

Case Report

A Case Report of Benign Scrotal Paratesticular Fibrous Pseudotumor: Diagnosis Spared the Orchiectomy

Ravinder Kumar*, Abhishek Bhargava, Gagan Jaiswal and Jyoti Kundu

Department of Radiodiagnosis, Geetanjali University, India

***Corresponding author**

Ravinder kumar, Department of Radiodiagnosis, Geetanjali University, AG-1, Geetanjali Medical Campus, Manvakhera, Udaipur-313002, Rajasthan, India, Tel: 919571218953; Email: kundu19@ydhoo.co.in

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Abstract

We report a case of scrotal paratesticular fibrous pseudotumor found to be originated from tunica albuginea in a 30-year old male patient presenting as a painful palpable mass in the left hemiscrotum. Pre-operative scrotal ultrasonographic evaluation revealed a solid hypoechoic mass, measuring 2.86 cm x 2.81 cm, presenting with areas of internal calcification underneath the inferior pole of testis together with a hydrocele. The hypoechoic mass was of paratesticular origin probably arising from the tunica. Scrotal MRI verified this impression. Scrotal exploration, frozen biopsy, and local excision of the tumor was performed. Post-operative histopathological analysis further confirmed the diagnosis. This case report highlights the potential value of MRI in the evaluation of paratesticular tumors and sparing the orchiectomy- a usually performed surgical procedure in such cases.

INTRODUCTION

Paratesticular pseudotumors are relatively rare benign scrotal masses comprising approximately 6% of paratesticular lesions [1]. Fibrous Pseudotumor accounts for the third most common paratesticular scrotal tumor after spermatic cord lipoma and epididymal adenomatoid neoplasm [2]. Tunica vaginalis is most commonly involved (75%), followed by epididymis (10%); rarely it is associated with the spermatic cord or tunica albuginea [3]. The epididymis is involved in less than 10% of the cases. Various synonyms have been used for this reactive, non-neoplastic lesion including inflammatory pseudotumor, chronic proliferative periorchitis, pseudosarcomatous myofibroblastic tumor, diffuse nodular fibrous proliferation, benign fibrous paratesticular neoplasm, fibrous mesothelioma, fibromatous periorchitis, fibroma, proliferative funiculitis and reactive periorchitis [2-4]. Currently, the term fibrous pseudotumor was coined by Mostofi and Price to encompass all reactive fibroinflammatory lesions of the testicular tunics [4]. Ultrasonography (US) is currently the mainstay of scrotal imaging [5]. However, compared with US, MR imaging is more accurate and has a greater ability to characterize certain lesions, such as fat-containing lesions and lipoma, hematoma, focal testicular infarction and fibrous pseudotumor [6]. The purpose of this article is to report clinical, imaging and histopathologic appearances of this uncommon lesion with a comprehensive literature review, so that a diagnostic and

therapeutic strategy is planned for the management of this rare disease entity. This case report highlights the potential value of MRI in the evaluation of paratesticular tumors and help to narrow the spectrum of differential diagnosis.

CASE REPORT

A 30-year old man was admitted with a chief complaint of painful palpable mass in the left hemiscrotum. He presented with a history of firmness and irregularity of his left testis, which had recently gotten worse over a period of six months. The patient denied a history of trauma, epididymitis, torsion, surgery, or any other infection. The patient's medical and surgical history was unremarkable. No systemic symptoms were associated with this scrotal mass. Physical examination revealed a firm to hard, irregular, immobile, tender mass at the inferior pole of the left testis, apparently distinct from the epididymis. Abdominal and inguinal examination revealed no mass or palpable lymph node. The right testis and epididymis were normal. Serum markers for germ cell tumors (α -fetoprotein, β -human chorionic gonadotrophin, and lactate dehydrogenase) were within normal range. Pre-operative Scrotal Ultrasound examination revealed a well circumscribed and heteroechoic mass, but globally hypoechoic relative to the testicular parenchyma, underneath the inferior pole of testis together with a hydrocele (Figure 1). There are two adjacent smaller soft tissue masses, one of them heteroechoic showing calcification and other hypoechoic in

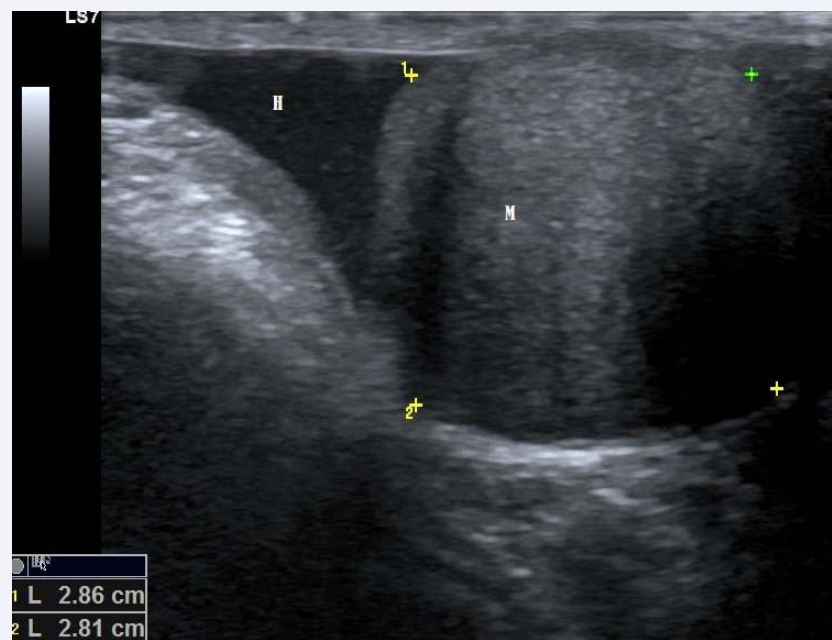


Figure 1 A transverse sonographic image of the scrotum reveals a well defined heteroechoic mass (M), measuring 2.86 cm x 2.81 cm, and secondary hydrocele (H) with low-level internal echoes in the left hemiscrotum.

echotexture [Figure 2(a) & Figure 2(b)]. There is associated lobular thickening of the inner surface of the left scrotal wall, presumably involving the tunica vaginalis. Mild left hydrocele with low-level internal echoes was also seen. The visualized portions of the right hemiscrotum were insignificant. On the basis of the pre-operative sonographic assesment, the mass appeared to be paratesticular and presumably arising from the tunica, but we recommended a preoperative scrotal MRI to verify this impression. The unenhanced MR Saggital STIR images showed well-defined rounded extratesticular masses (arrows) that are markedly hypointense, relative to the testis (T), in the left hemiscrotum with secondary hydrocele (Figure 3). The mass itself showed slow but persistent internal enhancement, as is typical of fibrous tissue [Figure 4(a) & Figure 4(b)]. At MR imaging, the mass demonstrated uniformly low signal intensity on T1- and T2-weighted images because of the presence of fibrosis. These findings suggested the provisional clinical diagnosis of left paratesticular tumor, with the possibility of benign nature. The patient underwent surgical exploration via left inguinal approach. On visual inspection, the tumor arose from the tunica vaginalis indenting the left testis. After isolating the spermatic cord, intraoperative frozen-section biopsy was performed. Frozen section analysis showed benign tumor from tunica vaginalis. Subsequently, a left tumor resection including removing a portion of tunica vaginalis was performed. On histologic examination, the lesion presented grossly as multinodular, well defined, oval and mobile structures often with diffuse fibrosis of the tunics. It was characterized by paucicellular myofibroblastic and fibroblastic proliferation within a dense hyalinized collagenous stroma with heterogeneous inflammatory cells (lymphocytes) and calcification foci. No necrosis, mitotic activity, or cellular pleomorphism was present. The lesion involved the tunica vaginalis and surrounded the epididymis and ductule efferentes but did not involve the testicular parenchyma or spermatic cord. The hydrocele with the fibrous lesion contained

mixed inflammatory cells and degenerated cellular debris with cholesterol clefts. Thus a histopathological diagnosis of benign paratesticular fibrous pseudotumor was made. We had a three month postoperative symptom free follow-up of the patient.

DISCUSSION

Paratesticular fibrous pseudotumors were first recognized by Sir Astley Cooper in 1830 but described in detail by Balloch in 1904 [7]. This non-neoplastic condition is suggested by usually small solid nodular, probably reactive fibrous inflammatory hyperplasia that arises from testicular tunics and, less commonly, grows into the epididymis and spermatic cord. Williams and Banerjee reported a series of 114 paratesticular neoplasms, of which 7 cases (0.061%) were fibrous pseudotumor [8]. The pathogenesis of this uncommon reactive benign lesion of testicular tunics is poorly understood and controversial. Fibrous pseudotumors can occur at any age but peak incidence is in the third decade of life [2]. They usually presents as hard unilateral extratesticular painless scrotal mass/masses mostly involving the left side ranging in size from 0.5 to 8 cm [9]. However, in the present case, the patient complained of a painful palpable mass in the left hemiscrotum. Fifty percent patients represent with an associated hydrocele, as in our case. While 30% of patients having a prior history of trauma, infection or epididymo-orchitis [4], leaving a majority of clinically idiopathic cases.

Ultrasonography is currently the mainstay of scrotal imaging [5]. Sonographic assessment may show either hypoechoic or hyperechoic solid mass involving the paratesticular structures. US evaluation may show the lesion separate from the testes. However, sonographic findings are often nonspecific and variable and such assessment do not usually allow definitive characterization. In 80% of cases, Magnetic resonance (MR) imaging can provide additional diagnostic information where

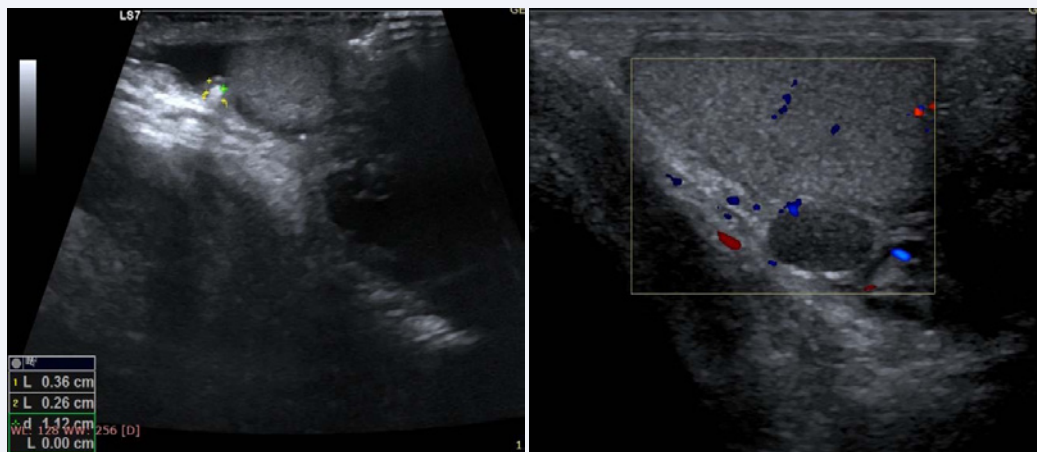


Figure 2 (a): Sonographic examination showing lobular thickening of the inner surface of the medial left scrotal wall, presumably involving the tunica vaginalis, with adjacent rounded well defined heteroechoic mass, showing calcification, along the inferior medial margin of the left testis. (b): A small amount of Color Doppler vascularity was shown within the anterior periphery of hypoechoic paratesticular mass and the thickened tunica in the left hemiscrotum.

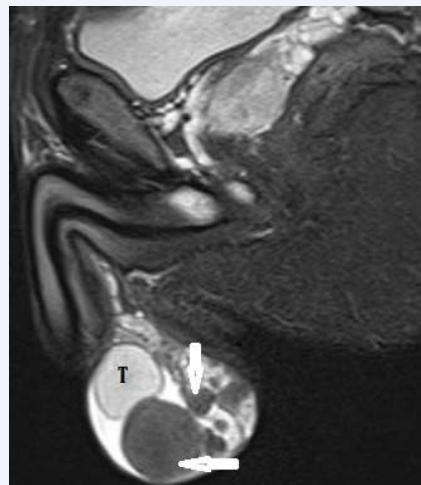


Figure 3 MR Saggital STIR image shows multiple well-defined extratesticular masses (arrows) that are markedly hypointense, relative to the testis (T), in the left hemiscrotum with secondary hydrocele.

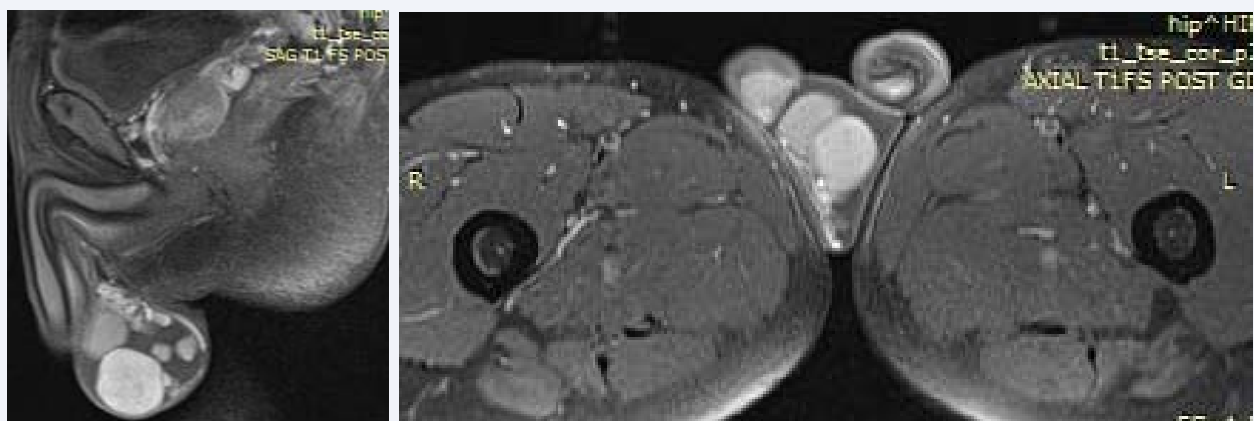


Figure 4 Contrast-enhanced MR T1-weighted saggittal [Figure 4(a)] and axial [Figure 4(b)] fat suppression images exhibiting multiple rounded well defined moderately enhancing lesions in the left hemiscrotum with secondary hydrocele & thickened tunica.

clinical and sonographic features are inconclusive, unusual or indeterminate [6]. MRI studies are an accurate and cost-effective diagnostic adjunct in such patients that allows tissue characterization and tumor delineation, with its signal intensity properties allowing precise detection of fibrosis, blood products, fat and granulomatous tissue [6]. On magnetic resonance imaging, the scrotal mass usually has low signal intensity on T1 and T2 imaging. In our case also, the mass demonstrated uniformly low signal intensity on T1- and T2-weighted images, as is typical of fibrous tissue. These findings suggested the provisional diagnosis of left paratesticular tumor, with the possibility of benign nature.

On histologic examination, the lesion composed of paucicellular myofibroblastic and fibroblastic proliferation within a dense hyalinized collagenous stroma with heterogeneous inflammatory cells (lymphocytes), calcification, myxoid changes or even ossification may be seen [10]. Immunohistochemical staining is negative for keratin, S-100 and desmin and positive for common muscle actin, smooth muscle-specific actin and vimentin confirmed the presence of myofibroblasts while simultaneously denying its mesothelial origin, thus differentiating it from adenomatoid tumor [3]. As in our case, treatment of choice should be scrotal exploration of the mass, frozen section biopsy and local excision of the tumor, orchiectomy might be unnecessary [10].

CONCLUSION

In summary, we describe an unusual rare scrotal lesion, a fibrous pseudotumor, that lie within the spectrum of benign paratesticular lesions and should be considered in the differential diagnosis in young adults with testicular and paratesticular lesions. Pre-operative Scrotal ultrasound and MRI combined with intra-operative frozen section may prevent unnecessary orchiectomy.

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