

## VARICOCELE MANAGEMENT – A COMPARISON OF PALOMO VERSUS INGUINAL APPROACH

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### ABSTRACT

*The purpose of this work was to find presentations of “varicocele and compare the results of Palomo versus Inguinal Approach”. It is a prospective randomized study of 52 cases of varicocele over 2 years from Jan 2006 to Dec 2007 at Surgical Unit, Allama Iqbal Medical College / Jinnah Hospital Lahore. Presentation, indication for surgery, complications and results of palomo versus inguinal approach for surgery of varicocele are main variable compared. The mean age was 26.6 years. The swelling was left sided in 65.4% (n=34), right sided in 9.6% (n=5), and bilateral in 25% (n=13). The clinical presentation was a dragging sensation in 2 cases (7.7%) infertility in 9 cases (17.3%) and for fitness reasons 15 cases (28.8%). The collective post-operative infection rate was 1.95%. Haematoma formation in 2 cases (7.7%) in inguinal and 1 case (3.9%) of palomo operation. In 1 case (3.9%) of inguinal approach there was hydrocele formation at 1 year. No testicular atrophy noticed in immediate post operative period in both groups. In 2 (7.7%) patients of palomo group there was no symptomatic relief. In inguinal group in 1 patient (3.9%) there was no symptomatic relief. It was concluded that palomo operation is better than inguinal approach as there are less complications and decreased recurrence rate. However fertility is improved in both groups almost equally.*

### INTRODUCTION

Varicocele is an abnormal dilatation of pampiniform plexus within spermatic cord. It is bilateral in 50% of cases. 98% it is left sided. Prevalence rate in general population is 15% which is 30% in case of infertile men. After surgery for infertility impregnation rate is improved significantly.<sup>1,2</sup>

Various surgical methods are available to treat varicocele including minimally invasive surgery. We compared the results of palomo approach with inguinal approach for treating varicocele.<sup>3,4</sup>

### PATIENT AND METHODS

The study was conducted at Surgical Unit-II, Jinnah Hospital from January 2006 to December 2007. Fifty two (52) patients were included in study. Randomly 26 patients were operated in each group i.e inguinal and palomo. The clinical data and investigations were recorded on a proforma. Only primary varicocele was included in study.

The patients of secondary varicocele and those who had specific treatment before were dropped from the study. The patients were examined in supine and standing position and the grade of varicocele recorded. The grade of varicocele was defined as:

Grade – I → Palpable with the aid of valsalva maneuver.

Grade – II → Palpable without the aid of valsalva maneuver.

Grade – III → Visible without palpation.

### PROCEDURE

Operation is performed under general or spinal anaesthesia.

#### *Palomo Procedure*

A transverse incision 4-5 cm in length was made at the level of anterior superior iliac spine, centering the mid inguinal point. Skin, subcutaneous tissue and external oblique sheaths are cut. The internal oblique and transverse muscles are separated. Peritoneum is separated medially. The vein is exposed and testicular artery separated. Testicular veins (two in number) are ligated and wound is closed in layers.

#### *Inguinal Approach:*

Incision is made one finger breadth above the medial part of inguinal ligament. The skin, fascia of external oblique are cut. The cord is mobilised. Spermatic fascia is incised and dilated veins are identified. Vas deference arteries and two or three veins are separated from the main mass of dilated veins. These are separated for short distance up and downwards and excised between ligatures placed 5 cm apart. Approximation of these ligatures also shortens the cord so that testis is suspended at higher level. The wound is closed in layers.

Post operative findings were recorded. All patients were followed at 3 and then at 6 months and 1year. Infertility patients had semen analyses at 3, 6, 9 and 12 months.

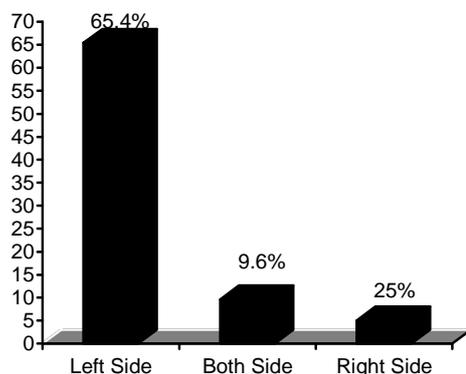
At follow up disappearance of varicocele, dragging pain, improved sperm count were noted.

**RESULTS**

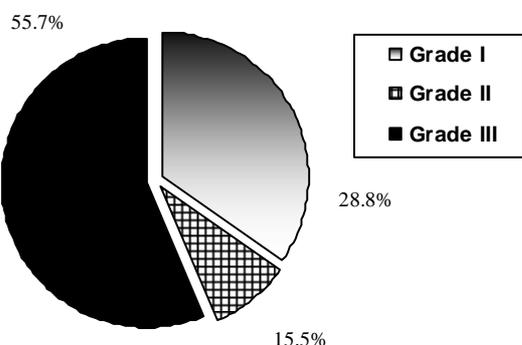
The age of patients ranged from 12-50 years. Mean age was 26.6yrs (table 1). The site of varicocele was left sided in 34 (65.4%), right sided in 5 (9.6%) and bilateral in 13 (25%) patients (Fig. 1). The size of varicocele was 15.5% grade-I, 55.7% grade-II and 28.8% grade III. All grade-I varicocele presented for fitness for service purpose in police or armed forces (Fig. 2).

**Table 1:** Age of Patients in 52 cases.

Age	No of Cases	% age
11 – 20 yrs	6	11.5%
21 – 30 yrs	22	43.3%
31 – 40 yrs	17	32.7%
41 – 50 yrs	7	13.5%



**Fig. 1:** Site of varicocele in 52 cases.



**Fig. 2:** Grading of varicocele in 52 cases.

Most of the patients i.e. 53.9% presented with pain and dragging sensations. They mostly presented in summer season. However 17.3% (9 patients) presented for infertility. There was quite a good number of patients 28.8% who did not have any complaints but referred from various recruitment agencies for fitness purposes (table 2).

**Table 2:** Clinical Presentations in 52 cases.

Presentation	No	% age
Pain or dragging sensation	28	53.9%
Infertility	09	17.3%
No complaint / Fitness purposes	15	28.8%

The post operative complications including wound and scrotal haematoma formation were more in inguinal group i.e. 7.7% and 3.9% in palomo operation. Infection rate was 3.9% i.e. 1 patient and that was of inguinal group. There was 1 case (3.9%) of hydrocoele formation in inguinal group. No testicular atrophy could be found in the 1 year follow up in both groups.

**Table 3:** Post operative Complications in 52 cases.

Complications	Inguinal approach n = 26	Palomo n = 26
Wound Haematoma	2 (7.7%)	1 (3.9%)
Wound infection	1 (3.9%)	0
Hydrocoele	1 (3.9%)	0
Testicular atrophy	0	0
Recurrence / Persistence of varicocele	1 (3.9%)	3 (11.6%)
Persistent dragging sensation	1 (3.9%)	2 (7.7%)

In postoperative symptomatic relief, inguinal procedure proved better. There was only 1 patient i.e. 3.9% with no relief however in palomo there were 2 patients i.e. 7.7% with no relief (table 3).

The persistence of varicocele was found in 3 (11.6%) of patients in palomo group and in 1 (3.9%) of inguinal group. The semen analysis of infertile group of patients was done at 3, 6, 9 and 12 months. All of them showed significant improvement in total count of sperms, motility and morphology. As total number of patients was only 9, therefore it was not possible to assess the supremacy of one procedure over the other in this regard. Compliance of follow-up is not good in our setup. At 3

months 71.1% patients turned up for follow up at 6 months (57.7%) and at 1 year 40.3% (Fig. 3). The fitness group had very low follow-up rate, however infertility group had higher follow up i.e. 7 out of 9 at 1 year i.e. 77.7% of the group.

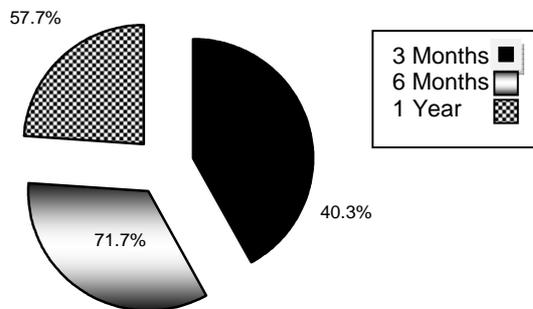


Fig. 4: Follow up profile.

## DISCUSSION

Varicocele has been found in all age groups, youngest being 18 months old as reported in literature. The age of patients in our study ranged from 12-50 years with mean age of 26.6 years. Dubin and Amelar reported left varicocele 50%, bilateral 46% and right sided only in 4%. Our study shows left sided varicocele 65.4%, bilateral in 25% and right sided in 9.6%. However Turner reported left sided 70% and right sided 9%.<sup>5,6</sup> In the present study, clinical presentation was dragging pain / sensation in 53.9% (n = 28) and infertility in 9 (17.3%). Fitness purposes in jobs where one has to stand for long periods because varicocele is considered to disturb at some stage in future. In literature there is variability in this regard. Kaye has shown that his 100% patients complained of heaviness in scrotum and dull ache in left groin made worse on exertion<sup>7</sup>. Palomo reported 25 out of 38 of his patients presenting with complaint of local discomfort. In a series of high school boys. Okuyama et al reported that chief complaints were, scrotal swelling, scrotal / abdominal pain and pain at voiding. Breded et al in a series of 334 patients reported that 96.7% (n=323) presented with testicular discomfort and subfertility.<sup>8-10</sup>

Scrotal haematoma and wound haematoma are more in inguinal approach than palomo. Reason being more numbers of veins and handling of spermatic cord in inguinal approach. While in palomo only two or three veins are encountered. In our study, haematoma formation was seen in 7.7% of cases of inguinal approach and wound infection in 3.9%. In palomo approach, haematoma was seen in 3.9% cases and there was no infection in any case. Dubin and Amelar and formation Kaye reported equal incidence of infection rate<sup>11-13</sup>

Hydrocele formation as a complication is more in inguinal approach. This is because of lymphatic damage as proposed by Turner<sup>8</sup>. Incidence in literature is 3 – 39%, however in our study it is 3.9% in inguinal approach and no hydrocele was detected in palomo. This could be attributed to short follow up and poor compliance of patients.<sup>13-15</sup> In our study no case of testicular atrophy was reported. However in literature 1% incidence is reported in inguinal approach. The use of microsurgical technique and Doppler intra operatively has been used to assure preservation of testicular artery.<sup>4,16,17</sup>

The Persistence or recurrence rate in our study was 11.6% in palomo whereas 3.9% in inguinal approach. Overall recurrence rate reported ranges from 5-45%. Evans and Bogdan reported 16% in palomo and 11% in inguinal approach<sup>4</sup>. Sayfan et al show reported persistence and recurrence rate in 2% of palomo and 0% of inguinal approach.<sup>18</sup> Use of intra operative post-ligation venography has shown to reduce recurrence / persistence of varicocele significantly.<sup>16,19</sup> The semen morphology improves gradually after surgery. In our study semen improved in all patients of infertility group at 9 months and 1 year in term of motility, morphology and number. In literature 40-70% patients improved in semen quality and fertility. However relative supremacy of both procedures is not evident from our study.<sup>11,19-21</sup>

It is **concluded** the palomo operation is better than inguinal approach for varicolectomy. There is decreased complication rate and better patient satisfaction. However recurrence or persistence rate is less in inguinal approach. Both procedures improve fertility. However choice of procedures seems to be more of surgeon's training and personal liking than considering benefits and drawbacks of both procedures.

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## REFERENCES

1. Sandlow J. Pathogenesis and treatment of varicoceles. *BMJ* 2004, 7446: 967–972.
2. Sawezuk IS, Burbige KA and Hensle TW: Asymptomatic varicocele in an infant. *Clin Pediatr* 1985; 24: 285.
3. Sayfan J Soffer Y Orda R. Varicocele treatment. Prospective randomized trial of 3 methods. *J Urol* 1992; 148 / 5: 1447 – 1453.

4. Evans JK and Bogdan M. Results of varicocele surgery in Adolescents: A comparison of technique J Urol. 1992; 148: 694.
5. Pryor JL and Howards SS. Varicocele Urologic clinics of North America 1987; 14: 3.
6. Dubin L, Amelar RD. Varicocele size and results of varicocelectomy in selected subfertile men with varicocele. Fertil Steril 1970; 21: 606.
7. Kaye KW: Modified high varicocelectomy. Out patient microsurgical procedure Urology 1988; 32: 13.
8. Turner TT. Varicocele still and enigma. J. Urol. 1983; 129: 699.
9. Okuyama A, Nakamura M, Nimiki M et al. Surgical repair of varicocele at puberty. Preventive treatment for infertility improvement. J. Urol. 1988; 139: 562-564.
10. Beraedal HU, Steffens J, Zeigler M and Polsky MS. Out patient sclerotherapy of idiopathic left sided varicocele in children and adults. Br. J. Urol. 1990; 65: 536-540.
11. Dubin L and Amelar RD. Varicocelectomy. Twenty five years of experience. Int. J. Fertile. 1988; 33: 226-235.
12. Scher D Goldstein M. Comparison of Bilateral versus unilateral varicocelectomy in men with palpable bilateral varicoceles: J Urol. 1999; 162 / 1: 85 – 88.
13. Szabo R and Kerrsler R. Hydrocele following internal spermatic vein ligation; a retrospective study and review of the literature. J. Urol. 1989; 132: 929.
14. Stewart BH in Glenn JF ed urlogicsurgery 2<sup>nd</sup> edition. Harper and Row. Hagerston Md-1975.
15. Marmar JL, e Benedictis TJ and Praiss D. The management of varicoceles by microdissection of the spermatic cord at the external inguinal ring Fertil steril. 1985; 43: 582.
16. Belgrao E, Puppo P, Quattrino S, Trombelta C and Giuliani L. The role of venography and sclerotherapy in the management of varicocele. Eur Urol 1984; 10: 124.
17. Evers JL, Collin JA. Assessment of efficacy of varicocele repair for more sub-fertility: A systemic review. Lancet 2003; 361: 1849 – 52.
18. Sayfan J, Adam YG and soffery: A new entity in varicocele subfertility: the cremestetic reflux Fertile steril. 1980; 33: 88.
19. O'Brien JH Bowles B Kamal KM Jarvi K Zini A. Microsurgical varicocelectomy for infertile couples with advanced female age. Natural history in Era of ART. J Androl. 2004; 25: 939 – 943.
20. Kass EJ, Freitas KE, Bour JB. Adolescent varicocele. Objective indication for treatment J. Urolo, 1989; 142: 579-582.
21. Tam PC: Varicocele. Current controversies in patho-physiology and treatment. Annals of coll of surg Hong Kong 2004; 3: 90 – 97.