TPM Vol. 32, No. S3, 2025
ISSN: 1972-6325
https://www.tpmap.org/

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SCROTAL LEIOMYOMA - A RARE PARA-TESTICULAR TUMOUR

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Abstract

Leiomyomas are benign tumours arising from smooth muscle. They are known to be the most common benign neoplasm arising from the uterus. Still, it is found to arise from other body regions such as ovaries, scrotum, bladder, and lungs, with scrotal leiomyoma being a rare entity. It is a slow-growing tumour with an asymptomatic nature. We present a male in his late forties with history of a right scrotal swelling for two years associated with occasional pain, which was clinically diagnosed as a sebaceous adenoma and subjected to surgical-wide local excision. The histopathological examination revealed a surprising diagnosis of leiomyoma of the scrotum.

Keywords: scrotum, leiomyoma, testicular, tumours, neoplasm

INTRODUCTION

Leiomyomas are benign tumours arising from smooth muscles. These tumours have a monoclonal origin, and most commonly arise from the smooth muscles of the female genitourinary system. In the genitourinary system, Uterine leiomyomas are the most common and are classified according to their anatomical location and are named uterine fibroids. Leiomyomas of the uterus were first described in 1854 by Virchow [1]. The incidence of leiomyoma was more commonly seen among blacks than in whites. Rarely can a leiomyoma arise from other regions such as the gastrointestinal tract, renal capsule, bladder, ovaries, scrotum, spermatic cord, lungs and vascular structures. The leiomyoma arising from the scrotum is an infrequent entity and was first presented by Forsters in 1848 [2]. The smooth muscle fibres in the scrotum, particularly the Dartos muscle, are where these tumours can arise. It is a rare presentation with a reported prevalence of 1 in 1000 of all scrotal tumours from a study by Siegal et al. who found only 11 cases of scrotal leiomyoma among 11,000 cases of the testicular tumours [3]. We present a forty-two-year-old man with a slowly progressive scrotal swelling in the root of the scrotum diagnosed as Scrotal Leiomyoma.

Case report

A 42-year-old male with known comorbidities of Type-2 diabetes mellitus and Hypertension presented to the hospital with a gradually progressive swelling at the root of the right scrotum, persisting for two years. Additionally, the patient reported having mild pain from the swelling for the past two months. The patient did not have other lower urinary tract symptoms, discharge, fever, loss of weight or any other symptoms. Physical examination revealed a single, well-defined, ovoid, firm, non-tender and mobile lump of approximately 3 x 2 cm in size found in the anterior aspect of the root of the right scrotum and extra-testicular as in Fig 1. The overlying skin of the mass was also found to be normal, without any ulceration or redness. Bilateral tests and cord structures were delineated separately with no palpable inguinal lymph nodes.

Scrotal sonography described a 3.5 x 2.5 cm intra-scrotal and extra testicular well-circumscribed mass with predominant hypo-echogenicity without any internal vascularity on the colour Doppler model, as shown in Fig 2.

Then, the patient was subjected to routine blood investigations with serum β-human chorionic gonadotropin and α-fetoprotein, which were within normal limits. Based on the above findings and the radiological report, a clinical diagnosis of a benign lesion, most properly a Sebaceous Adenoma of the scrotum was made initially, and the patient subsequently underwent wide local excision of the lesion including the overlying skin under the spinal anaesthesia. The post-operative recovery was uneventful.

The gross pathological examination revealed that the circumscribed mass was 3 cm x 2.5 cm x 2 cm in dimension, as in Fig 3, and the cut section of the mass showed a greyish-white whorled surface. The histopathological examination revealed a benign neoplasm composed of fascicles of uniform smooth muscle fibres interlacing with each other, without any atypia, necrosis, or mitotic figures, suggestive of a Leiomyoma, probably arising from the Dartos muscle. Follow-up Immunohistochemistry was positive for Smooth Muscle Actin confirming the diagnosis, as in Fig 4. The patient was then discharged and followed up at regular intervals.

DISCUSSION

Leiomyoma is a benign neoplasm of smooth muscle tissue. There are three types of leiomyoma based on their site of origin: piloleiomyoma, angioleiomyoma, and genital leiomyoma. Piloleiomyoma originates from the arrector pili muscles associated with hair follicles, angioleiomyoma arises from the smooth muscle of blood vessels, and genital leiomyoma comes from the smooth muscle of the vulva, scrotum, and myoepithelial cells of the nipple. Piloleiomyoma and angioleiomyoma are more common than genital leiomyoma, with a reported prevalence of 1 in 1000 tumors [4]. The smooth muscle tumor of the scrotum was first described by Forsters in 1858, who identified it as a rare entity [2]. This tumor can develop from various structures of the scrotum, including the epididymis, spermatic cord, tunica albuginea, and dartos muscle. It is observed more frequently in Black people and Caucasians, primarily between the fourth and sixth decades of life [5].

Leiomyoma has monoclonal cell origin. The leiomyoma is a slow-growing mass, usually asymptomatic. The absence of pain is due to the slow-growing nature of the tumour, which displaces the nerve fibre bundles rather than infiltrating it. Due to its slow growth and the asymptomatic nature of the mass, the average period for the patient's presentation to the hospital was around 7.6 years. But in our case, the patient presented in 2 years of the time. The patient usually presents with an enlarged scrotum containing a painless mass. However, in our case, the patient will present with a mass protruding from the scrotum due to the development of the tumour from the dartos muscle.

The ultrasound is the primary imaging modality to explore the testicular and the para testicular lessons. It helps with the precise location of mass and margins, echo structure, vascular characteristics, and the presence of calcification and necrosis. Guthrie et al. found that the ultrasound had a sensitivity and specificity of 98% and 99.8% in diagnosing the testicular malignancy. The leiomyoma usually presents as a well-defined solid para testicular lesion of variable echogenicity with the absence of internal vascularity on colour Doppler. Magnetic resonance imaging helps explore detailed tissue characterisation and narrow the differential diagnosis. In T1 of the MRI, the leiomyoma can present as low to intermediate signal intensity, whereas in the T2 images, it will present with intermediate to high intensity with lower contrast enhancement [4].

MRI can help differentiate leiomyomas from malignant tumours like leiomyosarcomas, which may show heterogeneous signal intensities due to areas of necrosis and haemorrhage. While ultrasound is sufficient in most cases to suggest the diagnosis of a benign smooth muscle tumour like sebaceous cysts or epididymal cysts, MRI adds value in confirming tissue characteristics and excluding malignancy like leiomyosarcoma or seminoma, especially in larger or atypical cases [6].

Immunohistochemical markers help to find the origin of the tumour. Various other tumours, such as fibroma, adenoma, sebaceous cyst and squamous cell carcinoma, form a differential diagnosis for leiomyoma. The final diagnosis of the mass is based on a histopathological examination. Based on the four parameters, the scrotal smooth muscle tumours were classified into three main groups: benign, atypical, and malignant [7].

The management of scrotal leiomyomas, as demonstrated in this case, primarily involves complete surgical excision of the tumor with clear margins to prevent recurrence. Key factors influencing the surgical approach include tumor size and location, histopathological characteristics, and the completeness of excision [8].

Postoperative follow-up is crucial due to the unknown recurrence rates and the potential for malignant transformation, albeit low. In this case, the patient was monitored through regular clinical evaluations, which showed no signs of recurrence during the follow-up period [9].

The diagnostic dilemma of the initial diagnosis of sebaceous adenoma, was hence overturned by post-operative histopathological and immunohistochemical evaluation establishing the final diagnosis of scrotal leiomyoma, a rare benign smooth muscle tumor of the scrotum [10].

Fig 1: A lump observed in the right root of the scrotum

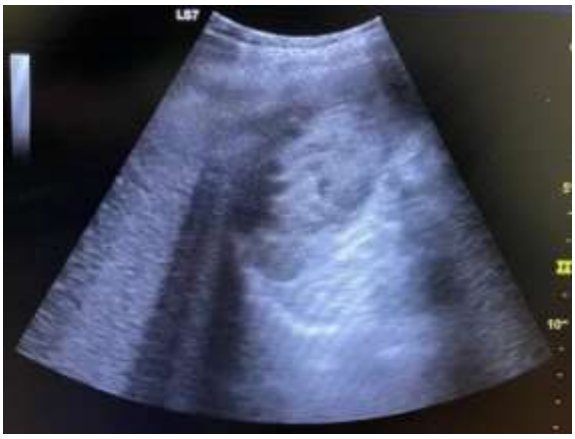

Fig 2: Scrotal sonogram showing well-circumscribed hypoechoic mass.

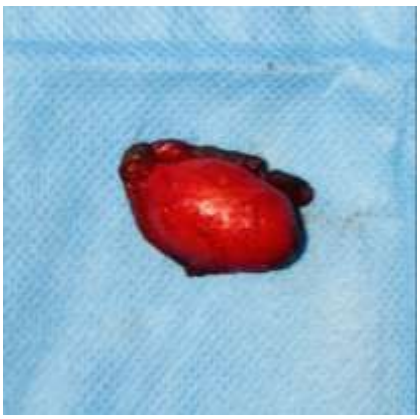

Fig 3: Gross Examination- circumscribed mass of 3 cm x 2.5 cm x 2 cm with overlying skin

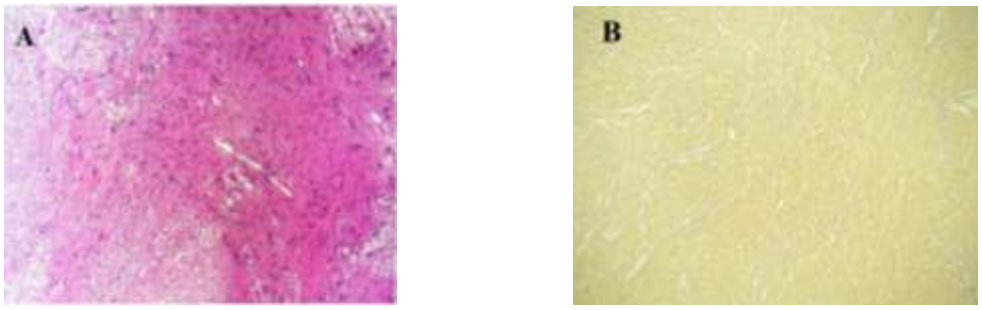

Fig 4: A - HPE showing features of Leiomyoma, of interlacing fascicles of uniform smooth muscle fibers. B - IHC staining positive for SMA (Smooth muscle Actin).

CONCLUSION

Scrotal leiomyoma is a rare benign tumour with a slow-growing potential and asymptomatic nature with a wide range of differential diagnoses. This case highlights the importance of complete surgical excision and subsequent pathological analysis to accurately characterise and diagnose soft tissue tumours, particularly in rare and unusual presentations, such as scrotal leiomyoma, where initial clinical and radiological impressions can be nonspecific or misleading. So, surgeons should always be aware of this rare condition while dealing with a patient with a scrotal mass, hence aiding in accurate diagnosis and tailored treatment.

Acknowledgement

We want to acknowledge the esteemed professors in the Department of General Surgery at our institution for their guidance and valuable insights which greatly enhanced the quality of this report. We also acknowledge the ethical and respectful evaluation of the patient throughout the diagnostic and treatment process.

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