LIGHT MICROSCOPIC, IMMUNOHISTOCHEMICAL AND ULTRASTRUCTURAL EVALUATION IN A CASE OF PARATESTICULAR LEIOMYOSARCOMA

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SUMMARY: A case of paratesticular leiomyosarcoma, occurring in a 65 year-old male patient, is reported. The tumor was respected with high inguinal ligation and orchidectomy. There was no attachment to the scrotal wall, testis or spermatic cord. Histologically, the tumor was identical to leiomyosarcoma showing a typical morphological appearance of smooth muscle tumor. The immunohistochemical and ultrastructural features are discussed. There was no evidence of tumor after 7 months. Leiomyosarcomas arising in a paratesticular region is quite uncommon.

Key Words : Paratesticular tumor, leiomyosarcoma.

INTRODUCTION

Malignant scrotal neoplasms of paratesticular origin are quite rare (1-3,5,11,13). Malignant tumors in this location include rhabdomyosarcomas, fibrosarcomas, liposarcomas, malignant fibrous histiocytomas and leiomyosarcomas. We report the light microscopic, immunohistochemical, and ultrastructural findings of a paratesticular leiomyosarcoma.

Case Report

A 65 year-old white man was admitted to the hospital with scrotal swelling of 1 1/2 years duration. Physical examination revealed a 6x6 cm, firm, non-tender mass in the scrotum. The scrotal ultrasonography demonstrated a lobulated mass about 6 cm in diameter which was not attached to the testis, spermatic cord and scrotal wall. Laboratory findings were unremarkable and beta-HCG, AFP and CEA levels were normal. After high ligation of the spermatic cord, the cord, left testicle and tumor was removed. The patient was free of clinical evidence of disease 7 months postoperatively.

On gross examination the left testicle was normal. The tumoral mass was measured 5x5, 5x3 cm in diameter and had a firm, lobulated, gray-white and capsulated appearance on the cut surface (Figure 1).

Microscopically, the tumor was composed of intersecting bundles of spindle cells with cigar shaped, hyper-chromatic and pleomorphic nuclei and an average of 10 mitotic figures per 10 high power fields (Figure 2). No necrotic changes and hemorrhage were present. Histochemically, the tumor cells were stained yellowish with van-Gioson stain, red with Masson's Trichrom stain and positive with PAS stain. Immunohistochemically, the tumor cells revealed positive staining

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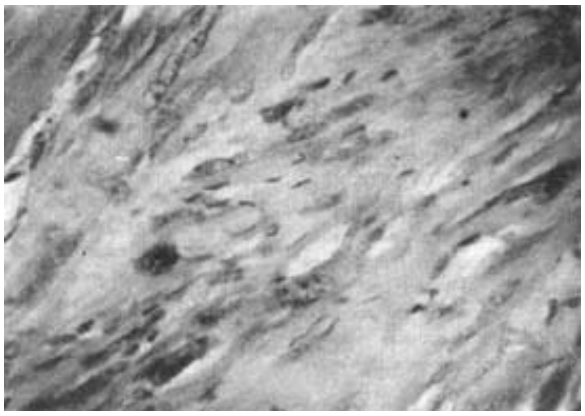
Figure 1: Macroscopical appearance of the paratesticular leiomyosarcoma.

Figure 2: Light micrograph of paratesticular leiomyosarcoma showing pleomorphic spindle cells in interlacing (H and Ex40).



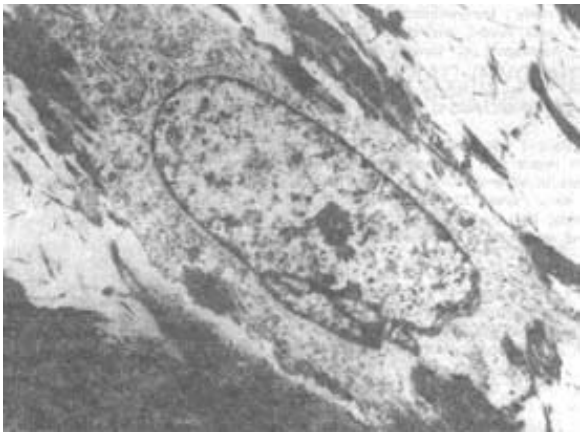
with anti-Vimentin, anti-Cytokeratin, anti-Estradiol and anti-Progesterone (weak) and negative staining with anti-S-100 protein and anti-Desmin. Electron microscopic examination of formalin fixed tissue revealed elongated cells with thin cytoplasmic filaments, dense bodies and focal cytoplasmic accumulation of glycogen. The nuclei had small indentations (Figure 3). A diagnosis of leiomyosarcoma was made.

DISCUSSION

Paratesticular leiomyosarcomas are uncommon tumors, but should be considered in the differential diagnosis of scrotal swellings (1,10). The mean age of all reported cases is 51 years. They usually spead via the blood stream, less frequently via the lymphatic stream (7,10). It is widely accepted that paratesticular leiomyosarcomas represent neoplastic proliferations of primitive mesenchymal cells committed smooth muscle differentiation (5,10). The differential diagnosis between leiomyoma and leiomyosarcoma includes frequency of mitosis and nuclear atypia (7,8,10).

We report this case because of its rarely and because previous reports of similar cases do not include histochemical, immunohistochemical, and ultrastructural features together. The histological and histochemical findings of our case is typical for a smooth muscle tumor. The degree of pleomorphism and mitotic rate indicated a leiomyosarcoma.

Figure 3: Electron microscopic appearance of a tumor cell.



Vimentin is the intermediate filament traditionally associated with mesenchymal cells and mesenchymal tumors and has been identified virtually in all types of sarcomas. Immunohistochemically, vimentin was positive in our case. Desmin is another intermediate filament, serving as an integral part of cytoskeleton of cardiac, skeletal and smooth muscle fibers. The majority of leiomyosarcomas of soft tissue have been desmin negative. However, others have indicated a much higher success rate in identifying desmin within leiomyosarcomas. Enzinger considers that this discrepancy may be due to differences in the antibody sensitivity and superior antigen preservation as a result of alcohol, rather than formalin, fixation (4). Newman et. al. reported desmin was found negative in 20% of the scrotal leiomyosarcomas (12). Desmin was negative in our case and other muscle antigens, such as actin and myoglobin, were not available. Demonstration of cytokeratin expression, another intermediate filament, in leiomyosarcomas have been reported by several authors (6,9). There is not a simple explanation for this finding and one can only speculate about this anomalous cytokeratin expression. We believe that our case is another rare example of anomalous cytokeratin expression in a leiomyosarcoma.

Ultrastructural findings were consistent with the literature (2,3,11,14,15), however there were some artifacts due to formalin fixation.

In conclusion, while examining a malignant paratesticular tumor, it is necessary to integrate histological, immunohistochemical and ultrastructural features. The number of mitosis, the degree of pleomorphism, and presence or lack of invasion to the adjacent structures should be considered for the grading of the tumor.

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