ABSTRACT

Objectives. To compare, in a retrospective study, the ultrasound findings and hormonal changes after testicular sperm extraction (TESE) using the conventional multiple biopsy approach and the more recent microdissection technique. TESE has been performed using the conventional multiple biopsy approach and the more recent microdissection technique.

Methods. A total of 435 men with nonobstructive azoospermia who had undergone 543 TESE attempts were included in the study. The initial 83 attempts were done using the conventional open technique and the remaining 460 attempts were performed by microdissection. The sperm retrieval rates were compared, as were the complication rates as assessed by ultrasound and endocrinologic evaluations between the two groups.

Results. The retrieval rate by the conventional technique was 32% and by microdissection was 57% (P = 0.0002). In patients with hypospermatogenesis, the retrieval rate differed between the two approaches (P = 0.03). Ultrasound findings demonstrated fewer acute and chronic changes in the microdissection group than in the conventional group (P < 0.05). At 3 to 6 months after surgery, the testosterone levels had dropped to 80% of their pre-TESE levels in both groups (P < 0.01). The levels rose back to 85% after 12 months and to 95% after 18 months. The mean follicle-stimulating hormone levels increased from 22 to 30 to 30 IU/L (P = 0.02), and the luteinizing hormone levels increased from 12 to 16 IU/L (P = 0.2).

Conclusions. TESE has effects on testicular function, but the microdissection procedure is relatively safer than the conventional technique and improves the sperm retrieval rate significantly in patients with nonobstructive azoospermia. UROLOGY 65: 1190–1194, 2005. © 2005 Elsevier Inc.

Testicular sperm extraction (TESE) with intracytoplasmic sperm injection has become the first-line treatment for patients with nonobstructive azoospermia (NOA). TESE may be performed using open biopsy or fine needle aspiration techniques. Although the sperm retrieval rate with open biopsy is greater than with needle biopsy, large amounts of testicular tissue are extracted in the open procedure in an effort to find the spermatozoa. This can result in a great deal of testicular damage and inflammation and may even limit patients to one retrieval attempt. In humans, the testicular artery enters the testis posterior beneath the epididymis at the mid-pole, continues inferior to the lower pole, and then courses superiorly along the anterior surface, where it gives rise to branches that supply the parenchyma. Given this anatomic consideration, multiple site testicular biopsy is suspected to increase the risk of testicular damage owing to interruption of branches of the testicular artery and has also been reported to cause damage owing to pressure atrophy from intratesticular swelling and hematoma. As an ultimate goal to reduce the amount of testicular tissue removed and also to improve the sperm recovery, a direct microdissection technique was developed. This technique uses an operating microscope that allows identification of subtunical vessels and helps detect rare foci of spermatogenesis. Although numerous studies have compared conventional versus microdissection TESE, a large comprehensive