Original investigations into the effects of testicular biopsy

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Testicular biopsy appears to enhance sexual function and to influence hormonal output. Stimulation of sexual function seems to be the earliest and most characteristic response to the operation and is probably attributable mainly to nervous stimulation.

—Georgescu et al. 1969

Among urologists, the traditional attitude toward the after-effects of conventional testicular sperm extraction (TESE) has been quite relaxed. I suspect many of us place this procedure and its recovery not far above cystoscopy in terms of its propensity for complications. We are generally less concerned with the effects on spermatogenesis precisely because the procedure is performed for those men with azoospermia. However, in 2019, we find ourselves increasingly considering, and performing, conventional TESE for men who present with sperm in their ejaculate and an abnormal sperm DNA fragmentation index, often after multiple failed cycles of in vitro fertilization. Should we revisit our long-held assumption about the consequences of TESE? What will become of the semen parameters of these men after such a simple procedure?

Looking to historical investigations in this area, we find that Paufler and Foote (1) investigated the effects of three consecutive testicular biopsies on subsequent semen parameters in a rabbit model. They discovered that final histology showed a reduction in the frequency of round spermatids and primary spermatocytes, however ejaculated bulk semen parameters remained unchanged for weeks after the final biopsy. The authors also noted that the total weight of the biopsied and control testes was stable during the study, indicating rapid onset of compensatory growth. They concluded that small testicular biopsies when performed serially at disparate sites likely have minimal effects on future fertility potential—at least in an animal model.

With a similar goal in mind, Georgescu et al. (2) pursued their prior anecdotal experience that TESE with local anesthesia may lead to improved sexual function. This interesting paper, which examined disparate surgical indications from Klinefelter's syndrome and oligospermia all the way to "nervous disorders" and "impotence (erectile or ejaculatory)," examined men over the course of one month after the biopsy. They noted that nearly 80% of their patients experienced nocturnal tumescence, some of whom had never experienced this. Nearly half of the men noted an increase in libido. The authors observed, as expected, an increase in urinary gonadotropins, but no alternation of urinary 17-ketosteroids (which serves as a marker of serum androgens). I admit I do not routinely inquire as to the sexual effects of TESE or administer any standardized questionnaire on that topic—nor do I recall ever being told by a post-surgical patient of such surprisingly positive results. One could certainly imagine that the difficulty of dealing with the aftermath of an unsuccessful microsurgical TESE could have a markedly different impact on sexual activity when compared with a successful surgery.

My clinical intuition will dissuade me from advising men that one of the clinical benefits of TESE, apart from obtaining sperm for in vitro fertilization, may include increased libido and erectile function. However, I am now more satisfied that post-TESE semen parameters may not be significantly worse than before biopsy, at least in animals. However, I still have unaddressed concerns about the specific, but anxiety provoking, scenario of what will become of post-TESE semen parameters in a man with cryptozoospermia.

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