TESE: Testis Sperm Extraction

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When is Microsurgical TESE indicated?

- Cases of Non-obstructive Azoospermia (NOA)
  - Sperm production is extremely deficient or absent altogether
    - Genetic reasons we can identify at present
    - Genetic reasons we cannot identify at present
    - Prior history of chemotherapy or radiation therapy
    - Present testicular or other type of cancer
    - Prior mumps orchitis (inflammation of the testicles)
    - Prior undescended testicles

- Cases of ejaculatory failure not able to be treated otherwise
  - Spinal cord injury refractory to vibratory stimulation and EEJ
  - Prior pelvic surgery refractory to EEJ
Why is the microscope important during TESE?

- The microsurgical approach is extremely important in:
  - Cases of Klinefelter Syndrome
  - Cases where sperm production is only in tiny areas of the testis
    - Occasionally after chemotherapy
    - Often after past inflammatory problems of the testis

- The better question is: how can it hurt to have the operating microscope present for a TESE?
  - Answer: it cannot hurt, but it can only help

- All of my cases are done with the operating microscope
  - “Microsurgical TESE”
  - A targeted approach
For those interested

- The process of sperm production is complex
- The next page shows all of the cell types involved
  - The earliest cell is the spermatogonium
  - The last cell is the spermatozoan (sperm)

- The picture is that of a normal testis biopsy

- When we do TESE, we really only look for sperm
  - heads, midpieces, tails
Spermatogenesis: Cell Types

Spermatogonia --> Spermatocytes --> Spermatids --> Spermatozoa
Frozen or Fresh: What does that mean?

- Testis tissue can be harvested for a Frozen-Thawed Approach
  - At a time not associated with an in-vitro (ICSI) cycle
    - on a scheduled Friday (my surgical day during the week)
    - the tissue is taken to the IVF group you are working with
    - the final processing is performed and if there are sperm
      - the tissue is frozen into multiple vials
    - I call you back that afternoon with the results: good or bad
  - This approach allows you to find out if there is sperm to use
    - if there is sperm, great news and the frozen is used for ICSI later
    - if there is no sperm, at least an ICSI cycle did not have to be done
  - Eliminates the coordination and timing involved in a Fresh cycle
In research that I led, we showed this a number of years ago and it is now the preferred approach.
Frozen or Fresh: What does that mean?

- Testis tissue can be harvested for a Fresh Approach
  - At a time coordinated with an in-vitro (ICSI) cycle
    - I do these “ coordinations” 5-6 times per year
    - A particular week is chosen based on my schedule
      - I cannot be out of town at a meeting
      - I cannot have scheduled talks / presentations at various places
      - my office and OR schedules are arranged so as to always have time
      - I have to be available to perform the tissue harvesting when it is best
    - Oocyte harvesting is targeted for the Wednesday of the week
      - but it could be any other day from Sunday through Saturday
      - TESE is performed, typically, the afternoon before egg harvesting
      - All of us have to be flexible that week
        » The best day to harvest eggs is the determinant of when TESE is done
Fresh : When do we do this instead of frozen?

- Klinefelter Syndrome
  - when sperm are found, usually very tiny numbers
  - usually cannot repeat
    - Might be able to but want to maximize the use of the sperm found
- Single, small testicle
- If the female partner needs in-vitro for her own issues
  - blocked fallopian tubes
  - adhesions in the pelvis
- If frozen results were not optimal from previous attempts
Many reasons to choose either fresh or frozen depending upon:

Male particulars

Couple particulars
Does TESE actually work – can sperm be found

- Approximately
  - 50% of all NOA men will have sperm found
  - 60% of Klinefelter men will have sperm found
  - 70% of AZFc microdeletion men will have sperm found

- When sperm are found
  - They must be used with ICSI, and when they are:
    - Fertilization is adequate
    - Embryo development is adequate
    - Pregnancy rates are adequate
    - Babies are born
Summary

● TESE is an avenue of therapy for many men with NOA
  – I believe in a very precise, microsurgical approach
  – The frozen approach is great for most couples
    o Makes things so much easier by separating male and female treatments
  – The fresh approach is most appropriate for other couples
    o e.g. Klinefelter syndrome, fallopian tube blockage, etc

● Every couple deserves a tailored approach
  – We want to maximize the chances of a healthy birth

● I would be happy to help you in this regard – give a call
  o See “Contact” page