

CLINICAL STUDY ON LAPAROSCOPIC MANAGEMENT OF VARICOCELEM. Prabhakara Rao¹, Prudvi Saravana Kumar², G. Laxmana Rao³**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: AIM OF THE STUDY: To determine the effectiveness of laparoscopic varicocelectomy in the management of infertility and pain. **MATERIALS AND METHODS:** Varicocele is a major identifiable cause of male infertility. It is often associated with pain, abnormal testicular histology and seminal parameters. This prospective study was conducted on 22 patients over a period of 2 years from October 2012-14 for whom laparoscopic varicocelectomy was done. **RESULTS:** Pain decreased in 71% of cases but not improved in 29% of cases. There was no significant improvement in semen volume but there was significant increase in sperm density and motility. **CONCLUSION:** Laparoscopic varicocelectomy is a minimally invasive procedure with shorter convalescence less operative morbidity and early return to normal activity. It is effective in the management of pain associated with varicocele and it significantly improves semen quality.

KEYWORDS: Varicocele, Infertility, Laparoscopic Varicocelectomy.

INTRODUCTION: Varicocele is a major identifiable cause of infertility. It often is associated with pain and abnormal testicular histology and semen. It occurs predominantly on left side (90%), but isolated right sided and bilateral varicoceles are seen (10%). Typically it is idiopathic, although acquired lesions in association with benign and malignant retroperitoneal disease do exist.

Varicocele is found in approximately 15% of adult males, but the incidence could go as high as 40% in patients attending infertility clinics and upto 80% in those with secondary infertility.^[1-3] Although no well-controlled series have been reported, the surgical repair of varicoceles in selected infertile patients appears to augment the percentage of motile spermatozoa, improve the total spermatozoa count and increased fertility rate.^[4]

Recently new techniques like laparoscopic varicocelectomy with developments have broadened the therapeutic options of varicocele. Their clinical significance has yet to be confirmed. Hence this study aims at a definitive look into varicocele and effectiveness of laparoscopic Varicocelectomy.

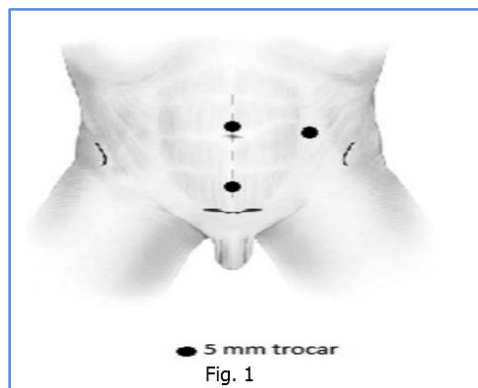
METHOD OF EVALUATION: Physical examination, colour Doppler ultrasound scrotum, semen analysis and hormonal evaluation were performed for each patient. In the physical examination—laterality (uni or bilateral) and the grade (Grade I to III) of varicocele were determined by inspection and palpation with the patient in an upright position. Pain which was described by the patient was given points according to VAS [Visual analogue scale].

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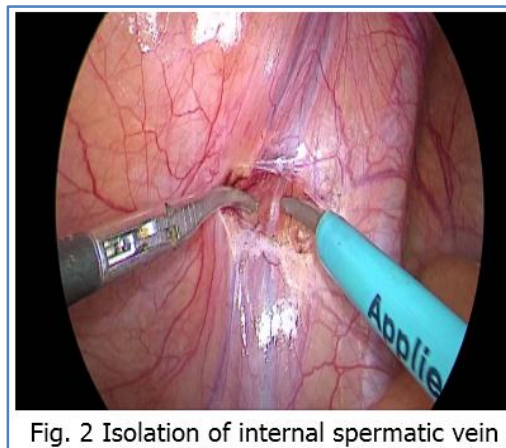
Semen samples were collected by masturbation after 4-5 days abstinence and were tested for semen volume, motility and total count. Semen analysis was conducted at least three times, and from among these, the data from the analysis showing the highest sperm concentration were selected for analysis.

Patients with absent or low- volume ejaculate suggesting retrograde ejaculation or ejaculatory duct obstruction, and patients with physical features, semen and hormonal data suggesting male infertility due to genetic factors were not included in the present study.

MATERIALS AND METHODS: Varicocele is a major identifiable cause of male infertility. It is often associated with pain, abnormal testicular histology and seminal parameters. This prospective study was conducted on 22 patients over a period of 2 years from October 2012-14 in King George Hospital, Visakhapatnam. Patients with symptomatic varicoceles with pain, asymptomatic varicoceles with history of infertility, varicoceles whether unilateral or bilateral and recurrent varicoceles were included in the study. Patients with secondary varicoceles, pts associated with other recognizable causes of infertility, pts >50yrs of age and <10 years of age were excluded from the study.



10 mm port – umbilicus, 5mm port midway between umbilicus and pubic symphysis, 5mm port between umbilicus and anterior superior iliac spine.



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OBSERVATIONS AND RESULTS:

Age in years	Total no	Percentage
10-20	3	13.7%
20-30	10	45.5%
30-40	8	36.4%
40-50	1	4.4%

Table 1: Age Incidence

Side	No.	Percentage
Bilateral	4	18.2%
Left	17	77.27%
Right	1	4.5%

Table 2: Laterality

GRADE	No.	Percentage
I	2	7.7%
II	14	53.84%
III	10	38.46%

Table 3: Grade of Varicocele

Complaint	No.	Percentage
Pain	8	36.4%
Infertility	8	36.4%
Both	6	27.2%

Table 4: Complaints Associated

Pain	No.	Percentage
Completely resolved	6	42.9
Partial response	4	28.6
Persistent pain	4	28.6

Table 5: Response of pain to varicocelectomy

Pre-op	Post-op 3 months	Post-op 6 months	Post-op 12 months
24.5 million	35.2 million	41.59 million	49.86 million

Table 6: Average sperm density

Pre op	Post op 3 months	Post op 6 months	Post op 12 months
28.18%	39.77%	51.32%	57.95%

Table 7: Average motility

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DISCUSSION: The incidence of varicocele has been reported as comprising one-third of infertile men, but in only one fifth of patients, varicocele is the cause for infertility. Most males with varicocele are fertile. All these factors contribute to difficulties in the evaluation of therapeutic intervention of varicocele.

Although an adequate consensus is not available, based on literature and clinical experiences supporting its benefit, varicocelectomy is the chosen treatment of varicocele in many institutes.

In the present study, screening of varicocele is conducted by palpation and Doppler ultrasound. The clinical importance of subclinical varicocele has to be elicited appropriately because small varicoceles may not be palpable with clinical examination alone.

In terms of the laterality of varicocele, 77.27% of patients were left-sided, 18.2% cases were bilateral and 4.5% were right sided.^[5] This is compatible with earlier reports claiming that right-sided varicocele was extremely rare and the incidence of bilateral varicocele was 2.5-6.5% depending on the modality of diagnosis.

It was widely accepted that varicocelectomy improves semen parameters in patients with varicocele, with a 60-80% improvement. Schlesinger et al.^[6] Reviewed 16 studies that assessed the effect of varicocelectomy on sperm density and reported that post-operative significant improvements were demonstrated in 12 studies.

Schlesinger et al, also reported that sperm motility statistically improved after varicocelectomy in 5 of 12 studies. The present study followed the same pattern. Laparoscopic varicocelectomy significantly increased sperm density in the post-operative follow up. The results obtained in the present study will support the clinical importance of varicocele in male infertility and the effectiveness of varicocelectomy in the treatment of varicocele.

The present study was compared with previous studies regarding the effectiveness of laparoscopic varicocelectomy which were shown below. Further studies with larger numbers of patients are needed to confirm the results.

INCIDENCE: A total of 22 patients were included in the study. The youngest was 18 year old and the oldest was 42 years old. Mean age was 30 years. Highest age incidence was noted in the age group of 20-30 years of age group with total of 45.5% of cases followed by the age group of 30-40 years of age group

Our study	30 years 22 pts
Onozawa et al	34years 64 pts
Table 8: Mean age	

Our study is in comparison with onozawa et al^[7] study who studied a total of 64 patients.

Majority were seen on left side occupying 77.2% of cases followed by bilateral varicoceles of 18.2%.^[8] Unilateral right sided varicocele is extremely rare. A study conducted by Hitoshi et al, showed that left side varicocele was present in 53 patients among 64 patients with varicocele. Thus in their study left sided varicocele was occupying 79% of cases which was almost equivalent to our study.

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	Our study	Hitoshi et al
Left	77.3%	79%
Right	4.5%	0%
Bilateral	18.2%	21%

Table 9: Laterality

Total no. of cases were 22, among them 4 patients had bilateral varicocele. Thus total no of varicoceles became 26 of which 10 varicoceles were graded as II and 14 cases graded as III and 2 were grade I. In a study conducted by onozawa et al among total 64 patients 10 patients were in grade I, 32 patients were grouped as grade II and 22 patients were grade III.

	Our study	Onoawa et al
Grade I	7.6%	15.6%
Grade II	53.8%	50%
Grade III	38.46%	34.4%

Table 10: Grading

Most of the symptomatic varicoceles were in grade II, III. In our study both grade II, grade III varicocele comprise a total of 92%. Similarly in onozawa et al study both grades together comprise 84%.

PAIN	Our study	Armagan et al
Improved	71.4%	79.2%
Not improved	28.6%	20.8%

Table 11

In our study pain improved in 71.4% of cases compared to 79.2% of cases in Armagan et al study.

In our study we analysed the volume, sperm density, motility. We noticed that there was no significant increase in volume of semen. But there was significant increase in sperm density and sperm motility.

Pre-op	Post-op 3months	Post-op 6 months	Post-op 12months
24.5 million	35.2 million	41.59 million	49.86 million

Table 12: Average sperm density

Pre op	Post op 3months	Post op 6months	Post op 12months
28.18%	39.77%	51.32%	57.95 %

Table 13: Average motility

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The study conducted by Gouda El-labban^[9] on laparoscopic varicocelectomy in sperm parameters had shown the following results.

Sperm parameters	Pre op	Post op
Density	33 million	55 million
Motility	36.4%	60%

Table 14

Thus our study was in comparison with Gouda El-labban in terms of sperm density and sperm motility. Pregnancy rate 14% reported in our study, as sample size and duration of study was small, it was not compared to other study. In our study out of 22 patients, 1 patient had postop hydrocele and 1 patient had scrotal edema. No incidence of recurrence of varicocele and atrophy of testis.

CONCLUSION: Testicular varicocele is an important disorder leading to significant symptoms like pain in some patients, and associated with sub-fertility in others. Accurate diagnosis is important, as correct treatment may lead to resolution of symptoms and improvement in sperm count in sub fertile patients.

As clinical diagnosis can be inaccurate, imaging is usually required to confirm the diagnosis. There are various modalities of treatment for varicocele but laparoscopic varicocelectomy tends to be more appropriate and advantageous in various aspects. Laparoscopic varicocelectomy is a minimally invasive procedure that is easy to perform. The clear visualization and magnification provide control of the affected vessels thus decreasing incidence of post op recurrence.

Compared to open varicocelectomy, laparoscopic varicocelectomy has shorter convalescence, early return to normal activities and less operative morbidity. It is effective in the management of pain associated with varicocele as it is evident in our study there is significant improvement in VAS points in the postop follow-up. The semen analysis performed showed that subjects with laparoscopic varicocelectomy had better quality semen.

This is significant when the individual parameters which are evaluated post op where there is significant rise in density of sperms and total motility. The analysis of data collected from analysis showed that laparoscopic varicocelectomy is an effective approach in the management of infertility and pain. We believe that it is necessary to carry out multicenter trails to assess and the role of laparoscopic management in the treatment of varicoceles.

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