

Fibrous pseudotumor of the tunica vaginalis testis: imaging appearance

M. L. Grebenc,¹ J. D. Gorman,¹ F. K. Sumida²

Department of Radiology, ¹Clinical Investigation, and ²Laboratory (Anatomic Pathology Division), Naval Medical Center, San Diego, CA 92134-5000, USA

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Abstract

Fibrous pseudotumor is a benign paratesticular tumor that typically presents as a painless mass of the hemiscrotum. Because this tumor can mimic a malignant process, it is usually not diagnosed preoperatively. We describe a case of fibrous pseudotumor of the tunica vaginalis, demonstrating the ultrasound and magnetic resonance image (MRI) appearance with pathologic correlation.

Key words: Paratesticular—Fibrous pseudotumor—Tunica vaginalis—Magnetic resonance imaging—Ultrasound—Hemiscrotum.

Case Report

A 67-year-old man presented, complaining of right groin pain of approximately 6 weeks. On examination, he was noted to have bilateral inguinal hernias and bilateral scrotal masses. The prostate was enlarged and irregular.

Initially, a testicular ultrasound was performed. The left testicle appeared normal; however, there was a large fluid collection in the tunica vaginalis of the left testicle with diffuse low-level echoes, suggesting a hematocele or proteinaceous debris. An exceptionally lobulated soft-tissue mass extended off the anterior medial wall into the tunica fluid collection. The right hemiscrotum demonstrated a hydrocele and rete testis cysts, with an otherwise normal right testicle.

An MRI was performed to better evaluate the left scrotal wall mass. A large fluid collection was located within the left hemiscrotum,

which had a small fluid–fluid level in the dependent side. The majority of the fluid was bright on both T1- and T2-weighted images, with the dependent fluid being darker, which is consistent with a large hematocele. A very lobulated soft-tissue mass with multiple frond-like projections arose from the anterior medial aspect of the left tunica vaginalis and extended into the hematocele. This soft-tissue mass measured approximately 4.5 cm long by 2.5 cm transverse by 2.5 cm anterior–posterior; it was intermediate in signal on all sequences, being somewhat darker on T2 than on T1 weighting, and did not enhance with gadolinium. The left testicle and the visualized epididymis were otherwise normal. The MRI confirmed the ultrasound findings in the right hemiscrotum.

The patient underwent transrectal prostate biopsies, a right hydrocelectomy, a left radical orchiectomy, and bilateral herniorrhaphies. The pathologic evaluation demonstrated poorly differentiated adenocarcinoma of the prostate, which on further work-up was found to be metastatic to bone and abdominal lymph nodes. The left testicle and attached contents demonstrated a normal testicle, epididymis, and spermatic cord in association with a hematocele and two well-defined white fibrous nodular masses. These masses had a heterogenous microscopic appearance ranging from organized granulation tissue to nodules of hyalinized fibrous tissue and proliferating fibroblasts in a stroma, which contained numerous vascular lined spaces between collagenous trabeculae. No evidence of metastatic prostate carcinoma to the testicle was found. These findings are characteristic of fibrous pseudotumor of the scrotum.

Discussion

Paratesticular tumors are a collection of benign and malignant tumors that arise from the tunicae vaginalis and albuginea, epididymis, or spermatic cord. Fibrous pseudotumor is a rare, benign, fibroproliferative tumor of the paratesticular tissues of the scrotum. Many terms have been used to describe this entity, including pseudofibromatous periorchitis, inflammatory pseudotumor, benign fibrous tumor, chronic proliferative periorchitis, and multiple fibromata. There is a debate as to whether this entity represents an inflammatory or neoplastic process [1, 2], with a third opinion from Mostofi and Price [3]

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Correspondence to: M. L. Grebenc

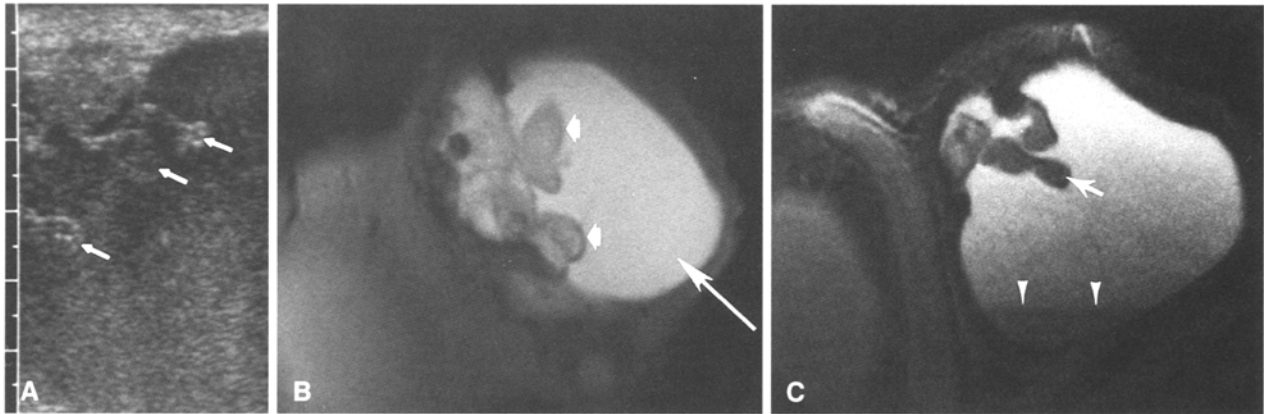


Fig. 1. Ultrasound and MRI fibrous pseudotumor of the tunica vaginalis testes. **A** Transverse ultrasound image of the left scrotal wall (testicle not on image), demonstrating lobulated nodules projecting off the anterior wall (tunica vaginalis) into the echogenic fluid (white arrows). **B** Proton-density weighted (TR 2000/TE 20) coronal image

reveals the intermediate intensity of the lobulated nodules (short arrows) surrounded by the high-intensity hematocoele (long arrow). **C** T2-weighted (TR 2700/TE 70) axial image shows intermediate to low signal intensity in the nodules (arrow) as well as a fluid–fluid level in the tunica space, consistent with a hematocoele (arrowheads).

who regard it as a non-neoplastic fibrous proliferation, preferring the term fibrous pseudotumor.

Although fibrous pseudotumors are rare, they are the second most common tumor of the paratesticular tissues, second only to adenomatoid tumors of the epididymis. Fibrous pseudotumors most commonly arise from the tunica vaginalis (76%), with 10% arising from the epididymis, and the remainder arise from the spermatic cord and tunica albuginea [3, 4]. Patients range from 16 to 75 years of age, and there is no predilection for laterality. Approximately 45% are associated with a hydrocele or hematocoele, and 30% have a history of prior trauma or epididymo-orchitis [3]. On physical examination, this tumor is usually palpated as a single, or multiple, painless, firm nodule [1, 2, 5].

Grossly, the typical appearance is that of solitary or multiple small fibrous nodules arising from the tunica vaginalis, epididymis, or spermatic cord [1, 2, 6]. The cut appearance has been described as gray-white and fibrogelatinous, with a whorled pattern [2].

Histologically, the predominant feature is that of a dense, hyalinized fibrous tissue with scattered collagen bundles and proliferative fibroblasts. Vascular channels can be seen intercalated within the stroma. Scattered inflammatory cells are also seen [1, 2, 5, 6]. Focal calcification and ossification has also been observed [1, 7].

Any scrotal mass raises the suspicion for malignancy. Because fibrous pseudotumor is a rare cause of a scrotal mass, radical orchiectomy has frequently been performed. However, it is felt that, because fibrous

pseudotumor is a benign process, orchiectomy should be avoided and that local excision is the treatment of choice [5–7]. To avoid unnecessary orchiectomy, the physician must be cognizant of this entity, recognize that the testicle is normal on ultrasound or MRI, and appreciate that the mass arises from the testicular adnexa.

In conclusion, we describe the imaging characteristics of a rare paratesticular tumor known by many terms including fibrous pseudotumor. The radiologist should be aware of this entity and of its benign nature. Entertaining the diagnosis preoperatively is important for proper surgical planning.

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