African Journal of Urology (2012) **18**, 38–40

African Journal of Urology

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Testicular microlithiasis: Case report and literature review

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Received 12 June 2011; received in revised form 20 December 2011; accepted 22 December 2011

KEYWORDS
Microlithiasis;
Testis

Abstract
We present an interesting case of bilateral microlithiasis. Microlithiasis is usually considered a benign condition with no need for follow-up. However, when a patient with testicular microlithiasis has a positive family history of testicular cancer, such patients should be followed up closely to detect the development of testicular cancer.

Introduction

Testicular microlithiasis is characterized by microcalcifications within the lumina of seminiferous tubules. It is an uncommon finding and often noted incidentally on ultrasound examination of the scrotum. Testicular microlithiasis itself is a benign condition but its association with testicular malignancies makes it interesting. The true incidence of testicular microlithiasis is not known but the prevalence in symptomatic patients in different published series is around 0.6–9% [1,2].

We present a patient with bilateral testicular microlithiasis and review the current literature.

Case report

A white 37-year-old trade unionist noticed a painless lump in his right testicle nearly 12 months ago. At the time of referral he was married with children and had no lower urinary tract symptoms or erectile dysfunction. Over this period the lump did not increase in size. He became quite concerned and decided to have it examined as his brother was recently diagnosed with testicular cancer at the age of 39 for which he had undergone radical orchidectomy. He did have a previous history of bilateral congenital hernias, repaired at the age of 6 months.

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Peer review under responsibility of Pan African Urological Surgeons' Association.

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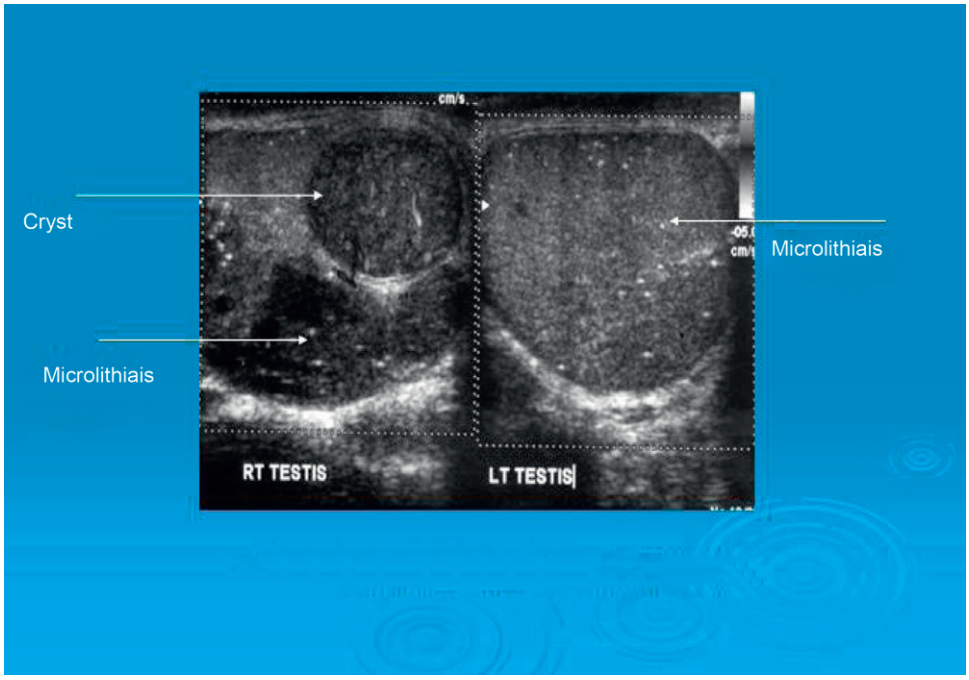

Figure 1 Bilateral microlithiasis with cyst on right side.

Examination revealed a small non-tender swelling on the anterior aspect of the right testicle, the rest of the examination being normal.

Tumour markers were normal, while scrotal ultrasound revealed extensive bilateral microlithiasis with a 4 mm cyst on the right side, probably subcapsular (Fig. 1). The appearance of the cyst was benign with smooth walls and an anechoic appearance. It was decided to enrol the patient on the testicular surveillance programme with regular ultrasonic follow-up.

Discussion

Testicular microlithiasis is a condition of uncertain aetiology, being increasingly reported due to the widespread use of high-frequency testicular ultrasound in diagnosing scrotal abnormalities. There have been reported cases of its possible association with many conditions including testicular neoplasms, cryptorchidism, spermatic cord torsion, infertility and hypogonadism [3,4].

The normal testis has a homogenous echogenicity on ultrasound. Any calcification in the parenchyma is readily depicted. The sonographic appearance of testicular microlithiasis is characteristic and usually constitutes 1–3 mm diffuse, punctate, non-shadowing hyperechoic foci scattered within the testicular parenchyma [5]. Typically both testes have a symmetrical distribution, but an asymmetric distribution with unilateral foci and clumping is also recognized [6]. Quantification of the extent of testicular microlithiasis is possible. If there are more than 5 microliths on a single ultrasound image it is designated as classical testicular microlithiasis (CTM) while fewer than 5 microliths is called limited testicular microlithiasis (LTM) [7].

The microliths detected on ultrasonography are formed within the lumina of the seminiferous tubules. They are thought to arise from atrophic and degenerated cells within the tubules, which eventually calcify. On electron microscopy, the microliths, which measure around 30–90 μm in diameter, have a central calcified zone surrounded by concentrically layered collagen fibres [8]. The presence of concretions in the seminiferous tubules would theoretically predispose to infertility and the reported prevalence of testicular microlithiasis in infertile men ranges from 0.8% to 3.1% [9,10]. It is uncertain whether the prevalence is actually any higher, as none of the studies had a control group to compare their findings.

Recent reports have associated testicular microlithiasis with intratubular germ cell neoplasia and primary testicular malignancy. It is this association that is cause for concern. The prevalence of primary testicular tumours in patients with testicular microlithiasis ranges from 15% to 45%. When the prevalence of testicular tumours in men with or without microlithiasis was compared, the prevalence was statistically significantly higher in the microlithiasis group [2,11].

Five definite cases of primary testicular malignancy arising in patients with documented pre-exiting testicular microlithiasis have been reported [3]. However, the reported series failed to demonstrate whether the risk of future testicular malignancy is greater in patients with testicular microlithiasis than in patients without [1,11].

Many authors recommend regular ultrasound follow-up, tumour marker determination and physical examination [12]. Some authors even advocate CT evaluation of the chest and abdomen [13] and testicular biopsy [14]. Current practice varies widely between different centres, and in our department yearly follow-up ultrasound is currently offered.

Given the financial constraints in developing countries and the reliability with regular follow-up, it seems prudent that patients should be educated about the importance of testicular self-examination and

encouraged to at least have an annual physical examination. This does not suggest in any way that ultrasonography can replace physical examination, but regular self-examination and follow-up may actually result in early detection in some patients. Given the fact that the natural history of testicular microlithiasis is still uncertain and follow-up controversial, the proposed regime for management seems reasonable.

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