Evaluation of Spermatogenesis in non-obstructive azoospermic patients with histopathological and cytological methods

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Abstract

The ability to use only a few spermatozoa using testicular biopsy and by microinjection technique to achieve fertilization and pregnancy has revolutionized the potentials to treat patients suffering from azoospermia. However, spermatogenesis is defective in men with non-obstructive azoospermia (NOA) resulting in failure to detect spermatozoa. In order to achieve a more sensitive and reliable method for detecting sperm/spermatid in testes of NOA patients, we compared histopathological and cytological methods. Eighty six NOA patients were included in a prospective study. History taking, physical examination and hormonal profile (including FSH) were done initially. Thirty six patients had testis pathology report before enrolling in to our study. The patients underwent multiple bilateral testis biopsies until successful retrieval of sperm/spermatid. Half of each biopsy specimen underwent cytological evaluation (mechanical and enzymatic) and the other half was sent for pathological evaluation (TBX). The male and female mean ages were 37 (25-59) and 32 (23-42) years, respectively. The mean infertility duration was 7 years. The mean volume of right and left testis were 16.4 and 16.2*ml*, respectively. Mean FSH level was 18.1±4.2 *mIU/ml*. In cytology, sperms and spermatids were seen in 65 and 18 patients, respectively and in pathology slides in 51 and 16 patients, respectively. In our study, the relationship between visualizing testicular sperm/spermatid and TESE had sensitivity of 80% and negative predictive value of 15%. Sixty one patients had sufficient number of sperm/spermatid for ICSI and with this treatment fifty seven embryos were transferred and seven clinical pregnancies were observed. In conclusion, in men with non-obstructive azoospermia, TESE is more sensitive and reliable than histopathology evaluation. This means that TESE may help in deciding for treatment of severe male factor infertility, even when histopathologic examination is inconclusive**.**

Keywords: Non-obstructive azoospermia, Open testis biopsy, Testis histopathology, Testicular sperm extraction (TESE), and ICSI.

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