

A COMPARISON OF SPERM RETRIEVAL TECHNIQUES FOR FROZEN-THAWED SPERMATOZOA FOR USE IN INTRACYTOPLASMIC SPERM INJECTION (ICSI)

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background

- PESA (percutaneous epididymal sperm aspiration)
 - less invasive approach of sperm retrieval for non-reconstructable obstruction or CBAVD
- Requires only local anesthetic, no microsurgical skills and quicker convalescence

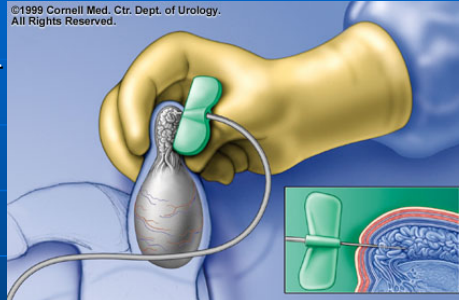
PESA

First Described in 1994

Local Anesthesia

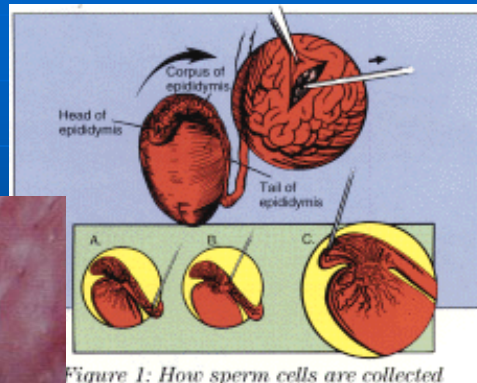
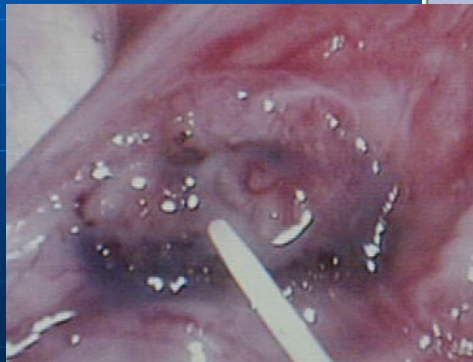
25 gauge needle to
1-3 cc syringe

Needle advanced into
epididymis, suction applied and
sperm retrieved



MESA

Micro-epididymal
Sperm Aspiration





background

- fresh sperm = frozen sperm*
(MESA) (MESA)
- fresh sperm = frozen sperm **
(PESA) (MESA)

...Equivalent pregnancy rates

*Tournaye et al '99

**Chow et al '03

Cryopreservation of sperm

- ...attractive idea
- Circumvents problem of coordinating sperm and oocyte retrieval

Cryopreservation of sperm retrieved by PESA???

??frozen sperm = ?frozen sperm
(PESA) (MESA)

?? Equivalent pregnancy rates??

Purpose

- Comparison of: PESA, MESA and TESE (testicular sperm extraction)
 - semen parameters
 - fertility and pregnancy rates of ICSI with cryopreserved spermatozoa

methods

- retrospective chart review
- 45 consecutive patients undergoing sperm retrieval for obstructive azospermia b/t jan 2001 to Dec 2003
- Patients underwent either MESA, PESA or TESE for sperm retrieval.
- TESE was performed if MESA or PESA failed to provide an adequate sperm sample.

results

	Male	Female
Mean age (yrs)	41.8	34.6

	MESA	PESA	TESE
n=	16	15	14

- All obstructive azospermia:
 - 86.8% previous vasectomy
 - 13.2% CBAVD
- MESA to TESE: 6
- PESA to TESE: 4

Results: semen parameters

- Progressive motility
- Sperm concentration
- Total motile count**
- Total sperm count
- Percent cryosurvival

MESA yielded significantly better parameters compared to PESA or TESE

Total motile count $\times 10^6$

	MESA	PESA	TESE
avg	19.1	1.4	0.1
SD	39.7	2.2	0.4

	p-value
MESA to PESA	0.05
MESA to TESE	0.04

2-pronuclear fertility rate (%)

	MESA	PESA	TESE
avg	78.1	82.3	53.8
SD	15.5	16.5	22.6

	p-value
MESA to PESA	0.23
MESA to TESE	0.00

Biochemical Pregnancy Rate (%)

	MESA	PESA	TESE
avg	56.3	73.3	50.0
SD	51.2	45.8	51.9

	p-value
MESA to PESA	0.17
MESA to TESE	0.37

Delivery/ongoing pregnancy rate (%)

	MESA	PESA	TESE
avg	67	73	60
SD	50	47	55

	p-value
MESA to PESA	0.39
MESA to TESE	0.42

conclusions

- Sperm retrieval with MESA resulted in significantly better semen parameters when compared to PESA or TESE
 - Not clinically significant

conclusion

- fertility rates similar when comparing MESA and PESA
 - inferior with TESE.
- biochemical pregnancy and delivery/ongoing pregnancy rates are similar for MESA, PESA and TESE

conclusion

- Cryopreservation of sperm retrieved by PESA or TESE for use in ICSI represents a more cost-effective and better tolerated method of sperm retrieval while maintaining a similar outcome when compared to MESA.

end

methods

- A two sample t-test was applied to the rates across the pairs of categories.
- Criteria for a statistically significant difference was a one sided p-value ≤ 0.05

Sperm concentration x 10⁶ mL

	MESA	PESA	TESE
avg	22.6	5.5	2.5
SD	36.4	5.6	6.6

	One sided p-value
MESA to PESA	0.04
MESA to TESE	0.03
PESA to TESE	0.12

Cryopreservation of sperm retrieved by PESA!!!

frozen sperm = frozen sperm
(PESA) (MESA)

...Equivalent pregnancy rates!!

Methods: data collection

- Semen parameters
 - two-pronuclear fertilization rates
 - biochemical pregnancy rates
 - delivery/ongoing pregnancy rates.