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Varicocelectomy in Infertility: Is There Any Role ?

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Summary

This is a retrospective study, involving 110 couples from 1990-1994. Various parameters such as grade of varicocele, testicular size, testicular biopsy report, sperm count, motility of sperms were taken into consideration. There was statistically significant improvement in sperm density and motility post varicocelectomy. There have been studies reporting pregnancies in wives, of patients having sperm count less than 10 million/ml. We are reporting pregnancies in wives of varicocele patients having count less than 5 million / ml.

Introduction

Varicocele, often associated with a reduction in sperm quality, has been found repeatedly to be the most frequent identifiable cause of male subfertility. However, various studies have proved and disapproved the role of varicocelectomy in cases of infertile couples. We present a retrospective study involving infertile patients undergoing varicocelectomy.

Methods

This study was carried out in the Department of Urology and Obstetrics and Gynaecology KMC, Manipal from 1990-1994 on 110 patients undergoing varicocelectomy. Data was collected by means of writing letters and studying the case files. Out of 166 letters written, only 110 responded, hence the study was limited to 110. Details of grade of varicocele, testicular size, testicular biopsy were obtained from the case files.

All the males in this study had sperm count less than 20 million/ml. Males more than 50 years old and those with f emale factors for infertility were kept out of the study.

Results

Sixty seven had bilateral varicocele and 47 had unilateral varicocele. Based on grade of varicocele, 30, 51, and 29 had grade I, II and III varicocele respectively. In patients with bilateral varicocele, the higher grade varicocele was considered for evaluation. Testicular size was found small in 40% (44/110) of patients having varicocele. Table I shows the patients having small testis in relation to grade of varicocele. Majority of the patients with decreased testicular size were having grade I or grade II varicocele, only 20% of grade III varicocele patients had decreased testicular size. Thus there was no correlation between grade of varicocele and testicular size. Testicular biopsy was performed in 51 patients. The criteria for biopsy being, patients having sperm count less than 5 million/ml (termed as severe oligospermia), and patients having small testicular size. The degree of hypospermatogenesis on testicular biopsy was graded as mild, moderate and severe. Table II gives the number of patients undergoing testicular biopsy with various grades of hypospermatogenesis.

Table I

Correlation between grade of varicocele and testicular size

Grade of varicocele (Total pts.)		Pts. With decreased testicular size.
I	(30)	13/30
II	(51)	25/51
III	(29)	6/29
Total	(110)	44/110

Chi square test : 6.34

P value <0.005

Table II
Degree of Hypospermatogenesis in Varicocelectomy patients undergoing testicular biopsy (51 patients)

Patients undergoing testicular Biopsy	Degree of Hypospermatogenesis
43/51 (53.3%)	mild – moderate
8/51 (15%)	severe

The seminal parameters were found to be improved after varicocelectomy. Table III shows the comparative seminal parameters before and 3 months after varicocelectomy. The parameters being total count and grade III motility. It was found that 63% of varicocele patients, post varicocelectomy, had improved sperm count and motility. There was a mean increase in sperm count from 7.78 million/ml to 24.58 million/ml. There was similar increase found in total motility and grade 3 motility which are 47.98 and 25.02 respectively after varicocelectomy. All were found to be statistically significant.

Thirty three out of 110 patients had children after varicocelectomy, 26 used other ancillary treatment like sperm wash, swim up techniques and intrauterine insemination. Medicines like clomiphene citrate and Ayurvedic medicines by local doctors were taken by the patients. Ancillary treatment was provided in Department of Obstetrics and Gynaecology. The mean sperm count in this group was, 11.17 million/ml, and the total motility was 41.67%. Five of these patients had sperm count less than 5 million/ml falling in the group of severe oligospermia.

Discussion

Varicoceles are found in approximately 30% of infertile men (Marks et al 1986). Decreased motility and count were the most common finding, in patients having varicocele (Macleod 1965). We have thus evaluated infertile varicocele patients having less than 20 million / ml.

Improvement in seminal parameters is demonstrated in approximately 70% of patients following surgical varicocele repair. In our study there was overall improvement of sperm count and motility in 63%, well corresponding with other studies (Brown 1976, Cockett et al 1979).

Conception rates after Varicocelectomy have been reported as averaging 16% to 72% (Marks et al 1986, Madgar et al 1995). As we have taken into consideration a group of patients with sperm count less than 20 million/ml, our conception rate was 33/110 (30%). Out of these 26 required ancillary treatment to have conception, whether it was in obstetrics and gynaecology department or by other means. So patients with varicocele requiring children with low sperm count, might benefit from other techniques like, sperm wash and swim up techniques with intrauterine insemination.

In earlier studies it has been reported that counts less than 10 million/ml in the presence of a varicocele portends a poor prognosis for fertility. It was found that there was higher rate of pregnancies in patients with initial sperm densities of 50 million per ejaculate (Marks et al 1986, Dublin & Amelar 1975). We have 5 pregnancies in wives of varicocele patients having severe oligospermia, that is, count less than 5 million/ml, preoperatively. This shows that, there is always a hope even in severe oligospermia patients.

Conclusions

i) Testicular size in varicocele patients, does not correlate with the grade of varicocele.
ii) There was an increase in sperm count and motility in post-varicocelectomy patients.
iii) There was pregnancy in 33 patients who had mean sperm count of 11.17 million/ml, with ancillary treatment required in 26 patients.
iv) Five patients having severe oligospermia preoperatively (count less than 5 million/ml) had children.

References

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Table III
Semen analysis pre and post Varicocelectomy

Variable	pre treatment Mean (SD)	post treatment Mean (SD)	t value	p value
Count	7.78 (6.42)	24.58 (22.70)	6.60	0.0001 (S)
Total motility	39.20 (19.54)	47.98 (18.26)	3.14	0.003 (S)
Grade 3 Motility	18.86 (13.36)	25.02 (13.95)	3.00	0.004 (S)

63% had improved sperm count and motility