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Diagnostic Value of Differential Quantification of Spermatids in Obstructive Azoospermia

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Testicular biopsies from 80 azoospermic young men were revised and the average numbers per cross-sectioned tubule of each germ cell type were calculated and compared with those of control normal testes. In 53 patients, azoospermia had an obstructive cause, and in 22 of those 53 patients more adult spermatids were found by testicular biopsy than young spermatids (over 100% in some testes), in one or both testes. However, in normal testes fewer mature spermatids than young spermatids (23.3%) were found. In the 22 patients, the causes of azoospermia were: vasectomy (7 patients), bilateral agenesis of the vas deferens (3 patients), Young syndrome (3 patients), bilateral cysts in the caput epididymidis (1 patient), bilateral inguinal herniorrhaphy (1 patient), left varicocele (1 patient), and unknown causes (6 patients). Biopsies were bilateral except for 3 cases (a vasectomized patient, a patient with Young syndrome, and a patient with obstruction due to an unknown cause). Hormonal levels were normal in the 22 patients. In addition, testicular biopsies of 3 twisted testes from 3 young adult men showing a number of adult spermatids higher than that of young spermatids were also included in the study. All testicular biopsies—including those of the twisted testes—showed an obstructive histologic pattern, consisting of a mosaic distribution of testicular lesions: mainly tubular ectasis and germ cell sloughing into the adluminal compartment of seminiferous tubules. The increase in the number of adult spermatids was bilateral in 1 of the 6 vasectomized men who underwent bilateral biopsy, and in 7 of the 11 bilaterally biopsied patients with obstructive azoospermia due to other causes. The most probable explanation for the increased number of adult spermatids is stagnation of testicular fluid, caused by sperm excretory duct obstruction. The unilateral increase in the number of adult spermatids in vasectomized men might be related to the occurrence of a spermatic granuloma (a frequent finding in vasectomy) in the proximal end of the sectioned ductus deferens ipsilateral to the testis with nonincreased adult spermatid numbers, and the absence of spermatic granuloma in the ductus deferens ipsilateral to the testis with increased adult spermatid numbers. This granuloma would produce, in addition to spermatozoon destruction, reabsorption of the testicular and epididymal fluids. The higher rate of bilateral increase, in the number of young spermatids observed in the patients with congenital lesions of the ductus deferens or the ductus epididymidis, might be related to the absence of spermatic granulomas in congenital obstructions.

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