Scrotal leiomyoma: a rare cause of scrotal swelling

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Abstract

Background: Leiomyomas are benign smooth muscle tumours predominantly found in the uterus. Rarely, they may be located in the ovaries, scrotum, bladder, lungs, vascular structures and spermatic cord.

Case presentation: We managed a 39-year-old man who presented with a year history of progressive right-sided hemiscrotal swelling. The right scrotal mass was excised, and histology showed scrotal leiomyoma.

Conclusion: Scrotal leiomyoma is very rare and challenging to diagnose pre-operatively as a cause of scrotal swelling, but it is amenable to surgical excision.

Keywords: Case report, Scrotal leiomyoma, Rare tumours, Scrotal swelling

1 Background

Leiomyomas are benign mesenchymal tumours that originate from smooth muscle cells. An overwhelming majority are found in the uterus [1]. Rarely, leiomyoma may occur in the ovaries, scrotum, bladder, lungs, vascular structures and spermatic cord [2]. Leiomyomas found in the skin and subcutaneous tissue can be classified based on their site of origin; piloleiomyoma when they arise from arrector pili muscles of hair follicles, angioleiomyoma from smooth muscle of blood vessel wall and genital leiomyoma which originate from smooth muscles of the vulva, scrotum and the myoepithelial cells of the nipple [3]. The genital leiomyomas are the least common of the extraterine variety [4]. Scrotal leiomyoma was first described by Forsters in 1858 and is reported to be extremely rare [5]. Only 11 cases of scrotal leiomyoma were found out of 11,000 cases of benign and malignant tumours of the scrotum and its contents in a review done by Siegal and Gaffey [6]. We present a young man who was seen in our facility with a slowly progressive right scrotal swelling. Management and histopathological findings are highlighted.

2 Case presentation

A 39-year-old Yoruba native of Southwestern Nigeria was referred to the urology unit on account of a year history of progressive right-sided hemiscrotal swelling. He had occasional dull aching pain in the right hemiscrotum. There were no lower urinary tract symptoms, cough, drenching night sweats, fever or weight loss. Physical examination revealed a non-tender, firm right hemiscrotal mass about 6 cm × 4 cm and inseparable from the ipsilateral testis. The left testis felt normal in size and consistency; inguinal lymph nodes were not palpable. A clinical diagnosis of suspected right testicular cancer was made. Scrotal Ultrasound scan reported a 4.9 cm × 3.9 cm well-circumscribed mass with mixed echogenicity attached to the lower pole of the right testis with minimal vascularity. The right testis measured 3.1 cm × 2 cm × 3 cm and was superiorly displaced. The differential diagnoses were epidermoid cyst, germ cell tumour and adenomatoid tumour. The patient's complete blood count, serum β-human chorionic gonadotropin, α-fetoprotein, blood chemistry were within normal limits. He subsequently had a right radical orchidectomy (Fig. 1) as a testicular malignancy could...
not be ruled out. The post-operative recovery was uneventful, and he was discharged home.

Pathology report: Grossly, the mass was 7.5 cm × 6.0 cm × 5.0 cm in dimensions, displacing and compressing the testis which measured 4 cm × 2.5 cm × 2.0 cm. Cut sections of the mass showed greyish white whorled surfaces while cut sections of the testis showed homogenous golden yellow surfaces (Fig. 2). Microscopic examination of the mass revealed interlacing bundles of smooth muscle fibres haphazardly arranged in whorls. The cells have regular nuclei and variable cytoplasm. There was no cytological atypia, necrosis or abnormal mitosis (less than 1 mitosis/10 high-power field seen). Also seen were many thin- and thick-walled blood vessels. Foci of calcification and hyaline degeneration were present. Sections of the testis showed poorly fixed testicular tissue composed of numerous seminiferous tubules lined by thin basement membrane with reduced population of spermatogenic cells. The interstitial leydig cells were unremarkable. The resection margins were free of tumour cells.

Immunohistochemical stains showed positive cytoplasmic expression of smooth muscle actin (SMA) and desmin filaments (Fig. 3a–d). The final histologic diagnosis was leiomyoma of the scrotal sac.

3 Discussion

Leiomyomas are benign tumours of smooth muscle predominantly found in the uterus. Very rarely, they may arise from the dartos muscle of the scrotum. Scrotal leiomyomas are more common in Caucasians between the fourth and sixth decades of life as solitary painless cutaneous lesions measuring 1–14 cm with an average diameter of 6.4 cm [3]. Typically, the patients present at an average of 7.6 years from onset of mass due to its slow growing and asymptomatic nature [6]. However, our case was a Negro who presented at 39 years of age with occasional pain. He presented within 1 year of recognition of mass because of the associated pain and fear of having a malignancy. The scrotal ultrasound scan suggested a mass which was attached to the testis with differential diagnoses of epidermoid cyst, germ cell tumour and adenomatoid tumour. This heightened a suspicion of a testicular tumour which necessitated a radical orchidectomy since most solid testicular masses are malignant. Magnetic resonance imaging (MRI) has been found to provide additional and important information to scrotal ultrasound in detection and localization of scrotal tumours as reported by Cassidy et al. [7]. However, ultrasound is far cheaper and more readily available in our environment. Guthrie and Fowler found ultrasound to have 98% and 99.8% sensitivity and specificity, respectively, for testicular malignancy [8].

Benign smooth muscle tumours of the scrotum are classified either as typical or atypical leiomyoma. Four histologic criteria are used in this classification: (1) size ≥ 5 cm in widest diameter, (2) presence of infiltrating margins, (3) ≥ 5 mitotic figures per 10 high-power fields and (4) moderate cytological atypia. Those with any one of these features are described as typical while tumours with two features are atypical leiomyoma [3, 9, 10]. The occurrence of three or more of these features renders such a leiomyosarcoma. The index case is a
typical leiomyoma, and the principal treatment is surgical excision.

4 Conclusion
Scrotal leiomyoma is a rare but known differential of scrotal mass. Pre-operative diagnosis is challenging, but surgical excision is sufficient for cure.

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Authors’ contributions
PAE wrote manuscript and did literature search. OO handled histopathological diagnosis and photomicrographs. AIO contributed to manuscript write-up and literature search. OAO proof-read and approved final version of manuscript. All authors have read and approved the manuscript.

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Fig. 3 Histology slides; a photomicrograph of the scrotal mass × 10 magnification, b photomicrograph of scrotal mass × 4 magnification, c immunohistochemistry Photomicrograph showing positive cytoplasmic expression of smooth muscle actin filament (SMA × 10), d photomicrograph showing immunohistochemical positive cytoplasmic expression of desmin filaments (Desmin × 10)

Ethics approval and consent to participate
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Consent for publication
Written and informed consent was obtained from patient.

Competing interests
The authors declare no conflict of interest regarding this article.

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