ICSI FROM FRESH TESE IN ABSOLUTE ASTHENZOOSPERMIA: AN OPTION OR SOLUTION?

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Total absence of sperm motility

Sperm motility is acquired during epididymal transport

Among the basic seminal parameters the only one that has a strong negative influence on the outcome of ICSI is the absence of motility

- Nagy et al, 1995

The two main causes of absolute asthenozoospermia are

- Ultrastructural defects of the flagellum (genetic or congenital)

- Necrozoospermia secondary to genital infections, oxidative stress, cryopreservation, antisperm antibodies, metabolic disorders affecting the ATP production, exposure to enviromental pollutants, delayed epididymal transport or very long periods of sexual abstinence ...

Ortega et al, 2011
CASE REPORT

Male  39 ys

• At age 29 left varicocelectomy
• Semen analyses:
  1.  V 3.5 ml N° 0.2 mil/ml Mot 0% Morf 11%
  2.  V 2.2 ml N° very few sperm Mot 0%
  3.  V 2 ml N° 0.6 mil/ml Mot 0% Morf 20%
  4.  V 2 ml N° 0.9 mil/ml Mot 0% Morf 12%
  5.  V 3.8 ml N° 4.4 mil/ml Mot 0% Morf 3% Eosin-negroin test 3%
• FSH 7.5 mU/ml, LH 10.5 mU/ml, Prolactin 11 ng/ml, Testosterone 6 ng/ml
• Karyotipe 46,XY; Y Microdeletions: not found
• Microbiology: negative
• Testes: (8 ml both) correctly located within the scrotum, had a normal ultrasound structure and no varicocele recurrence at color Doppler evaluation

Female  38 ys

• At age 11 appendectomy
• Menarche a 13 ys
• No Oral Contraception nor IUD
• Regular cycles (24 days, lasting 6 days, heavy menstrual flow, no dysmenorrhea); no spotting
• At age 30 operative hysteroscopy for septate uterus
• US: posterior subserous myoma (6 x 8 mm); right ovary 32 x 17 mm regular, left ovary 24 x 18 mm regular.
Spermatologic analysis with Transmission Electron Microscopy (TEM)

“from microscopic examination we find that the totality of sperm presents structural defects characteristic of the three main sperm pathologies. In fact we observe: apoptosis (chromatin margination), immaturity (acrosom defects, spherical-elliptical nuclei with no chromatin condensation, cytoplasmic residues) and expecially necrosis (acrosome reacted or absent, irregular nuclei with chromatin disintegration, fragmented plasma membranes). The axonemes often altered and wrapped, accessory axonemal structures dislocated or absent, malformed and disassembled mitochondria are all defects within the tail that affect motility.

The seminal picture of the patient is severely compromised.
THE COUPLE HAD ALREADY EXPERIENCED ONE ICSI WITH LACK OF FERTILIZATION (OUT OF 4 OOCYTES INJECTED)

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ICSI

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Semen analysis: N° 0,325 mil/ml. Motility absent (100% inmotile sperm)

Suppression: Dec 0,1 → 0,5
Stimulation: GF 375
Pick-up: 4 follicles > 16 mm
Outcome: 4 oocytes MII → fertilized= 0

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On the basis of TEM findings, the couple had been advised against further attempts at three other IVF centers.
• Informed consent was obtained by the couple and an ICSI attempt with contextual sperm retrieval from the testis (fresh TESE) was carried out
ICSI from fresh TESE

Suppression: Suprefact 0.4
Stimulation: Gonal F 450 UI for 7 days than Gonal F 300 + Menogon 300
Induction: 11th (Gonasi)

Pick-up: in 13th: 3 oocytes
→ 3 injected from fresh TESE (very few motile sperm)

N° fertilized oocytes: 1
N° cleaved oocytes: 1
N° transferred embryos: 1

14th post ET: BHCG 195
33rd post ET: viable singleton pregnancy (FHB +)

Full term pregnancy: delivery of a healthy baby male
CONCLUSIONS

In case of absolute asthenozoospermia the results of the traditional ICSI are very poor also for the difficulty of distinguishing "in vivo" non-viable immotile sperm from those vital potentially microinjectable.

- Nagy et al, 1995

Since sperm viability is a prerequisite for fertilization, several techniques have been proposed to select immotile but viable sperm, but these are of unproven efficacy (HOS test) or are very expensive as Laser-Assisted Selection (LAISS) and microscopy birefringence.

- Gerber et al, 2008

The use of motile sperm retrieved by TESE was effective and after informed consent of the couple may be a viable option, confirming data reported in literature where in the largest series of 47 cycles, was obtained a Fertilization Rate of 66% with a Pregnancy Rate of 38.3%.

- (Kovacich et al, 2006).