

Specialists In Reproductive Medicine & Surgery, P.A.

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Excellence, Experience & Ethics

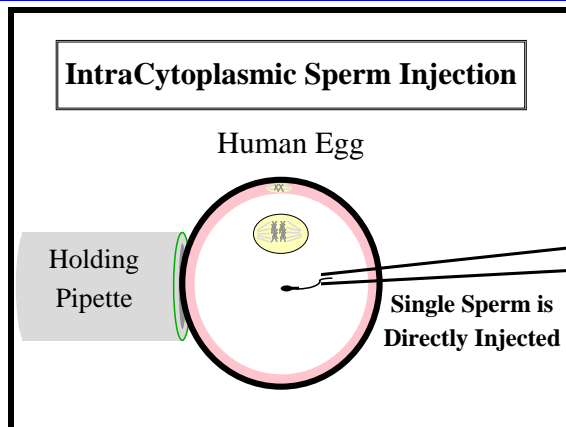


MESA-TESE-ICSI Procedures *Patient Information*

General Information:

Male-factor infertility is a problem that affects 60% of all infertile couples. Numerous alternatives for treatment exist including medical and surgical therapy. A common therapeutic procedure involves a process where the semen sample is collected, purified, concentrated, and directly inseminated into the partner's uterus or Fallopian tubes. Unfortunately, many couples have to go beyond these basic procedures to achieve a conception.

Intra-Cytoplasmic Sperm Injection (ICSI):



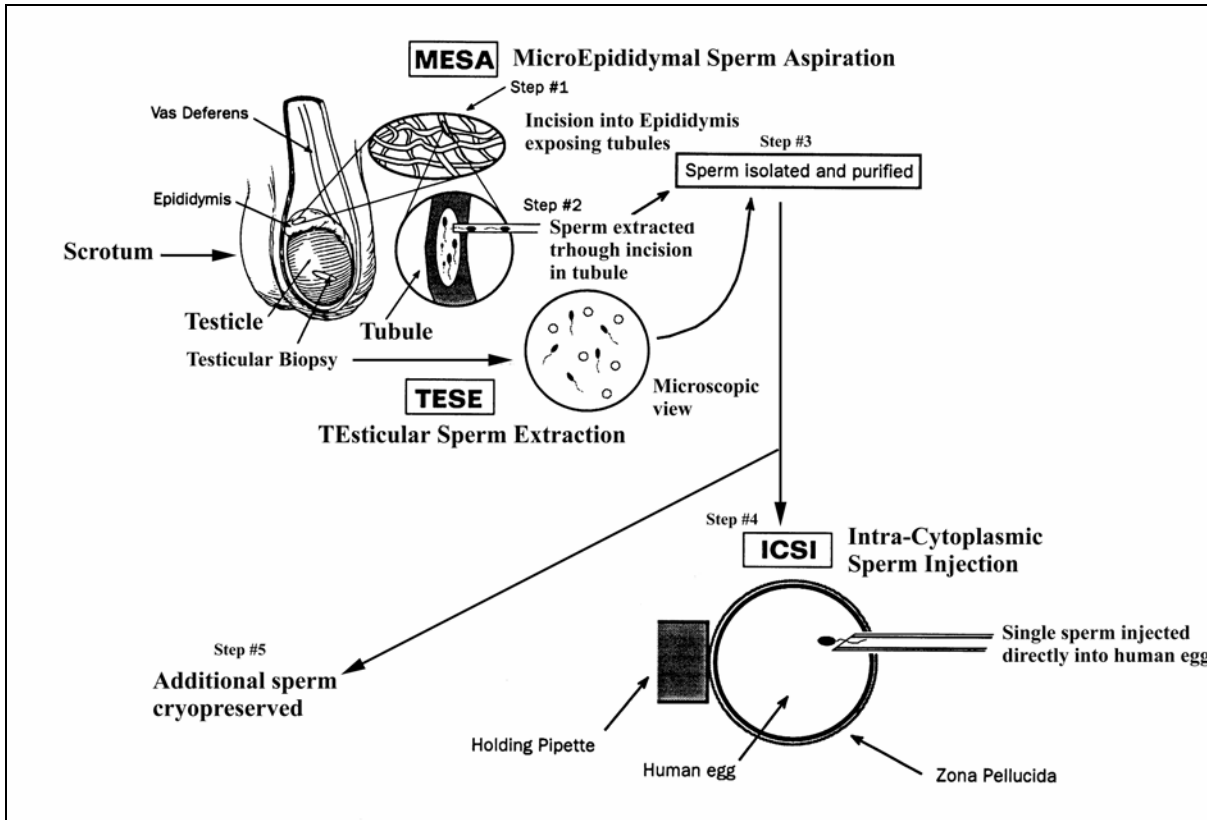
Frequently, men have such significant sperm problems that basic insemination procedures will not lead to success. If only a few live sperm are present in the ejaculate, the **Intra-Cytoplasmic Sperm Injection (ICSI)** procedure may work best. In this procedure, the woman's eggs are retrieved and held gently in place while a single sperm, collected from the ejaculate, is directly injected into the egg.

Micro-Epididymal Sperm Aspiration (MESA) and Testicular Sperm Extraction (TESE):

Many men without sperm in the ejaculate will have sperm available in the testicles or stored in a nearby collecting structure called the epididymis. These men can have the sperm aspirated or extracted during a minor surgical procedure. These extracted sperm can then be used during an **In Vitro Fertilization (IVF)** procedure and/or frozen for later use. The procedure called **Micro-Epididymal Sperm Aspiration (MESA)** is performed when sperm are aspirated from the collecting structure next to the testicle called the epididymis. When sperm are removed from the testicle itself, the surgical procedure is called **TESticular Sperm Extraction (TESE)**.

MESA-TESE-ICSI Summary:

An important point is that the sperm that are removed via the MESA/TESE procedures cannot be placed directly into the uterus or Fallopian tubes but must be directly injected into a human egg. The aspirated/extracted sperm are quite immature and will simply not fertilize normally. More advanced technologies are necessary to achieve fertilization (see graphic below).



Vas Reversal Statistics:

To prevent fertility in the male, a procedure called vasectomy is often performed. Some men will later choose to have their vasectomy reversed. The actual success rates of the reversal procedure are dependent upon the skill of the surgeon and the length of time that the vasectomy has been in place. Vas *patency rates* simply indicate the percentage of men that have sperm present in their ejaculate. The actual “bottom line” pregnancy rates should be sought. The vas patency and pregnancy rates following a vas reversal procedure are estimated below:

Years since the Vasectomy was performed	<u>Patency Rates</u> (percentage of men with sperm in their ejaculate)	<u>Pregnancy Rates</u> (percentage over a 1-2 year duration)
< 5 years	90%	50%
5-10 years	80%	40%
10-15 years	70%	30%
> 15 years	60%	20%

Sperm can also be removed and frozen in liquid nitrogen (cryopreserved) at the time of a vas reversal. Should the reversal later fail, the cryopreserved sperm can then be used in a future IVF/ICSI procedure

without the need of another extraction/aspiration surgery. Yet another option involves the extraction/aspiration of sperm without reversing the vasectomy thereby leaving contraception intact.

Please ask your Urologist what your personal success rates should be. Variations of a vas reversal exist that may improve the above listed success rates and should be discussed in detail with the urologist.

Will the child conceived through these “high-tech” procedures be normal?

For those men with a vasectomy, the offspring are no more abnormal than their genetic parents. The processes of MESA/TESE/ICSI themselves do not seem to increase the genetics risks for this particular group of men.

For those with severe male-factor, the answer is less clear. Some causes of male infertility may be genetic and contained within the male’s chromosomes. If the problems are genetic, the genes can be passed on to the future offspring. The incidence of chromosomal abnormalities in patients with male-factor infertility, that are potential candidates for ART, ranges from 5-15%. Some of these have been described as micro-deletions of DNA on the Y chromosome (AZF region of Y). A resulting male offspring may have the same conception problems as their father had while female offspring may carry the genetic defect and eventually pass this on to future generations.

Genetic Abnormalities Found in Successful Pregnancies from MESA/TESE/ICSI Due to Severe Male-Factor Infertility:

Study	Chromosomal Findings	Comments
Tournaye H, et al., <i>Reprod Fertil Dev.</i> 1995;7:269-79.	6/491 gestations abnormal (2) 47,XXY (2) 47,XXX (1) 47,XYY (1) 46,XX/47,XXY	Offer genetic amniocentesis to “at risk” couples.
In’t Veld, P. et al., <i>Lancet</i> 1995;346:773.	5/12 gestations abnormal (2) 47,XXY (2) 45,X (1) 45,X/46,XY	Paternal karyotypes normal.
Bonduelle M, et al., <i>Hum Reprod</i> 1995;10:3327-31.	0/130 gestations abnormal	Continue collecting data.
Van Steirteghem A, et al., <i>AFS Abstr.</i> V-170, 1994.	1/691 gestations abnormal	Parents may be karyotyped but of uncertain significance.

In the above summary, 0.9% (12/1324) of the offspring had minor genetic abnormalities compared with approximately 0.2% when natural intercourse occurred. The consequences of these infrequent genetic problems vary but generally involve fertility, and slight behavioral or developmental problems. None of these genetic problems are considered life threatening. In all, it is thought that the genetic outcomes will probably be no worse than those that the father is currently experiencing.

Men with congenital absence of the vas deferens are a more complex case. They may carry an abnormal gene that contributes to the disease of cystic fibrosis. When this abnormal gene is combined with another abnormal gene from the wife, a child affected with cystic fibrosis can result. Your physician will be able to test for these particular genetic problems using a simple blood test prior to a conception and will provide you with detailed genetic counseling regarding the transmission of this

MESE-TESA-ICSI Procedures Patient Information (*cont.*)

genetic disease. The concern for cystic fibrosis is ***only*** present in men with congenital absence of the vas deferens.

The understanding of genetics in male-factor infertility is still growing and any information provided in this material is preliminary. If ICSI is to be used and there is concern, paternal chromosome analysis is available and a genetic amniocentesis offered once conception occurs.

How do I know what my best options are?

This written information was designed to explain some of the basic MESA/TESE/ICSI procedures. Consultation with a qualified reproductive specialist will be well suited to discuss the assortment of your medical and surgical options. A skilled urology consult will be absolutely necessary if surgery is decided upon. You may contact the office of [Specialists In Reproductive Medicine & Surgery, P.A.](#), for additional information.

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