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Testicular Microlithiasis in Male Infertility

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Abstract. Testicular microlithiasis was found in a 30-year-old infertile man. The literature is reviewed and the possible influence of testicular microlithiasis on male infertility is discussed.

Introduction

Testicular microlithiasis is a rare condition that has been previously found in Klinefelter's syndrome, male pseudohermaphroditism, cryptorchidism or normal scrotal testis [1–3]. Especially literature dealing with testicular microlithiasis in male infertility is very limited [4]. Herein we report a case of testicular microlithiasis in male infertility.

Case Report

A 30-year-old Japanese man was referred to our hospital because of his infertility. He was a well-developed male weighing 69 kg and 174 cm in height. Chest and abdomen were physically normal. The penis, epididymides, spermatic cords and prostate were normal. Both testes were small and soft. The right testis was about 17 ml in volume and the left one was approximately 14 ml with respective orchidometer measurement. Repeated spermatograms revealed the absence of spermatozoa.

Blood analysis and liver function were within normal limits. Serum calcium was 9.0 mg/dl (normal range, 9.0–10.2 mg/dl) and phosphorus 3.4 mg/dl (normal range, 2.2–4.2 mg/dl). Plasma luteinizing hormone was 24 mIU/ml (normal range, 5–30 mIU/ml) and follicle-stimulating hormone was 12 mIU/ml (normal range, 5–22 mIU/ml). Plasma testosterone was 5.9 ng/ml (normal range, 3.0–8.5 ng/ml). Chromosome analysis demonstrated a karyotype of 46,XY.

Bilateral testicular biopsies were performed for the evaluation of spermatogenesis. Thirty percent of the seminiferous tubules contained intraluminal round and ovoid concretions, ranging from 70 to 150 μm in diameter. They were basophilic and showed a concentric lamination (fig. 1). The seminiferous epithelium of the tubules containing calcospherites had partially or totally disappeared. In the latter case the concretions were directly covered by the tunica propria (fig. 2). Most of the tubular diameter of the intact tubules was reduced. In these tubules spermatogenesis was generally arrested at the level of the early spermatid stage and there were no spermatozoa (fig. 3).

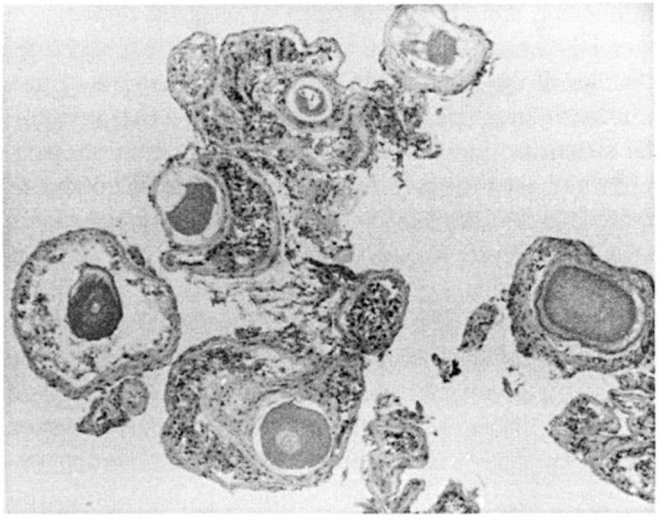

Fig. 1. Some of the seminiferous tubules contain the microlith in the lumen. Maturation arrest in spermatogenesis is observed in the tubules. HE. × 60.

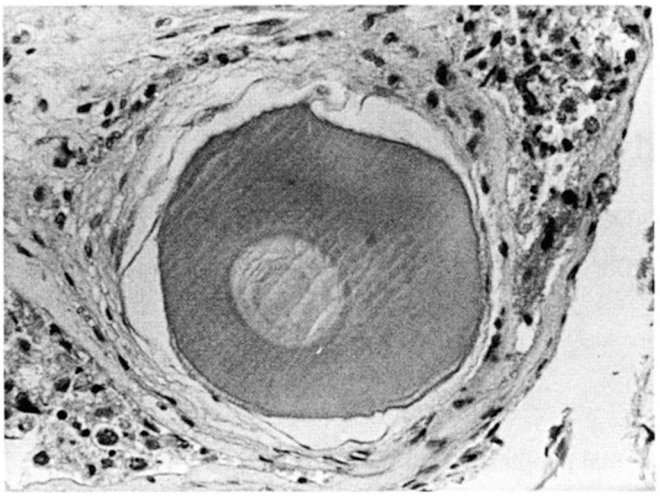

Fig. 2. Disappearance of the seminiferous epithelium. The microlith is directly covered by the tunica propria. HE. × 300.

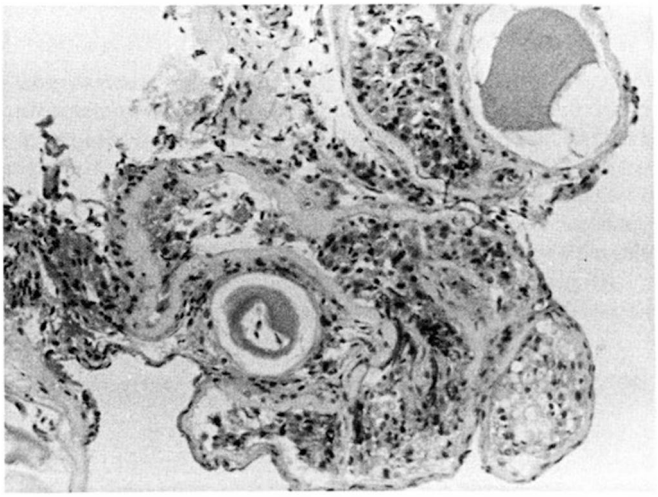

Fig. 3. Seminiferous epithelium shows maturation arrest in spermatogenesis. HE. × 150.

Discussion

Testicular microlithiasis is a rare disease. Nistal et al. [2] reported 1 case among the 2,100 autopsies in boys and 1 case among 618 testicular biopsies performed in children. In our department only 1 case has been observed among the 125 testicular biopsies in patients with male infertility. None of the 48 testes obtained from aged patients with prostatic cancer revealed testicular microlithiasis.

In earlier studies, testicular microlith was considered to be related to ova [5], to colloid bodies [6] or to excessive deposition of glycoprotein [7]. However, a recent study shows that the microlith originates from degenerating intratubular cells and consists of a central calcified core surrounded by concentric layers of connective fibers [8].

The influence of testicular microlithiasis on male infertility is unknown. According to Mullin et al. [9], histological changes of the seminiferous tubules with calcific concretions may contribute to subinfertility. In our case the seminiferous epithelium of the tubules containing microliths had partially or totally disappeared and the microliths were occasionally covered directly with the tunica propria. In the intact tubules, hypospermatogenesis was also observed.

However, histological findings of the seminiferous tubules were milder than those of the tubules with microliths. We speculate that the presence of testicular microliths enhances hypospermatogenesis and the prognosis of infertility is compromised in patients with testicular microlithiasis.

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