



Sperm Extraction and Aspiration

Advances in Assisted Reproductive Technique, namely IVF with sperm injection (IVF/ICSI), now allow pregnancy to occur with very few sperm.

Several groups of men may require IVF/ICSI to father children. These are some of the groups:

1. Men with reduced sperm production with extremely low (severe oligospermia) or no sperm in the semen (nonobstructive azoospermia, NOA).
2. Men with normal sperm production but obstruction or absence of the vas (obstructive azoospermia, OA) prevent sperm from reaching the ejaculate. This includes men who had vasectomy or had failed vasectomy reversal.

In men with severely reduced sperm count, the sperm obtained from the ejaculate may not be suitable for IUI (intrauterine insemination), since they tend to be low in number.

For nonobstructive azoospermia:

Testicular sperm extraction, TESE, non-microscopic

In the NOA group, patchy area of sperm production may be present. Sperm may be obtained directly from the testis, and sperm, if present, can then be used in the laboratory for IVF/ICSI. In the TESE procedure, a small incision is made on the scrotum and several small pieces of testicular tissue are submitted to the lab for extraction.

Micro-TESE

In a more refined approach, an operating microscope is used to magnify tissue prior to tubule removal. Sperm-containing tubules have a different appearance when examined under high magnification; this difference allows for selection of only sperm-containing tubules and avoids unnecessary removal of testicular tissue. This procedure is done in men with nonobstructive azoospermia.

Please note that micro-TESE is not a testis biopsy. It is labor intensive and expensive. Operative time varies but typically is 1½ to 2 hours, as one must painstakingly examine the testicular content prior to excision. Inability to retrieve sperm with micro-TESE is the effective end of retrieval attempts. The approximate cost for this procedure is \$2,300.

In men with obstructive azoospermia, more options are possible:

1. Percutaneous Epididymal Sperm Aspiration or **PESA**
2. Testicular Sperm Aspiration or **TESA**
3. Testicular Sperm Extraction or **TESE**
4. Microscopic Epididymal Sperm Aspiration or **MESA**

PESA and TESA are similar procedures. A small needle is placed in the testis, suction is applied and a small number of sperm are obtained. It is easily performed in the office under IV sedation and is an inexpensive collection method. Only a small number of sperm are obtained to be immediately used in IVF but not enough for cryopreservation.

TESE is identical to the procedure outlined for men with NOA, except that more sperm are easily obtained for either immediate use or cryopreservation. The approximate cost of TESE is \$1,600.

MESA is similar to micro-TESE in that it is an operating room procedure. The engorged epididymis is examined under an operating microscope and the fluid laden with sperm is then collected for either immediate use or cryopreservation. MESA is expensive and, given the ease of performing aspiration in men with a comparable pregnancy rate, it is rarely used in practice.

The advantages of **PESA** and **TESA** are their ease to perform, but the disadvantage is the small number of sperm obtained.

On the other hand, the advantage of **TESE** and **MESA** is the large number of sperm retrieved for cryopreservation, which obviates the need for a future retrieval procedure. The disadvantage is that of these procedures are more involved and their cost higher.

We almost exclusively perform TESE or TESA. Although these sperm are quite capable of fertilization and achieving normal pregnancy, they do not have the ability to penetrate eggs on their own, and IVF/ICSI is necessary to initiate fertilization.

Please feel free to contact us if you have any questions regarding these procedures.