

VARICOCELECTOMY: WHAT BENEFITS TO THE INFERTILE GHANAIAN MALE?

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SUMMARY

Fifty Ghanaian males of infertile marriages found on clinical examination to have varicoceles underwent varicocelectomy. Their mean age was 34.2 years (range 24 to 47 years). The varicocele was left-sided in 36 patients (72%), bilateral in 13 (26%) and right-sided in 1 (2%). The mean of 3 preoperative semen analysis showed 9 patients (18%) had azoospermia while 26 (52%) had counts of 5 million/ml or less. The rest had counts between 6 and 20 million/ml. Normal sperm motility (50% or more motile sperms) and morphology (50% or more with normal morphology) were seen in 36% and 22% of cases respectively.

Following varicocelectomy 26 (52%) obtained an overall improvement in semen quality. Of these 15 (30%) had mean sperm counts above 20 million/ml. None of the patients with azoospermia obtained any benefit. A conception rate of 18% (9/50) was obtained.

Key Words: Infertility, Ghanaian male, varicocelectomy.

INTRODUCTION

It has been found that about 20 to 40 per cent of men presenting for infertility investigation have varicoceles¹. The causal role of varicocele in male infertility or subfertility became generally accepted in 1955, following the successful surgical treatment (pregnancy being achieved) of an azoospermic patient with bilateral varicoceles by Tulloch². Since then there have been many publications, albeit with variable results, confirming the beneficial role of varicocelectomy in male infertility^{3,4,5}.

This study was therefore undertaken to assess the effects of varicocelectomy on the infertile or subfertile Ghanaian male.

PATIENTS AND METHODS

Over a six year period from January 1986 to December 1990 and January to December 1993, 50 Ghanaian males of infertile marriages found on clinical examination to have varicoceles underwent varicocelectomy. They were all referred for assessment by

gynaecologists who were investigating the spouses for infertility. Preoperative work-up included history, physical examination and some appropriate investigations. Testicular size was measured with the Prader orchidometer and diagnosis of varicocele was made by palpation with the patient in the upright position.

Laboratory investigations included 3 semen analyses which were at least two weeks apart. Those found to have azoospermia or severe oligospermia (sperm count less than 5 million/ml) also had estimation of serum follicle stimulating hormone and luteinizing hormone.

Varicocelectomy was performed using the inguinal approach. In addition, patients with azoospermia or severe oligospermia underwent testicular exploration and biopsies. Forty-six patients (92%) had their operation on day care basis under local anaesthesia. The rest were given general anaesthesia. All patients were followed up for at least one year.

Fertility potential of the female partners was obtained either from the original letter of referral or by specifically requesting for the information from the attending Gynaecologist by correspondence.

RESULTS

During the 6 year study period 50 Ghanaian males with primary infertility and grade II or III varicoceles were seen.

Their mean age was 34.2 years (range 24-47 years). The duration of infertility varied between 1 and 10 years (mean 3.8 years). Thirty-six patients (72%) had left sided varicoceles whilst 13 (26%) had bilateral and 1 (2%) had right sided varicoceles. The mean testicular volumes for the left and right sides

were 17.6ml and 19.6ml respectively. Total testicular volume (right and left sides together) ranged between 22ml and 50ml (mean 37.3ml). Five patients had mean total testicular volume below 28ml.

The mean of 3 preoperative semen analysis showed azoospermia in 9 patients (18%). Sperm counts of 5 million/ml or less in 26 cases (52%) and between 6-20 million/ml in 15 cases (30%), Table 1. Per cent motility and morphology of more than 50 per cent were observed in 36 per cent and 22 per cent of cases respectively. Progressive motility in all cases was sluggish.

Following varicocelectomy an overall improvement in semen quality, involving sperm count, per cent motility and per cent normal morphology was achieved by 26 patients (52%), Table 2. A few patients obtained isolated improvement in either sperm count or per cent motility with no corresponding improvement in morphology. Amongst those who improved 15 (30%) obtained sperm counts above 20 million/ml, 24 (48%) attained normal percent motility and 15 (30%) normal percent morphology. Improvement in progressive motility was noted in only 7 patients (14%). None of the patients with azoospermia obtained any benefit. Testicular biopsies from these showed either maturation arrest or

Table 1: Pre-operative Sperm Count Classification

Mean Sperm Count (Millions per ml)	No. of Patients	(%)
Azoospermia	9	18
<1 - 5	26	52
6 - 10	9	18
11 -15	4	8
16 20	2	4
Total	50	(100)

atrophy. Two patients with azoospermia were also found at operation to have unilateral vasal aplasia.

During follow-up 9 patients (18%) initiated a pregnancy, Table 3. Eight subsequently fathered children. The other pregnancy resulted in a miscarriage. Two patients developed hydroceles and one has had a hydrocelectomy. The other hydrocele is small and it is being observed.

Table 2: Varicocelectomy: Post Operative Results

	Sperm Count		% Motility		% Morphology	
	No.	(%)	No.	(%)	No.	(%)
Improved	34	(68)	31	(62)	26	(52)
Deteriorated	1	(2)	1	(2)	1	(2)
Unchanged	15	(30)	18	(36)	23	(46)

DISCUSSION

In this study, varicocelectomy produced an overall improvement in semen quality in 52% of patients. This is comparable to some published data^{4,6}. Higher improvement levels have also been reported by others^{3,7}. In this respect, it is noteworthy that none of the patients in this study had a pre-operative sperm count above 20 million/ml and the majority (88%) had counts below 10 million/ml. It has been found by many researchers that better results are obtained if pre-operative sperm counts are over 10 million/ml^{3,6,7}.

The pregnancy rate of 18% is also low but compares with the findings of some researchers^{4,8,9}. Currently, the best pregnancy rates range between 30 to 55 per cent^{3,5,7}. The low rate in the present study is perhaps in keeping with the degree of improvement in semen quality obtained. It is also worth mentioning that patients with azoospermia were included in this work. The results of varicocelectomy in azoospermic men have been found to be generally poor^{9,10}.

Table 3: Sperm Data of Patients Who Initiated Pregnancy

Patient No.	Sperm Count (Million/ml)		% Motility		% Normal Morphology	
	Pre-op.	Post-op.	Pre-op.	Post-op.	Pre-op.	Post-op.
1	4	40	25	50*	30	40
2	<1	20	30	45*	15	40
3	<1	7	20	30	10	20
4	12	30	30	45	30	50
5‡	<1	2	25	35*	10	30
6	2	45	35	55	20	45
7	10	40	45	60*	35	55
8	2	42	25	40	15	45
9	6	40	45	50*	10	40

* Rapid progressive motility.

‡ Lost to follow up soon after surgery. Post-operative results obtained after 4 years.

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