Testicular Microlithiasis: Another Starry Sky Appearance

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A 36-year-old man presented with swelling of his right testicle that had been present for 3 weeks. Ultrasound of the left testicle showed diffuse microlithiasis throughout the testicular parenchyma, giving the appearance of a “starry sky.” Histopathology of the left testicle after surgical removal revealed innumerable microcalcifications of the parenchyma, confirming the ultrasound findings (figure 1). The right testicle showed similar ultrasound and histopathologic findings as the left testicle (figure 2). Color Doppler studies showed a marked increase in the vascularity of the testicular parenchyma (figure 3). Thus, the diagnosis of testicular microlithiasis (TM) was made with a high degree of certainty, leading to a review of the literature on this entity.

TM is a relatively rare condition identified in approximately 0.6% of testicular ultrasonograms.^{1,2} TM can be divided into

Figure 1. Left (contralateral) testicle showing “starry sky” appearance due to microlithiasis on ultrasound. Sagittal and transverse sections of patient’s left testis reveal innumerable microcalcifications of the testicular parenchyma.

classic and limited on the basis of the presence of five or more microliths on one or more images of the testes.² Classic TM is present if there is at least one ultrasound image that identifies five or more microliths in either or both testes. Patients who do not meet the criteria for chronic TM, but have at least one microlith are considered to have limited TM.²

Figure 2. Right (ipsilateral/involved) testicles showing microlithiasis and distorted architecture on ultrasound. Sagittal and transverse sections of patient’s right testis reveal innumerable microcalcifications of the testicular parenchyma.

TM has been associated in both benign and malignant conditions such as Klinefelter syndrome,³ male pseudohermaphroditism,⁴ Down syndrome,⁵ subfertility,⁶ infertility,⁷ cryptorchism,⁸ hypogonadism,³ fragile X syndrome,⁹ pseudoxanthoma elasticum,¹⁰ and pulmonary microlithiasis.¹¹ Many of these benign conditions are risk factors for testicular malignancies. There are several reports of an association of TM with testicular cancer, with as many as 30% to 75% of patients with testicular tumors presenting with a concomitant TM.^{2,4,7,8,12-14} The relative risk of testicular tumors in the setting of TM is >20-fold, mandating sonographic surveillance for tumor.¹⁴ Thus, TM is believed by some authors to be a predisposing factor, a possible indirect indicator of premalignant disease or a tumor marker.

Although there is a scarcity of prospective studies on the risk of cancer developing in individuals with asymptomatic TM without other masses, tumor development during follow-up of

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Keywords: Microcalcification; Testicular cancer; Ultrasound; Testicular microlithiasis

Received: March 6, 2007
Accepted: March 23, 2007

doi:10.3121/cmr.2007.760

Figure 3. Markedly increased vascularity of the patient's testicular structures evident upon examination by color Doppler.

TM has been described to have a latency period between 15 months and 11 years.⁴ If no malignancy is identified on initial evaluation, close clinical follow-up with periodic (every 6 to 12 months) scrotal ultrasound examination is probably indicated. In high risk patients or patients with contralateral tumors, tumor markers and biopsy may also be indicated based on clinical suspicion. Thus, microlithiasis are believed to be a predisposing factor, a possible indirect indicator of premalignant disease, or a tumor marker.

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