Pleomorphic Leiomyoma of the Scrotum: Immunohistochemical Stains

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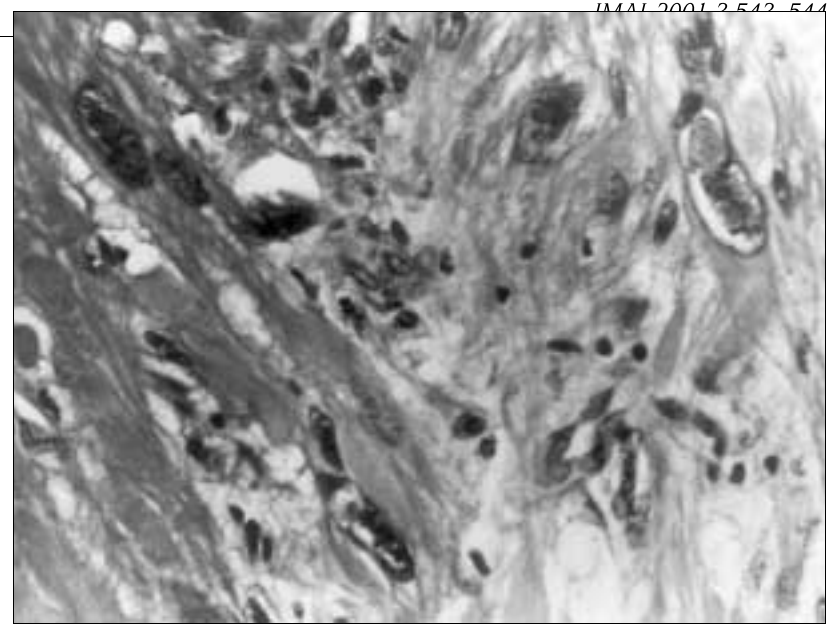
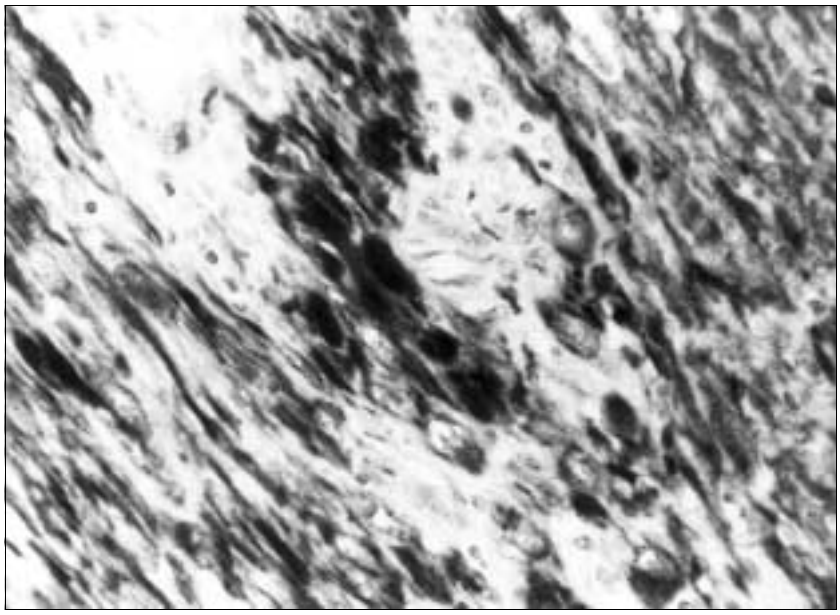
The solitary genital leiomyomata group is uncommon [1] and has received little attention. Determining suitable criteria of malignancy in smooth muscle tumors is difficult. The recognition of a pleomorphic variant of scrotal leiomyoma is important for the differential diagnosis with leiomyosarcoma. We present a case of pleomorphic leiomyoma of the scrotum.

Patient Description

A 58 year old man presented with a nontender mass measuring 2.5 cm in diameter on the right side of the scrotum; it had been evident for several years with no significant change in size. Clinical findings included hypertension for which



A. Large pleomorphic nuclei of smooth muscle cells with intranuclear inclusions (lower left) (hematoxylin and eosin. x 400).



B. Positive desmin stain in tumor cells. (Desmin. x 400).

the patient received propranolol, and mild diabetes mellitus treated with diathiasin and a controlled diet.

The tumor, 2.5 cm in diameter, consisted of a well-circumscribed, non-encapsulated, brownish mass of elastic consistency. The cut section was faintly whorled. There was no evidence of hemorrhage or necrosis within the tumor.

Formalin-fixed, paraffin-embedded 3 μ-thick sections were stained with hematoxylin/eosin, Masson-trichome and immunohistochemical stains. Microscopic examination showed the tumor to be composed of interlacing elongated cells, with an abundant eosinophilic fibrillary cytoplasm that stained red with the Masson-trichrome stain. Some of the cells possessed cylindrical nuclei with rounded edges typical of smooth muscle cells, but in other areas the nuclei were large, irregular in size and shape, and hyperchromatic. The peculiar feature was the presence of large eosinophilic intranuclear inclusions [Figure A]. The mitotic activity was minimal, nuclear palisading was not a feature, and there were no prominent blood vessels in the tumor. Immunohistochemical studies showed positive staining for desmin [Figure B]. Keratin and S-100 staining were negative.

Comment

Benign and malignant neoplasms of the scrotum are rare, arising mostly from the skin and adnexal structures. Hemangioma, leiomyoma and angiokeratoma are the most common benign scrotal neoplasms. Smooth muscle tumors are as widely distributed throughout the body as smooth muscle cells. Forman [2] reviewed 7,748 benign smooth muscle tumors and found that approximately 95% occurred within the female genital tract, while the remainder were found in the skin, gastrointestinal tract and bladder.

The accepted classification [3] divides benign smooth muscle tumors into five main groups: cutaneous leiomyoma, vascular leiomyoma, leiomyoma of deep soft tissue, intravascular leiomyoma, and leiomyomatosis peritonealis disseminata. Cutaneous leiomyoma are rare benign tumors that originate from the erector muscle of the hair follicle (piloleiomyoma), the tunica dartos of scrotum (scrotal leiomyoma), mammillary muscle of the nipple, smooth muscle in the vulva, and the smooth muscle of blood vessels. The solitary genital leiomyomata group (including tumors arising from the dartoic, vulvar and mammillary muscles) is uncommon and has received little attention [4]. The benign external genital smooth muscle tumors are small, seldom exceeding 2 cm, are without significant atypia or mitotic activity, and pain is not a prominent symptom [5]. The scrotal leiomyoma in our case was slightly larger (2.5 cm in diameter) and showed nuclear pleomorphism without significant mitotic activity.

Determining suitable criteria of malignancy in smooth muscle tumors is difficult. Although a number of features, such as size, cellularity, atypia and necrosis, correlate to some extent with malignancy, none seems to be as accurate or as reproducible in predicting metastasis as mitotic activity. The actual levels of mitotic activity that seem to be suitable for diagnosis of malignancy differ in the various anatomical sites. However, a small tumor that lacks necrosis and mitotic activity should be considered benign, even if it shows nuclear atypia. Enzinger and Weiss [3] refer to this nuclear atypism as degenerative change. The name pleomorphic or bizarre leiomyoma was suggested for cases of this type.

In our patient, the pleomorphic atypical nuclei appearing in the setting of a paucicellular tumor of relatively small size without mitotic activity justifies the classification of the lesion as a pleomorphic leiomyoma. We are aware of only two reported cases of bizarre leiomyoma of the scrotum. Recognition of this variant of scrotal leiomyoma is important for the differential diagnosis with leiomyosarcoma.

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