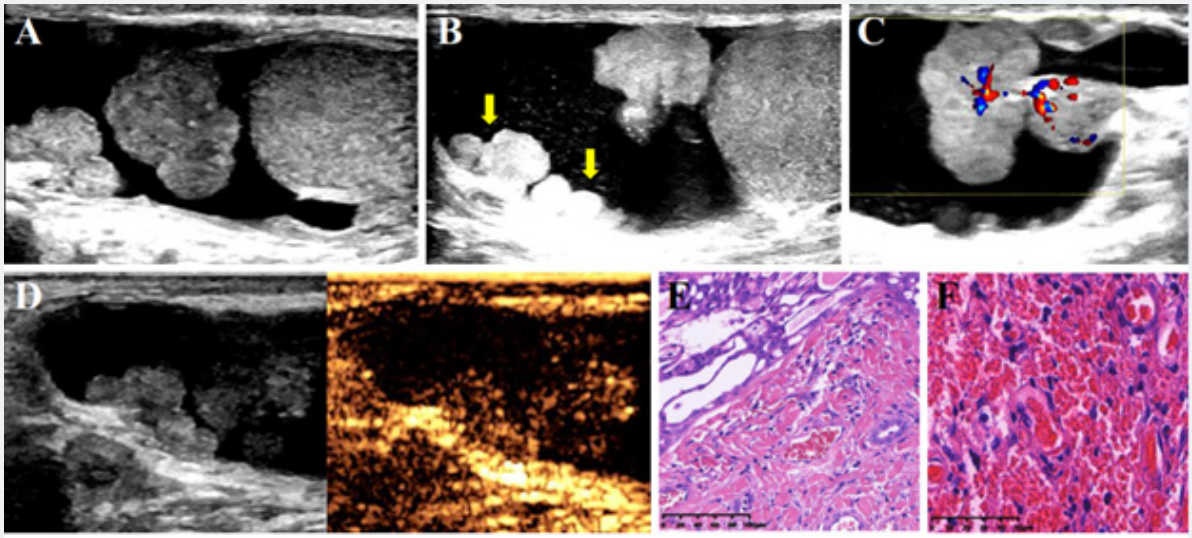

Figure 1: WDPM in the 38-year-old man. A. Ultrasonography showed multiple papillary masses near the left testis attached by a thick handle, gross hydrocele beside them. B. Numerous hypoechoic nodules attached to the wall of hydrocele sac (arrows). C. Color Doppler flow images detected rich vascularity in the stalk of the tumor. D. Contrast enhanced ultrasound displayed moderate enhancement of contrast agent in the masses. E and F. Histological examination revealed the tumor had an exodermal papilla structure, consisted of fibrous cores lined by a single layer of flattened cuboidal and low columnar mesothelial cells, with mild or absent atypia, and enlarged, hyperchromatic nuclei (HE; 200× and 400×).

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Ethics Approval and Consent to Participate

The hospital ethics committee approval was granted of this case report.

Consent for Publication

Written informed consent of clinical data and image publication was obtained from the patient.

Availability of Data and Materials

Please contact the corresponding author for data on reasonable request.

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