

In the era of micro-dissection sperm retrieval, is a diagnostic testicular biopsy necessary in the management of men with non-obstructive azoospermia?

Introduction

Many clinicians use an isolated testicular biopsy in the investigation of the azoospermic patient without synchronous sperm retrieval. The rationale for this is that a diagnostic biopsy may be predictive of finding sperm in men with non obstructive azoospermia (NOA).

This prospective study assessed the outcome of sperm retrieval using micro-dissection-TESE (m-TESE) and simultaneous diagnostic biopsy to determine if the definitive histology correlated with the outcome of sperm retrieval by m-TESE in men with NOA We also sought to determine if LH/FSH levels and testis size correlated with sperm retrieval (SR) rates.

Method

Between 2005-2009, all patients undergoing m-TESE for azoospermia were assessed with respect to histology and sperm retrieval rates. Patients underwent genetic screening, including karyotyping, Y deletion and hormonal evaluation (FSH, LH,) and measurement of testicular size.

Under general anaesthesia, all patients underwent a midline scrotal incision. Using an operating microscope (x 25 magnification) each testis was bi-valved. Opaque and dilated tubules were dissected and immediately placed in sperm buffer and examined by an embryologist (Figure 1). A sample was also sent for formal histological assessment. Sperm retrieved was either cryo-preserved or used fresh in a cycle of ICSI.

Results

Mean age of patients was 37.2 (range 29-56 years). 30 men had previously undergone previous biopsy procedures at other centres. The SR rates, FSH levels and testicular size for the respective histological groups are shown in Table 1. There were no significant post-operative complications. The overall sperm retrieval rate was 49.4%. There was no correlation between SR, patient age, testicular size or FSH levels ($p>0.05$).

Histological Diagnosis	SCOS	MA	Hypospermatogenesis
n	51	15	23
Mean age \pm SEM	36.9 \pm 0.97	37.78 \pm 1.79	37.82 \pm 1.54
Sperm retrieval rate (%)	21/51 41.2%	4/15 26.7%	19/23 82.6%
FSH (Mean \pm SEM)	21.02 \pm 1.59	16.18 \pm 0.84	14.90 \pm 1.35
Testicular size (cm)	2.81	3.16	3.13

Table 1. Sperm retrieval rates

Series	n	Overall SR (%)	SCOS SR (%)	MA SR (%)	Hypospermatogenesis SR (%)
Current	89	49.4	41.2	26.7	82.6
Okada 2002	74	44.6	33.9	75	100
Colpi 2009	28	48.3	27.5	85.7	100
Ramasamy 2005	460	57%	41	44	81

Table 2. Sperm retrieval rates using m-TESE for different histopathological diagnoses

Conclusion

The isolated diagnostic testicular biopsy is not necessary in men undergoing micro-dissection sperm SR in NOA. In a large percentage of patients sperm will be retrieved at the time of mTESE SR, where histology would have suggested a poor outcome.

References

- Okada, H., et al, 2002. Conventional versus microdissection testicular sperm extraction for nonobstructive azoospermia: J.Urol., v. 168, no. 3, p. 1063-1067.
- Colpi, G. M., et al 2009, Microsurgical TESE versus conventional TESE for ICSI in non-obstructive azoospermia: a randomized controlled study: Reprod.Biomed.Online., v. 18, no. 3, p. 315-319.
- Ramasamy, R., N. Yagan, and P. N. Schlegel, 2005. Structural and functional changes to the testis after conventional versus microdissection testicular sperm extraction: Urology, v. 65, no. 6, p. 1190-1194.