

# Treatment Outcomes of Infertile Couples undergoing Microsurgical Techniques of Sperm Recovery

H Chin, MS Hendricks, SF Loh

## ABSTRACT

*Introduction :* Microsurgical interventions of sperm recovery are well known to provide hope for infertile couples with androgynous infertility to have children of their own. The aim of the study is to examine the treatment outcomes of such patients undergoing microscopic epididymal sperm aspiration (MESA), testicular sperm aspiration (TESA) or testicular sperm extraction (TESE) with in vitro fertilization (IVF) and intracytoplasmic spermatozoid injection (ICSI).

*Method :* A retrospective review of patients who underwent MESA, TESA or TESE and ICSI from August 1997 to February 2009 in KK Women's and Children's Hospital of Singapore was performed. Data was collected and analysed using Microsoft Excel spreadsheet.

*Result :* A total of 54 couples underwent 126 IVF/ICSI cycles. Among whom, 33, 11 and 10 men underwent MESA, TESA and TESE respectively. 32 infertile men were secondary to obstructive cause, 16 with testicular cause while 6 men were due to ejaculatory disorders. The pregnancy rate is 26.2% and the live birth rate is 26.2%. 4 pregnancies are currently underway. The average number of embryo transfer is 2.5 per cycle.

*Conclusion :* Our study further supports the use of microsurgical techniques of sperm extraction or aspiration in conjunction with ICSI for infertile couples with male factor infertility.

**Keywords:** MESA, TESA, TESE, ICSI, Outcome

H Chin  
Registrar  
MBBS, MRCOG (UK)  
Department of Obstetrics and Gynaecology  
KK Women's and Children's Hospital  
100 Bukit Timah Road  
Singapore 229899

M.S. Hendricks  
MBBS, MRCOG (UK)  
Associate Consultant  
Department of Reproductive Medicine  
KK Women's and Children's Hospital  
100 Bukit Timah Road  
Singapore 229899

Seong Feei Loh  
MBBS, MRCOG (UK)  
Head and Senior Consultant  
Department of Reproductive Medicine  
KK Women's and Children's Hospital  
100 Bukit Timah Road  
Singapore 229899

Corresponding author  
H Chin  
+65 81211642  
crystal.yori@gmail.com  
Department of Obstetrics and Gynaecology  
KK Women's and Children's Hospital  
100 Bukit Timah Road  
Singapore 229899

## INTRODUCTION

Microsurgical interventions of sperm recovery are well known to provide hope for infertile couples with androgynous infertility to have children of their own. The aim of the study is to examine the treatment outcomes of such patients undergoing microscopic epididymal sperm aspiration (MESA), testicular sperm aspiration (TESA) or testicular sperm extraction (TESE) with in vitro fertilization (IVF) and intracytoplasmic spermatozoid injection (ICSI) at our centre.

## METHOD

All infertile couples who underwent MESA, TESA or TESE and ICSI from August 1997 to February 2009 at KK Women's and Children's Hospital of Singapore were identified. Case notes were traced and reviewed. Data was collected and analysed using Microsoft Excel spreadsheet.

## RESULT

A total of 54 couples underwent 126 IVF/ICSI cycles. Among whom, 53 men were diagnosed azoospermic and 1 had severe oligozoospermia via at least two sperm analysis that were done at least 3 months apart. 33, 11 and 10 men underwent MESA, TESA and TESE respectively. 32 infertile men were found to have obstructive cause, 16 with testicular cause while 6 men were due to ejaculatory disorders.

The pregnancy rate is 26.2% and the live birth rate is 26.2%. There were 8 pairs of twins and 1 triplet. 4 singleton pregnancies are currently underway. The average number of embryos transfer is 2.5 per cycle with a trend towards 2 embryos per transfer in recent years.

## DISCUSSION

Assisted reproductive technology using microsurgical techniques of sperm removal in conjunction with IVF and ICSI provides an effective alternative for infertile couples with male factor infertility to have their own offspring.<sup>1-4</sup> 26.2% for both pregnancy rate and live birth rate with an average embryo transfer of 2.5 per cycle is definitely encouraging.

Depending on the causes of male infertility, sperm recovery is associated with higher success rate in those with obstructive cause and ejaculatory disorders compared to testicular cause.<sup>5,6</sup>

Obstruction can be due to congenital, inflammatory or iatrogenic. Desire for fertility following vasectomy is common and present in 7 males here (22% among obstructive cause). Congenital absence of the vas presents in 10 per cent of azoospermic men. In our series, it occurs in 16.9 per cent azoospermic males. Bilateral congenital absence of the vas is seen in carriers of genes for cystic fibrosis.

Testicular disease is caused by different aetiologies with more than 50 per cent being idiopathic. Other causes include testicular maldescent, particularly if orchidopexy delayed until after first year of life, testicular infection, trauma, neoplasm, torsion, chromosomal anomalies, varicocele, drugs and unfavourable environmental factors like heat, chemicals etc. The clinical significance of varicocele in male infertility is always controversial. It occurs in 5 to 20% of the general population and 10 to 40% of the infertile population. Varicocele presented in 6 men (11.1%) in our study.

Cytogenetic examination is ten times more informative in patients undergoing microsurgical sperm removal or ICSI than the general population.<sup>7</sup> About fifteen percent of azoospermic men and four percent of oligozoospermic men have an abnormal chromosomal karyotype, commonest of which is Klinefelter syndrome. Hence azoospermic and severely oligozoospermic men should have chromosomal karyotyping before ICSI so as to lessen the risk of transmission of a chromosomal disorder. It also aids to find out the possible carrier status of cystic fibrosis as mentioned above.

Retrograde ejaculation may follow neurological disorders, diabetes, or bladder neck or prostate surgery. Failure of ejaculation can be due to neurological disorders, medication or psychological difficulties. In this study, 1 man has diabetes mellitus on insulin with secondary ejaculatory problems, 1 anejaculation, 2 retrograde ejaculations, 1 erectile dysfunction and 1 ejaculatory failure.

## CONCLUSION

Our study further supports the use of microsurgical techniques of sperm extraction or aspiration in conjunction with ICSI for infertile couples with male factor infertility, bearing in mind that it does not cure the underlying male anomaly with the possibility of passing on the genetic anomalies. However, it has to be balanced against the risks of assisted reproduction that the female partner is exposed to.



Figure 1: MESA

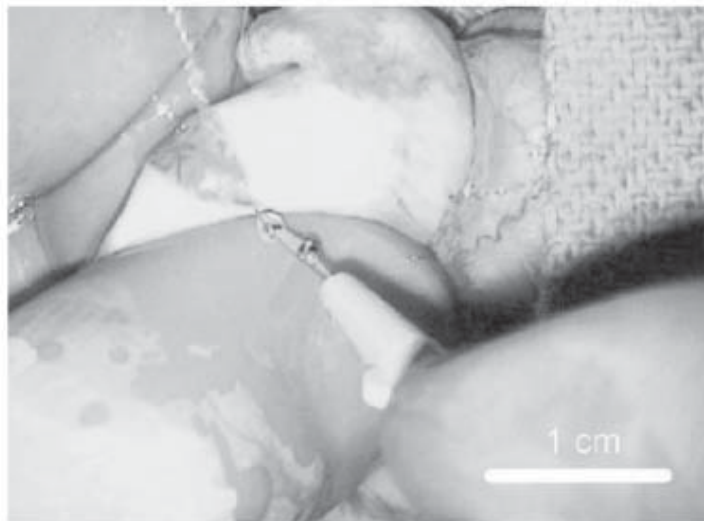


Figure 2: TESA

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