

# MICROSURGERY FOR OBSTRUCTIVE AZOOSPERMIA IN A DEVELOPING COUNTRY

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Amir D Zarrabi, MD.

University of Stellenbosch, Tygerberg Hospital. Cape Town, South Africa

## I. INTRODUCTION:

Obstruction is responsible for  $\pm$  40% of cases of azoospermia and may result from epididymal-, vasal-, or ejaculatory duct pathology. Vasectomy is the most common cause of vasal obstruction. A significant proportion of vasectomized men will also develop more proximal (epididymal) obstruction within a few years after vasectomy due to epididymal "blow out".

In South Africa, no formal training program in male infertility microsurgery exists and Urologists do not perform any microsurgery. Male infertility is also predominantly managed by OBGYN's in our setting. South Africa is a developing country with limited healthcare resources

## II. OBJECTIVE:

To review the learning curve, complications and outcomes of the first 80 cases of microsurgical vasectomy reversal performed in a developing country (South Africa).

*Table 1: Patient Information*

	Mean	Range
Age at vasectomy reversal	45	29 - 66
Age at vasectomy	34	19 - 56
n Children: Patient	2,4	0 - 8
n Children: Female partner	0,5	0 - 4
Age of female partner	33	20 - 45
Obstructed interval (years)	11,3	0,5 – 29,5
Preo-op s-TT level (ng/mL)	13,2	0,69 – 7,29

*Table 2: Intra-operative Information*

	Mean	Range
Distance between vas ends (mm)	15,2	0 - 70
Surgical time per testis unit (minutes)	80,2	37 - 115
Total surgical time (minutes)	157	95 - 200
<b>Sperm motility at abdominal vas end or epididymal tubule</b>		
Good	23,5%	
Poor	68,1%	
Average	8,4%	

## III. METHODS:

The first dedicated service in male infertility microsurgery in South Africa was established following training received abroad by the primary surgeon (ADZ).

In the first 2,5 years a total of 80 patients underwent microsurgical vasectomy reversal by the same surgeon (ADZ). A prospective database was maintained, which included intra-operative microscopy of seminal fluid.

## IV. RESULTS:

The mean surgical time per testicular unit was 80,2 minutes (range 37 to 115) and total operative time 157 minutes (range 95 to 200). Sperm motility (intra-operative light microscopy 400X magnification) was rated as good in 23,5%, average in 8,4% and poor in 68,1%. Vasovasostomy was required in 45,8% of testicular units and vaso-epididymostomy in 42,2%. In 6 patients sperm was harvested at the time of reversal for cryopreservation. Complications occurred in 21% of patients and were managed conservatively in all but 3, who required an additional surgical procedure.

For patients with adequate follow up the overall surgical success rate was 81%. Mean post-operative sperm count was 73,3 million. Eighteen pregnancies have so far been recorded during the limited follow up.

Comparing the first 40 cases with the last 40 cases revealed no significant differences in surgical time, complications or patency rates. The mean post-operative sperm count was 10% higher for the last 40 cases.

*Table 3: Surgical Outcomes*

Outcomes	
Vas-vas reconstruction	45,8%
Vas-epididymis reconstruction	42,2%
Overall patency rate	81%
<b>Post operative semen parameters</b>	
Average sperm count	73,3 million
Average morphology	7,8%
Average motility	40%
Pregnancy rate:	32%

## V. DISCUSSION AND CONCLUSIONS:

The main challenges encountered when establishing male infertility microsurgery in a developing country were related to:

### A. Availability of expertise:

- No formal- or informal training available
- Correct intra-operative decision making is crucial to success of this surgery
- No peer support from fellow Urologists
- Limited knowledge and referrals from GP's and other specialities

### B. Availability of specialized equipment:

- Surgical equipment (access to surgical microscope)
- Consumables (correct micro-sutures and needles)

### C. Limited healthcare resources:

- Expensive surgical procedure not covered by Medical Insurance
- Long waiting lists for cancer surgery in training hospitals
- Availability of research staff for data collection and management

Despite these challenges, data from the first 80 cases of microsurgical reversal of vasectomy indicate that it is feasible to establish this sub-specialty in a developing country. Compared to the surgical outcomes achieved in high-volume centers in developed countries, there certainly is room for improvement. International collaboration- and training is essential in ensuring a service which is of high standard.

*Table 4: Complications*

A total of 17 patients suffered a complication
Haematoma
Surgical site infection
Subcutaneous nodule
Cosmetic concern
Superficial wound dehiscence
Acute testis torsion
Third degree skin burn on thigh (hot water bottle)
<b>3 Patients required surgery to manage a complication</b>