Case Report

Imaging modalities for an uncommon inguinal scrotal pathology: A case report and literature review

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Abstract

Inguinal scrotal swelling is a common presentation to surgical clinic with various differential diagnoses. In most circumstances, a good clinical assessment is sufficient to identify the diagnosis. Imaging is necessary when diagnostic difficulty was encountered. The choice of imaging study could affect the management and outcome. A 60-year-old male presented with an enlarging right inguinal scrotal swelling for 5 years. Clinical examination showed a swelling extended from the right inguinal region down to the right scrotum, firm, not reducible, and not separable from the right testis. Differential diagnoses range from the malignant testicular tumor, irreducible inguinal hernia to the soft-tissue tumor. Ultrasonography and computed tomography scan were unable to conclude the origin of the tumor and involvement of the right testis. Inguinal exploration with potential radical orchiectomy was planned and caused much distress to the patient, resulted in delay in surgery. Intraoperatively, the mass was separated from the testis and spermatic cord, and thus, excision biopsy was performed sparing the testis and spermatic cord. Histopathological examination showed cellular angiofibroma. The right choice of imaging modality is important to provide a precise diagnosis and better treatment plan. This could avoid the unnecessary distress to the patient for potential organ lost. A review through the literature showed the ability of magnetic resonance imaging to better delineate the anatomy of inguinal scrotal soft-tissue mass and thus should have been the imaging modality of choice.

Keywords: Cellular angiofibroma, inguinal scrotal mass, magnetic resonance imaging

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INTRODUCTION

Inguinal scrotal swelling is a common encounter in urology clinics. Although there is a wide range of possible causes, a thorough clinical assessment is often adequate to identify the diagnosis confidently. Further, imaging is necessary whenever there is doubt. In this regard, choosing the appropriate imaging study is of utmost importance for the reason that it affects the management tremendously. Ultrasonography had been traditionally the modality of choice due to its easy availability, high sensitivity and specificity, and no risk of radiation.[1] It is able to characterize the different inguinal scrotal pathologies and provides a more specific diagnosis than clinical assessment alone.

In a difficult case of inguinal pathology, further imaging is required to be certain of the diagnosis before managing

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the condition accordingly. Computed tomography (CT) scan had been used frequently following an inconclusive ultrasonography to differentiate the type of mass or swelling in the inguinal scrotal region. Magnetic resonance imaging (MRI), however, could characterize the disease in a more precise manner resulting in better treatment strategy.[2] Herein, we present a case report of a patient presenting with a rare inguinal scrotal swelling and discuss the imaging options available and the rationale.

CASE REPORT

A 60-year-old man presented with a painless right inguinal scrotal swelling that had increased in size for the last 5 years and caused him discomfort. He did not experience any urinary or bowel symptom. On the examination, the swelling extended from the right inguinal region to the scrotum and cough impulse was negative. It was nontender and not reducible. It was not separable from the testis, and the margin was poorly defined. There was no skin change or palpable inguinal lymph nodes. Ultrasound assessment revealed a large heterogeneous lobulated hypoechoic mass with well-defined margin and minimal color flow on Doppler. The mass appeared to be separate from the right testis with no intraabdominal extension through the inguinal canal. Due to the uncertainty of the ultrasound finding, CT scan was performed and demonstrated a heterogeneous mass within the right scrotal sac involving the right epididymis and spermatic cord. The right testis was not distinguishable from the mass, raising the possibility of an aggressive malignant-transformed tumor [Figure 1]. MRI was not arranged for him due to long waiting appointment. His tumor markers included AFP and BHCG were within the normal range.

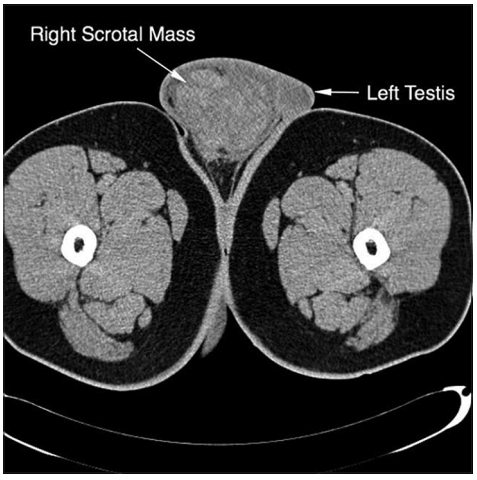

Figure 1: Contrasted computed tomography in axial section showing a lobulated heterogeneously enhancing mass in the right scrotum. Right testis could not be distinguished from the mass. Normal left testis was shown in this image

The decision of an inguinal exploration and potential right orchiectomy was not well-received by the distraught patient, causing a delay in surgery. Inguinal exploration was performed after much persuasion. Intraoperatively, a well-encapsulated mass was found, originated from the subcutaneous tissue and extended into the right scrotum. The right testis and spermatic cord were separated from the mass. Wide excision was done.

Histopathology examination confirmed cellular angiofibroma of the right inguinal [Figure 2]. The patient did not develop any recurrence after 6 months of follow-up.

DISCUSSION

Cellular angiofibroma is a rare distinctive benign mesenchymal neoplasm consisting of the prominent blood vessels and cellular spindle cell component first described by Nucci *et al*. in 1997.[3] Isawa and Fletcher subsequently described a series of 51 cases of the cellular angiofibroma in 2004.[4] There was equal distribution between male and female with a mean age of 53.5 years and men diagnosed at an older age than women. The most common sites were the inguinal scrotal region and vulvovaginal region. The majority of the patients showed no recurrence or metastasis after excision.[2]

As cellular angiofibroma is an uncommon inguinal scrotal pathology, this resulted in lack of standardized treatment. Following the clinical assessment, imaging study is necessary in identifying the pathology and planning the appropriate surgical intervention. Various modalities are available including ultrasonography, CT scan, and MRI. Different

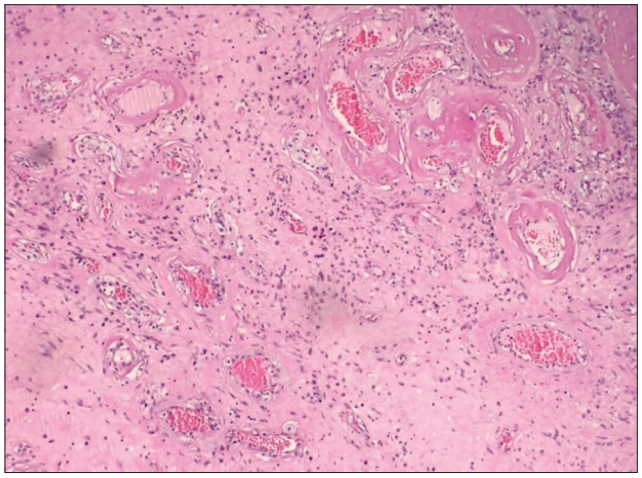

Figure 2: A circumscribed lesion with thin fibrous pseudocapsule composed of hypo- and hyper-cellular areas of bland round to spindled tumor cells in a background with prominent vascularity. No mitotic figures are seen. No areas of tumor necrosis are present. The background of tumor cell (fibroblast) stained positive with vimentin (not in the picture)

modalities have different sensitivity and specificity to assess the pathology accurately, and this may influence the final treatment decision. The costs involved as well as the potential risks such as radiation exposure, contrast-induced allergy, and nephrotoxicity should also be taken into consideration when choosing the most suitable technique.

Ultrasonography with or without color Doppler is the usual initial imaging modality of choice and potentially the one required to diagnose inguinal scrotal pathology, especially to differentiate between intratesticular and extratesticular lesion.[1] In cellular angiofibroma, ultrasonography typically shows a solid mass with heterogeneous echogenicity.[5-10] These features, however, are inadequate to differentiate between benign and malignant lesion. Hence, further imaging naturally is required to evaluate further the mass.

MRI has been proven to be able to precisely localize an inguinal scrotal lesion and differentiates between testicular or nontesticular origin. It can characterize a lesion into cystic, solid, or mixed and can detect fat and fibrosis within a lesion. MRI also helps in classification into benign and malignant lesion.[2] In cellular angiofibroma, it is usually intermediate in signal intensity on T1-weighted images but can be hypo- or hyper-intense on T2-weighted images depending on the amount of the spindle cells, fat, and collagenous stroma.[3,4,8] Intense enhancement has been reported.[5,6] Although these imaging features are nonspecific, with the use of multiparametric magnetic resonance protocol, extratesticular location can be confirmed, and benignity may be suggested thus obviating orchiectomy.[6] On the other hand, CT appeared to be inferior in defining the various inguinal scrotal soft-tissue masses, as illustrated by the CT findings in our case. The CT in our patient showed a poorly defined heterogeneous mass within the right scrotal sac involving the right epididymis and not distinguishable from the right testis. These findings were very different from the actual intraoperative findings. In fact, no specific findings had been shown to be associated with cellular angiofibroma.[8] Nevertheless, the surgical resection is still required to not only achieve therapeutic objective but also to get the final diagnosis of the pathology.

Due to the rarity of the certain inguinal scrotal pathology, choosing the right imaging modality in such circumstances is very important to help the clinician make the accurate diagnosis and manage the patients accordingly. Using MRI to supplement ultrasonography in the diagnosis of these rare inguinal scrotal swellings can improve the accuracy of the diagnosis and treatment plane.

CONCLUSION

Cellular angiofibroma is a rare benign mesenchymal tumor that commonly presents as an ambiguous inguinal scrotal mass. Despite good clinical assessment, further imaging in the form of ultrasonography and MRI are usually required to clinch the diagnosis before the definite surgical intervention.

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Conflicts of interest
There are no conflicts of interest.

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