

Micro-TESE to improve ART outcomes in severe male factor

Craig Niederberger, USA

Modern assisted reproductive techniques revolutionized the treatment of male reproductive dysfunction. One profound example is azoospermia due to spermatogenic dysfunction. Prior to intracytoplasmic sperm injection, men with this condition were uniformly informed that nothing further could be done and advised to adopt. Use of intracytoplasmic sperm injection, however, demonstrated that non-motile, immature sperm that had not yet traversed the epididymis could still be employed with great success to fertilize ova. The challenge then became to obtain sperm from testes with various pathological conditions that disturbed spermatogenesis.

One first significant innovation in addressing this challenge was to employ the operative microscope in surveying testis tubules. Pearly white tubules with larger diameter are identified and resected and mechanically processed in the laboratory, which often requires painstaking care and time. Sperm so extracted may be cryopreserved with outcomes no different than that freshly obtained with great convenience for the couple and the reproductive medical practice. Most importantly, cryopreservation allows for the knowledge that biological gametes either were or were not obtained, allowing the couple to plan accordingly for donor gametes or other forms of family building.

The diagnostic process when addressing azoospermia has also changed and is significantly simplified. A separate unilocal testis biopsy prior to surgical sperm extraction is no longer recommended, as it can be inaccurate or entrap the few spermatogenic centers present in a highly dysfunctional testis. Instead, use of FSH and testis longitudinal axis as measured by calipers allows for highly accurate diagnosis of azoospermia: if the FSH assay result is 7.6 IU/L or less and the testis long axis is greater than 4.6 cm, the probability of obstruction is 96%; conversely, if the FSH values is greater than 7.6 IU/L and the testis long axis 4.6 cm or less, the probability that azoospermia is due to spermatogenic dysfunction is 89%.

Reproductive medicine has been slow to adapt to medical therapy for the male. Yet, male reproductive endocrinopathy is highly prevalent especially in azoospermia with up to half of men with the condition demonstrating hypoandrogenism. Like the female, reproductive outcomes can be altered with considered endocrine therapies, which this presentation reviews. It is a new era for the approach to azoospermia with microsurgery and targeted medical therapy.