CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.3365554

Available online at: http://www.iajps.com ***Research Article***

COMPARISON OF THREE DIFFERENT PROCEDURES OF VARICOCELECTOMY IN PATIENTS OF INFERTILITY

[1]Dr Naveed Sultan, [2]Dr Muhammad Nadeem, [3]Dr Abubaker

[1]Institute of Kidney Diseases, PGMI Hayatabad Medical Complex Peshawar.

Article Received: June 2019 **Accepted:** July 2019 **Published:** August 2019

Abstract:

Objective: *The aim of this research work is to compare the consequences of three different procedures on the varicocelectomy in patients suffering from infertility with the utilization of the varicoceles.*

Methodology: *There were 250 patients with infertility who got for varicocelectomy by an open inguinal procedure in 70 patients, laparoscopy in 75 patients & sub-inguinal microsurgeries in 105 patients. We compared the all three procedures about intra-operative, initial & delayed post operation parameters, alterations in the parameters of semen & rate of pregnancy. Average follow up duration of the patients was 21.0±9.0 months with a range from 30 to 35 months.*

Results: *The surgery duration was much greater in the microscopic group of study. We compared the initial post-operative complications in all three groups. During the follow up period, no patient in the micro-surgical group found with hydrocele, whereas we observed that 3 /130 (2.50%) in the group of open procedure & 7 /138 (4.30%) in the group of laparoscopy, demonstrating an important disparity in the support of the microsurgery. The occurrence of the recurring varicoceles was much less in the micro-surgical group as compared to the other groups of open & laparoscopy (5 / 145 or 3.50% patients' vs 18 / 153 (12.0%) & 28 / 158 (19.0%) correspondingly). In comparison with the values before surgery in all groups the parameters of semen after surgery displayed advancement in the concentration of sperm, sperm's motility & morphology. The prevalence of the infertile patients with improved count of the sperm & their motility was very high in the group of micro-surgery. The rate of pregnancy was not much different in all the participants of each group.*

Conclusions: *The comparison of all 3 techniques showed that micro-surgical varicocelectomy has high benefits as compared to the other methods as no formation of the hydrocele, very low occurrence of recurring varicocele and good improvement in the count & motility of the sperms.*

Keywords: *Infertile, Micro-Surgery, Laparoscopy, Varicocelectomy, Varicocele, Motility, Prevalence.*

Corresponding author:

Dr. Naveed Sultan,

Institute of Kidney Diseases,

PGMI Hayatabad Medical Complex Peshawar.

QR code

Please cite this article in press Naveed Sultan et al., ***Comparison of Three Different Procedures of Varicocelectomy in Patients of Infertility.,*** *Indo Am. J. P. Sci, 2019; 06(08).*

INTRODUCTION:

Varicocele is available in 11.0% population of male gender & in about 20.0% males suffering from infertility [1]. The influence of the varicocele therapy associated with increased rated of pregnancy in the couple suffering from infertility is very provocative problem [2]. Different research works have displayed an important rise in the rate of pregnancy in the patients having treatment of varicocele [3]. But in opposition, meta-analysis of different works displays that there are no present proofs qualifying surgical treatment or radiological therapy for varicocele in men of the couples with infertility [4]. The findings of Evers & Collins [5] showed an impact on commendations of the EAUWGMI (European Association of Urology Working Group on Male Infertility) regarding therapy for the infertility of men [6].

But an American association was present with opposite views regarding this matter [7]. So, there was much controversy present in the recommendation of various associations. Due to the prevalence of these controversies, this prospective, randomized with a high proportion of the infertile patients carried out with clinically intense varicocele. The standard technique for varicocele therapy is other contentious problem. There are several methods which are in use. There are advantages of every procedure and various research works provided conflicting outcomes [8-13]. In this research work, we tried to overcome the shortcomings of various past research works providing the comparison of the results of three very common procedures.

METHODOLOGY:

There were 250 patients with infertility who experienced varicocelectomy in Institute of Kidney Diseases, Hayatabad Medical Complex Peshawar from May 2018 to May 2019. We performed 3 different procedures randomly, open method for 70 patients, laparoscopy in 75 patients & sub-inguinal micro-surgeries in 105 patients. Table-1 shows the traits of patients & varicoceles in all the patients of three groups. Only single expert surgeon performed every method who had the at least of fifty methods before this surgery. The patients who underwent surgery by various surgeons and those having symptoms of other than infertility were not the part of this research work. All the patients gave their written consent to participate in the research work. Ethical committee of the institute gave the permission to conduct this research work. We carried out at least two semen analysis in assessment before surgery. We also got the help of Doppler assistance to define the varicocele on ultra-sonography [14].

Table 1. Patient and Varicocele Characteristics

Characteristics	No. pts	No. Varicoceles	No. varicocele Side		Age	Range
			Lt	Bilat	Mean ± SD	
Open	70.0	130.0	37.0	41.0	30.0 ± 6.70	22-59
Laparoscopic	75.0	138.0	34.0	44.0	27.0 ± 6.80	20-53
Microscopic	105.0	145.0	60.0	33.0	33.0 ± 5.50	22-55
p Value			0.400			

We used the standard techniques according to the prescribed prescription for the application of all three procedures. We evaluated the time of surgery, pain duration the surgery, need of analgesia, initial complications after surgery, stay in the hospital & time of recovery or return to routine activities. We used a special questionnaire for the evaluation of the pain having zero to six points. The average follows up duration was 21.0±9.0 months. We compared the parameters of the semen before and after the surgery in every participant of all three groups. We elaborated the advancement or worsening in the parameters of semen as a higher than 18.0% alteration in the values before surgery [1]. Chi square method and ANOVA were in use for the comparison of the participants of all three groups.

RESULTS:

Patients & traits of varicocele were not much different in the participants of all three groups as presented in Table-1. No patient in all three groups stated intra-operative complications. The duration of the surgery was longer in the microscopy group as compared to the other groups for unilateral & bilateral varicoceles. The duration of the surgery in other two groups was much lower as mentioned in Table-2. There were comparable post-operative complications like infection of wound, scrotal hematoma & scrotal pain for long duration among the participants of all three

groups (Table-2). Conservatives measures were in use for the treatment of the initial post-operative complications. The duration of recovery or time to go back to work was not much different in the patients of all three groups (Table-2).

Table 2. Operative and Postoperative Outcomes

Outcomes	Open		Laparoscopic		Microscopic		p Value
Mean ± SD mins Operative Time (range)	**Mean ± SD**	**Range**	**Mean ± SD**	**Range**	**Mean± SD**	**Range**	
Unilat	43.0 ± 15.0	(22-76)	30.0 ± 8.0	(203-43)	60.0 ± 15.0	(30-10)	<0.0009
Bilat	64.0 ± 22.0	(25-110)	55.0 ± 14.0	(30-900)	105.0 ± 17.0	(63-130)	<0.0009
Mean ± SD days to return to work (range)	7.0 ± 2.0	(5-12)	6.0 ± 2.0	(5-12)	6.0 ± 2.5	(5-8)	0.4000
Total	6/89 ± 7.0		4/90 ± 4.0		5/110 ± 2.0		0.4500
Post-operative wound infection	2.0		0.0		2.0		
Post-operative scrotal hematoma	2.0		0.0		1.0		
Post-operative scrotal pain	4.0		6.0		2.0		
No. postoperative hydrocele	3/140 ± 2.6		6/145 ± 4.3		0/150		0.0200
No. recurrent varicocele	14/140 ± 9		23/145 ±		4/150 ± 2.4		0.0009

The micro-surgical group was available with low prevalence of the recurring varicocele in comparison with the both other groups (Table-2). The occurrence of recurring varicocele in the group of laparoscopy was not much dissimilar than the patients available in open group (28 / 158 patients or 19.0% & 18 / 153 or 12.0%, correspondingly). The comparison between the parameters of semen after and before surgery displayed much improvement in the motility, morphology & concentration of the sperms (Table-3). The improvement magnitude in the count & motility of sperms was much high in the micro-surgical group as compared to other two groups (Table-3).

Table 3. Preoperative and Postoperative Semen Parameters

Semen Parameters		Preoperative	Postoperative	p Value
		Mean ± SD	**Mean ± SD**	
Open	Sperm concentration million/ml)	20.0 ± 4.18	30.0 ± 6.20	0.0200
	Motility	20.0 ± 2.40	28.0 ± 2.8	0.0300
	Abnormal forms	63.0 ± 2.20	45.0 ± 2.80	0.0300
Laparoscopic	Sperm concentration	20.0 ± 4.25	35.0 ± 4.40	0.0200
	Motility	19.0 ± 2.60	28.0 ± 2.20	0.0000
	Abnormal forms	65.0 ± 3.35	50.0 ± 2.80	0.0009
Microscopic	Sperm concentration	15.0 ± 4.85	38.0 ± 5.20	<0.0009
	Motility	18.0 ± 2.40	31.0 ± 3.40	<0.0009
	Abnormal forms	58.0 ± 2.60	53.0 ± 3.8	0.0300

The amount of the patients who displayed advancement in the count & motility of sperms was much high in the group of micro-surgery & amount of the patients who displayed advancement in morphology of sperms was much comparable in patients of all three groups (Table-4). The rate of pregnancy at 1st year was not much dissimilar in all three groups. The rate of pregnancy was 30.0%, 28.0% & 35.0% in laparoscopic, open & micro-surgical groups correspondingly.

Table 4. Patients with Improved Semen Parameters

Improved Semen Parameters		Improved		Stable		Deteriorated	
		No	%	No	%	No	%
Open	Count	54.0	57.00	10.0	11.00	20.0	22.00
	Motility	45.0	48.00	5.0	5.00	35.0	35.00
	Morphology	49.0	54.00	18.0	20.00	15.0	16.00
Laparoscopic	Count	45.0	50.00	5.0	5.00	33.0	35.00
	Motility	58.0	61.00	15.0	17.00	12.0	13.00
	Morphology	60.0	64.00	12.0	13.00	13.0	15.00
Microscopic	Count	89.0	78.00	7.0	5.00	9.0	8.00
	Motility	78.0	70.00	4.0	4.00	20.0	19.00
	Morphology	63.0	58.00	20.0	19.00	18.0	17.00

DISCUSSION:

There were 250 patients who underwent three different procedures of open, laparoscopic & micro-surgery for the treatment of the varicocele. The patients available with the palpable varicoceles were only the part of this research work. The formation of the hydrocele & recurring of varicocele were very common complications in most of the procedures. Similar to this research work, Cayman reviewed the experience of past works with repair of varicocele in adolescent and concluded no prevalence of the hydrocele underwent micro-surgical varicocelectomy in comparison with the 2.80% rate when other method of loupe magnification was in use & 4.40% frequency without magnification [8]. Watanabe also compared the effectualness of some methods in his research work [13]. Szabo & Kessler stated that lymphatic impediment was the reason of the formation of the hydrocele [15].

Some research works have displayed that artery of the semen could be ligated with no influence on the supply of blood to testes if there were spared arteries of the cremaster & vas deferens [16]. Some other case works showed that negative alterations in the quality of semen & testicular atrophy were present following the ligation of artery of sperms [17]. Current research work has displayed that there was advantage of laparoscopic technique of the less duration for surgery. Different research work has displayed the improved parameters of semen in the patients who underwent varicocelectomy [8, 12, 18]. But some research works have not concluded any advantageous impact [19]. We concluded the improvement in the parameters of semen in 162 patients out of 250 who underwent different techniques of varicocelectomy. This frequency was available with an agreement with 41.0% to 75.0% rates in the research works of the past [8, 12, 19, 20].

CONCLUSION:

The results of the research work concluded that micro-surgical varicocelectomy has much benefits over other two techniques like no formation of the hydrocele, a very low occurrence of the recurring of varicocele as well as good improvement in the count & motility of the sperms.

REFERENCES:

1. Evers JLH and Collins JA: Assessment of efficacy of varicocele repair for male subfertility: a systematic review. Lancet 2003; 361: 1849.
2. Evers JL and Collins JA: Surgery or embolization for varicocele in sub fertile men. Cochrane Database Syst Rev 2004; 3: CD000479.
3. Dohle GR, Colpi GM, Hargreave TB, Papp GK, Jungwirth A and Weidner W: EAU guidelines on male infertility. The EAU Working Group on Male Infertility. Eur Urol 2005; 48:703.
4. The influence of varicocele on parameters of fertility in a large group of men presenting to fertility clinics. World Health Organization. Fertil Steril 1992; 57: 1289.
5. Report on varicocele and infertility. The Male Infertility Best Practice Policy Committee of the American Urological Association and the Practice Committee of the American Society for Reproductive Medicine. Fertil Steril, suppl., 2004; 82: 142.
6. Ficarra V, Angela Cerruto M, Liguori G, Mazzoni G, Minucci S et al: Treatment of varicocele in sub fertile men: The Cochrane Review—a contrary opinion. Eur Urol 2006; 49: 258.
7. Schlegel PN: Is assisted reproduction the optimal treatment for varicocele-associated male fertility? A cost-effectiveness analysis. Urology 1997; 49: 83.
8. Cayan S, Acar D, Ulger S and Akbay E: Adolescent varicocele repair: long-term results and comparison of surgical techniques according

to optical magnification use in 100 cases at a single university hospital. J Urol 2005; 174: 2003.
9. Lund L and Larsen SB: A follow-up study of semen quality and fertility in men with varicocele testis and in control subjects. Br J Urol 1998; 82: 682.
10. Schiff J, Kelly C, Goldstein M, Schlegel P and Popper D: Managing varicocele in children: results with microsurgical varicocelectomy. BJU Int 2005; 95: 399.
11. Kim Ed, Leibman BB, Grinblat DM and Lipshultz L: Varicocele repair improves semen parameters in azoopermic men with spermatogenic failure. J Urol 1999; 162: 737.
12. Vazquez-Levin MH, Friedmann P, Goldberg SI, Medley NE and Nagler HM: Response of routine semen analysis and critical assessment of sperm morphology by Kruger Classification to therapeutic varicocelectomy. J Urol 1997; 158: 1804.
13. Cayan S, Kadioglu TC, Tefekli A, KIadioglu A and Tellalogu S: Comparison of results and complications of high ligation surgery and microsurgical high inguinal varicoceletomy in the treatment of varicocele. Urology 2000; 55: 750.
14. Pintus C, Rodriguez Matus MJ, Manzonic C and Nanni L: Varicocele in pediatric patients; comparative assessment of different therapeutic approaches. Urology 2001; 57: 154.
15. Al-Kandari AM, Shabaan H, Ibrahim HM, Elshebiny YH and Shokeir AA: Comparison of outcomes of different varicocelectomy techniques: open inguinal, laparoscopic, and subinguinal microscopic varicocelectomy: a randomized clinical trial. Urology 2007; 69: 417.
16. Watanabe M, Nagai A, Kusumi N, Tsuboi H, Nasu Y and Kumon H: Minimal invasiveness and effectiveness of subinguinal microscopic varicocelectomy: a comparative study with retroperitoneal high and laparoscopic approaches. Int J Urol 2005; 12: 892.
17. Cina A, Minnetti M, Pirronti T, Vittoria Spampinato M, Canada A, Oliva G et al: Sonographic quantitative evaluation of scro-tal veins in healthy subjects: normatie values and implications for the diagnosis of varicocele. Eur Urol 2006; 50: 345.
18. Szabo R and Kessler R: Hydrocele following internal spermatic vein ligation: a retrospective study and review of the literature. J Urol 1984; 132: 924.
19. Lynch WJ, Badenoch DF and McAnena OJ: Comparison of laparoscopic and open ligation of the testicular vein. Br J Urol 1993; 72: 796.
20. MacMahon RA, O'Brien MC and Cussen LJ: The use of microsurgery in the treatment of the undescended testis. J Pediatric Surg 1976; 11: 521.