Case Report

Fibromatous Periorchitis Mimicking Testicular Tumour in a 30-year-old Male

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Abstract

Fibrous pseudotumours of the tunica vaginalis, epididymis, and spermatic cord are uncommon benign paratesticular masses. An extremely rare variant termed "fibromatous periorchitis" exhibits diffuse proliferative encasement of the testis and manifests grossly as an indurated testis reminiscent of malignancy. We present the case of a 30-year-old man who presented with a grossly enlarged right testis, benign scrotal ultrasound findings, and pathologic evidence of fibromatous periorchitis. The natural history, gross and histologic findings, and management of fibrous pseudotumours and fibromatous periorchitis are discussed. Understanding fibromatous periorchitis is crucial as it can prevent the need for radical orchidectomy, particularly in younger patients.

Keywords: Fibromatous periorchitis, Right testis, 30-year-old, Male

Introduction

Fibrous pseudotumours of the testicular tunica and surrounding paratesticular soft tissue are relatively uncommon and are recognized as reactive, non-neoplastic lesions rather than true tumours.[1-7] These lesions are often referred to by various names that reflect their clinical and histological characteristics. Some of these terms include chronic proliferative periorchitis, inflammatory pseudotumours, nodular and diffuse fibrous proliferation, proliferative funiculitis, fibromatous periorchitis, fibroma, benign fibrous paratesticular tumour, fibrous mesothelioma, pseudofibromatous periorchitis, nonspecific peritesticular fibrosis, and reactive periorchitis.[1,2]

To standardize the classification of these lesions, Mostofi and Price introduced the term "fibrous pseudotumours" to encompass all reactive fibroinflammatory lesions affecting the testicular tunics.[8] Generally, these benign "tumours" present as nodular formations that predominantly involve the tunica albuginea and other layers of the testis.[1,3-5] Even less frequently encountered is the diffuse fibrous pseudotumours, which manifests as extensive, band like fibroinflammatory proliferations encasing the testes, commonly referred to as fibromatous periorchitis.[2] Patient usually present with a history of unilateral painless intrascrotal or scrotal mass, firmness or irregularity of the testis. The clinical presentation of these lesions can closely mimic that of malignant tumours, leading to potentially unnecessary invasive treatments, such as radical orchidectomy, based on initial suspicions.[1-7] In this report, we highlight a case of fibromatous periorchitis, that completely encased the right testis and its adnexa. This case was surgically worked up as a suspected malignant testicular tumour, this indicates how closely such lesions can simulate malignancy, emphasizing the need for accurate diagnosis to avoid unwarranted surgical interventions.

Case report

A 30-year-old man presented with a history of right testicular enlargement, which progressively increased in size. The patient had no significant medical history of prior infection or trauma. Physical examination revealed a uniformly firm, non-tender mass in the right scrotum that did not transilluminate. The scrotal skin overlying the mass was thickened. Other physical examinations were unremarkable. A scrotal ultrasound demonstrated a solid well circumscribed lesion with lower echogenicity that encased the testicle within the scrotal sac, involving the distal part of the spermatic cord. Marked scrotal skin thickening was evident. A clinical assessment of suspected malignant tumour,

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possibly seminoma was entertained. The patient underwent a right radical orchidectomy. Intraoperatively, the lesion was noted to be adherent to the scrotal skin.

Pathological findings

Gross examination of the specimen showed an orchidectomy specimen measuring 2x7x9cm; the cut sections show marked thickening of the tunica vaginalis and tunica albuginea (with thickness ranging between 2-2.5cm), encasing the testicular tissue (Figure 1).

Microscopic examination showed markedly thickened tunica with dense fibrous tissue encasing the testicular tissue (Figure 2). The fibrous tissue is composed primarily of fascicles of proliferating spindle cells in a collagenized stroma with focal areas showing perivascular lymphoid aggregation; a few areas show reactive lymphoid follicles (Figure 3,4). The encased testicular tissue shows normal seminiferous tubules containing germ cells with normal maturation and differentiation. There are no features of atypia, and no germ cell or sex cord-stromal tumour was found (Figure 2).

Discussion

The first documentation of fibrous pseudotumors dates back to Balloch in 1904.[9] Though these lesions are relatively rare, they rank as the second most frequently encountered benign paratesticular lesions, following adenomatoid tumours. The exact incidence of fibrous pseudotumors is not well defined; however, they are estimated to represent approximately 6% of all paratesticular lesions and tumours. These pseudotumours typically manifest during the third decade of life, though they can appear at any age.[1-7,10]

Clinically, fibrous pseudotumours are often encountered as painless scrotal masses, which can vary in size from a modest 0.5 cm to an impressive 8.0 cm. There has even been a reported case of a fibrous pseudotumours measuring 25.0 cm.[11] The aetiologies of these lesions have been linked to hydrocele, varicocele, prior trauma, or epididymo-orchitis.[1,12] Some reports have also associated them with cases of testicular

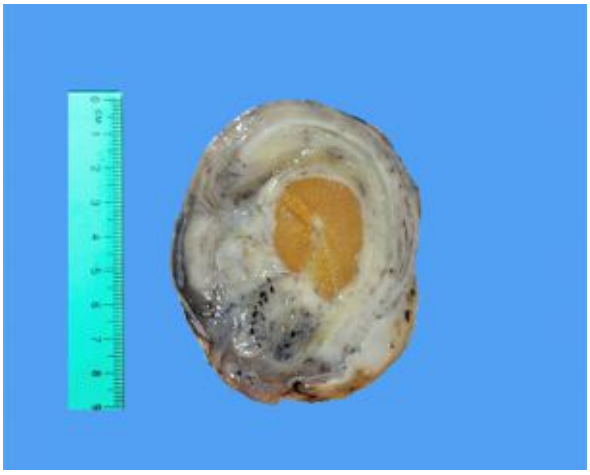

Figure 1: Gross image of the testicular mass showing fusion and marked thickening of the tunicae encasing the testicular tissue

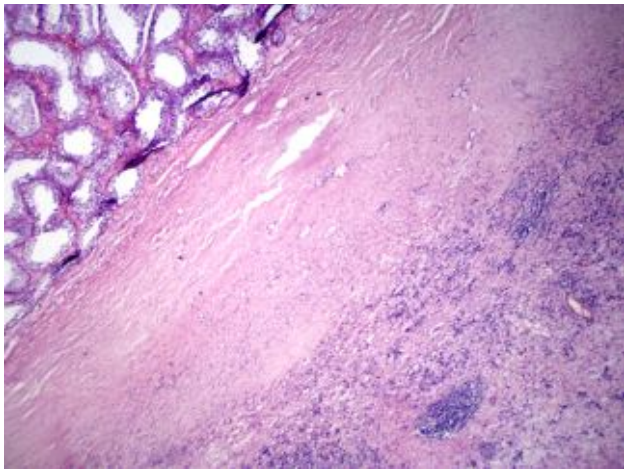

Figure 2: Microscopic sections showing the thickened tunica with focal perivascular lymphoid aggregates encasing normal testicular tissue. H&E x40

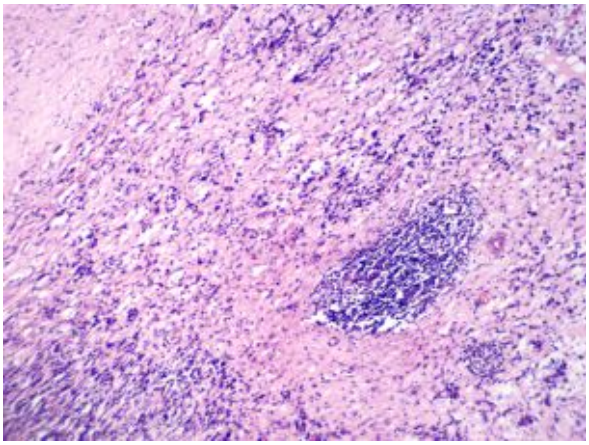

Figure 3: Microscopic section at medium power demonstrating fascicles of fibroblasts, sheets and aggregates of lymphoid cells. H&E x100

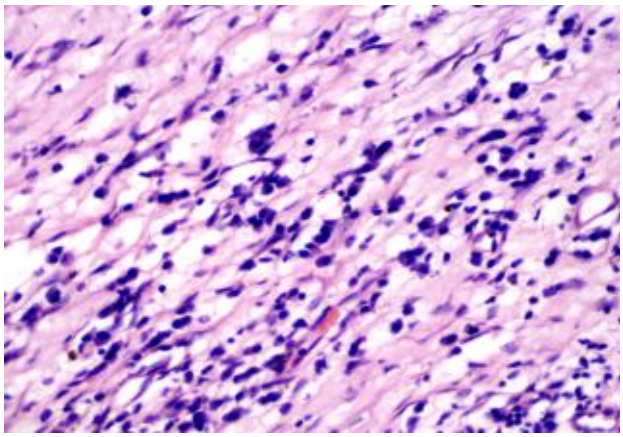

Figure 4: Microscopic section at high power showing predominantly plasma cells in a fibrous background. H&E x400

infarction,[13] and Schistosomiasis.[11] However, this is widely variable and some cases seem to have no direct associations with trauma or infectious agents.

Most patients diagnosed with fibrous pseudotumours undergo orchidectomy due to the challenges of excising the affected tissue while still preserving the testis and the critical need to rule out malignancy.[1,2] Although it is feasible to conserve the testis in select cases, this has never been documented in the diffuse form of fibrous pseudotumours.[1] Utilizing intraoperative frozen section analysis can be advantageous if the clinician and pathologist are aware of this specific entity, possibly preventing the need for radical orchidectomy, particularly in younger patients.[5,6]

Ultrasonography is the initial modality used for radiological evaluation. The sonographic appearance of fibrous pseudotumours of the scrotum is variable and not specific. It may appear has single or several hypoechoic or hyperechoic lesions, hypoechoic mass with an onion ring appearance depending on the level of calcification, hyalinization, and granulation tissue present. Magnetic resonance imaging can provide additional information when ultrasound results are inconclusive. Typically, these lesions appear as low-intensity areas on T1 and T2 weighted images due to the presence of fibrosis.[7,14]

Grossly, fibrous pseudotumours can be seen as diffuse band-like thickening encasing the testis, as seen in our case, or localized single or multiple nodules. The cut surfaces are usually firm, whitish multiple nodules, or as illustrated in our findings, the lesion may be seen as diffuse fibrous proliferation that envelops the testis and infiltrates the tunics. When examined microscopically, fibrous pseudotumours reveal a paucicellular proliferation of fibroblasts and myofibroblasts embedded within a hyalinised collagenous stroma; mixed inflammatory cells infiltrates, calcification, ossification or myxoid changes can be present.[1-13]

Despite their classification as reactive lesions, the underlying mechanisms of fibrous pseudotumours remain elusive. Although they are often associated with hydrocele, trauma, or inflammatory processes, their precise role in inciting fibrous proliferation is still somewhat ambiguous. The prevailing theory suggests that the fibroblast or myofibroblast is the cell of origin for fibrous pseudotumours, a hypothesis supported by immunohistochemical studies.[1,13] Fibrous pseudotumours have been associated with IgG4-related diseases. Reports indicate an elevated presence of IgG4-expressing plasma cells within these lesions.[15] In diagnosing fibrous pseudotumours, it is essential to consider various differential diagnoses, including solitary fibrous tumour, leiomyoma, neurofibroma, fibroma of the tunics, and idiopathic fibromatosis.

In conclusion, fibromatous periorchitis is a rare benign paratesticular lesion that can mimic a malignant testicular tumour clinically and also on imaging. However, accurate preoperative diagnosis is crucial to avoid unnecessary radical orchidectomy. Histological examination is essential for definitive diagnosis, and awareness of this entity is crucial for urologists and pathologists. While the exact aetiology remains unclear, recognizing the characteristic features of fibromatous periorchitis can lead to appropriate management and patient reassurance.

Conflicts of interest

The author(s) declared no potential conflicts of interest

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