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Outcome of Sub inguinal Varicocelectomy on Normal Semen in Patients Complaining of Orchalgia

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Abstract

Varicocele is a debatable and challenging subject. Varicocele is a leading cause of primary and secondary infertility in males. Varicocele may be presented in up to 2% to 10% of patients with pain and discomfort, leading to unacceptable lifestyle limitation. Various Treatment options for painful varicocele are present ranging from conservative measures to surgical. Postoperative outcome, for varicocelectomy done for orchalgia, has been addressed very little in the literature focusing exclusively for pain amelioration .Nearly no study focus on semen analysis results after the surgery particularly those for normal semen pre-operative. The study was carried on 16 patients in Assiut university hospital in our study we will identify the effect of the procedure on the normal semen. Our study showed that it is safe to perform varicocelectomy in case of orchalgia this could be explained by the disruption of pain impulses or its blockage at the level of cord.

Keywords: Varicocelectomy; Orchalgia

Introduction

A varicocele is an abnormal dilatation and tortuosity of the pampiniform plexus of veins. It affects commonly men of all ages, affecting nearly 15% of the male population [1]. The varicocele can be presented by infertility, 35% of men with primary infertility, and 75% to 81% of men with secondary infertility also Chronic testicular pain is a common complaint, affecting up to 2% to 10% of patients with varicocele. The effect of varicocele on male infertility is well known. However, its contribution to chronic orchalgia is still not well understood. The primary attention for many has been varicocele relation to infertility. The fertility outcome of surgery has been evaluated by several meta-analyses showing a notable advance in semen parameters postoperatively in subfertile men and favoring microsurgical approaches over other surgical techniques [2]. Treatment for painful varicocele ranges from conservative measures to surgery, if other methods failed. Conservative or non-surgical methods, consist of scrotal support, anti- inflammatory medications and limitations in activity, lead to unacceptable lifestyle limitation [3].

Microsurgical subinguinal varicocelectomy is the gold standard approaches this because of the better fertility outcome and less post-operative morbidity [4]. However, such presupposition cannot be made when pain is the studied outcome due to insufficient prospective randomized controlled trials examining the result of varicocele repair on pain. The majority of data from the literature is based on retrospective studies, bringing with it some inherent weaknesses [5]. Nevertheless, from the available literature, surgical repair of varicoceles performed for chronic orchalgia, results in improvement or resolution of pain in 83–100% of patients. Regardless of approach, surgical intervention is effective in the vast majority of patients with varicocele-related orchalgia [5,6]. Our aim is to check the safety of the procedure and identify any relation or consequence to the

normal semen parameters and the pain.

Patients and Methods

Patients attending the outpatient clinic of Urology department of Assiut urology and nephrology Hospital, Faculty of Medicine, Assiut University. Patient data presented from august 2018 to December 2019 will be collected. Our study will be a quasi-experimental study design. Total coverage of all eligible patients (patient having semen count 15 million sperm per milliliter, 39 million sperm per ejaculate, motility more than 40% and abnormal forms 85%), complain of pain only that will be presented to our Assiut urology hospital Andrology unit outpatient clinic. Primary varicocele, Patient's age more than 19 years ,Normal semen analysis (According to the WHO 5th guide to semen parameters where sperm concentration equal 15 million per ml , total sperm number 40 million per ejaculate ,normal morphology 4 % and motility A =25% or a+b = 32% is considered normal.) & scrotal pain after exclusion of other causes is the inclusion criteria with exclusion of recurrent varicocele. A detailed history taking and a careful examination will be done. A visual analogue pain score will be used to determine degree of discomfort or pain. Full pre-operative investigation including Semen analysis and Scrotal Doppler. Patient will be admitted 1 day preoperative. A written consent will be obtained from those patients who will participate in the study mentioning the risk of the procedure and associated anesthesia. The patient will be discharged on the 1st postoperative day. Analgesia and third generation cephalosporin will be given. Follow up will be scheduled at 3 months postoperatively. A detailed clinical examination will be done including the examination of the wound and degree of varicocele will be examined. Semen analysis and Testicular Doppler Ultrasonography will be done 3 months after surgery. A detailed discussion will be carried out, asking about the pain pre-operative and postoperative and its relation to daily activity with also the use of analgesics Correlation between pre and post-operative semen analysis for sperm concentration, motility and abnormal forms. Evaluation for complication as recurrence, persistence of pain and hydrocele will be carried on.

Results

Demographic data

We performed sub inguinal varicocelectomy for 20 patient presented to our out-patient andrology clinic in Assiut urology hospital from august 2018 to December 2019 complaining of pain although having normal semen pattern. Four patients were lost to follow up, hence we will present the data of the rest 16 patients, their mean age is [29.56 ± 5.99 (20.0 – 40.0)]. None of them were hypertensive or diabetic, only six of them were smokers.

Clinical data

>Pain:

All patients showed significant improvement of pain using the Visual Analogue scale for pain as seen in Table 1.

VAS	Preoperative	Postoperative	P-value
Mean ± SD	7.10 ± 1.29	1.95 ± 0.83	<0.001*

Table 1: Comparison between preoperative and postoperative pain using visual analogue scale.
* Significant difference

> Grades of varicocele:

As clear in Table 2, all patients having preoperative G I varicocele had no postoperative varicocele, on the other hand patients having preoperative G II and G III varicocele might had no postoperative varicocele, their varicocele grade decreased or remain as it is.

Preoperative	Total	Postoperative varicocele						P-value
		No		Grade I		Grade II		
		No.	%	No.	%	No.	%	
Grade I	3	3	100	0	0	0	0	0.113
Grade II	8	3	37.5	4	50	1	12.5	
Grade III	5	3	60	0	0	2	40	
Total	16	9	56.3	4	25	3	18.8	

Table 2: Comparison between preoperative and postoperative Grade of varicocele.

> Scrotal Color flow Doppler ultrasound

A. The vein size preoperative and postoperatively

We observed the diameter of spermatic veins of varicocele by color flow Doppler ultrasound and measured the largest vein diameter and registered for comparison. Table 3 shows the obtained pre and postoperative data. There was significant reduction in size of vein with P value less than 0.001.

B. The presence of reflux

When applied the color flow Doppler we found all patients show reflux of venous flow during Valsalva preoperatively. After subinguinal varicocelectomy, only seven patients had postoperative reflux as shown in Table 3. It was statistically significant change concerning the presence of reflux with P value less than 0.001.

Parameters	Preoperative	Postoperative	P-value
Vein size (mm) Mean ± SD	3.77 ± 1.03	2.44 ± 0.99	0.002*
Reflux	0	9	
No			0.001
Yes	16	7	

Table 3: Comparison between preoperative and postoperative findings of color flow Doppler scrotal ultrasound.
* Significant difference

> Semen parameter

As shown in table 4:

1. Total sperm number: There was increase in the total number as shown in table 4. There was no statistically significant improvement between preoperative total sperm number and postoperative total sperm number.

2. Sperm concentration: There was postoperative increase in the sperm concentration as shown in table 4, this improvement was not statistically significant.

3. Sperm motility: We took in consideration both type A, type B motility and their sum as shown in table 4. There was a reduction in type a motility and the sum of A and B motility but of no statistically significant. On the other hand, an increase in type B motility was noticed but also of no statistically significant.

4. Sperm Morphology: There was no statistically significant difference between pre and postoperative.

As shown in Table 4.

	Pre-operative	Post-operative	P-value
	Mean ± SD	Mean ± SD	
Total sperm number (million/ejaculate)	187.31 ± 185.41	221.69 ± 170.28	0.313
Concentration (million/ml)	52.34 ± 52.10	68.75 ± 57.72	0.352
Motility A:	18.56 ± 13.72	11.94 ± 9.46	0.163
Motility B:	30.20 ± 13.05	34.69 ± 10.40	0.186
Motility A+B:	52.38 ± 12.14	46.63 ± 14.22	0.233
Morphology	44.37 ± 20.88	45.60 ± 26.12	0.753

Table 4: Comparison between preoperative and postoperative semen parameters.

From table 4, it is clear that all semen parameters showed no statistically significant difference postoperatively.

> Relation between post-operative Visual Analogue Scale and reflux (Table 5).

VAS	Reflux (n= 7)	No reflux (n= 9)	P-value
Median (Range)	2.0 (1.0 – 4.0)	2.0 (1.0 – 3.0)	0.86

Table 5: Relation between post-operative VAS and reflux

From table 5, it is visible that there was no significant difference in postoperative pain score between patients having postoperative reflux and those having no postoperative reflux.

Discussion

In our study 20 patient were included. Our patients were completely healthy males, 6 patients were smoker (30%) and 13 were married (65%). Four of them were lost to follow up. The following data is based on the remaining 16 patients. The mean age of patients was 29 years old which is near to some studies investigating the effect of subinguinal varicocele ligation such as Peterson, et al. and Abd Ellatif, et al. [3,7]. Our patients showed significant improvement in pain according to the visual analogue score. The rate of success was 100%. Our result is in agreement with several authors Elbardisi, et al., Kim, et al. and Krishna Reddy, et al. [2,5.8]. Concerning postoperative grade of varicocele, all patients having grade I varicocele preoperatively had complete resolution of their varicocele postoperative. On the other hand, patients having grade II and III varicocele preoperative might have complete or partial resolution of their varicocele or even show no improvement of their condition at three months postoperatively this results are in agreement with several authors Chen, et al. and Yousry El-Amir, et al. [6,9].

The average preoperative internal spermatic vein size was 3.7mm and postoperatively was found to be 2.4mm which was significantly reduced, in addition to absence of reflux in 56.3% of patients. According to Karademir CFDSUS was used only in cases of persistent paiand they did not clarify the accurate number of patients showing reflux [10]. Several investigators did not apply the CFDSUS [3,11]. According to Maghraby and Krishna CFDSUS was done to evaluate testicular size, arterial supply of the testis to rule out testicular atrophy postoperatively and to measure the response to treatment [8,12]. According to Chawla they did not use the CFDSUS except when it was clinically indicated [13]. We did postoperative CFDSUS to all patients to evaluate the success of operation, testicular size to rule out testicular atrophy and to examine the relation between postoperative success of varicocele ligation and the resolution or persistence of testicular pain postoperatively.

It was reported that varicocelectomy significantly improves semen parameters in infertile men with varicocele. Sperm concentration and motility were the most common parameters to be significantly improved after varicocelectomy [14]. Reviewing the available literature varicocele with genuine testicular pain with normal preoperative semen parameter was not previously studied. In the current study, varicocelectomy did not significantly affect semen parameter in other words subinguinal varicocele ligation was safe concerning the semen parameters in patients with normal preoperative semen parameters. There was one study done in Qatar 2018 that commented on semen parameters but it was different than ours as it was retrospective in its design, it was giving more attention on the operative details as the number of veins ligated and its relation to pain. They found a relation between the number of veins ligated intraoperative and motility improvement [2].

Concerning the relation between postoperative resolution and persistence of varicocele versus testicular pain, we found that pain underwent marked improvement irrespective the success of varicoceles ligation. This result is in accordance with Yaman, et al. who believed that there is no relation between the reflux and pain [8,15]. Advantages of our study are that it is prospective; also to our knowledge the studying of the effect of varicocelectomy on patients with normal semen is a novel idea.

Limitations

Our study has some limitations, this study was based on a relatively small number of patients, there was no control group and relatively short duration of the follow up.

Conclusions

It is safe to perform varicocele ligation for patients complaining of orchalgia with normal semen with improvement of pain and no change in semen parameters.

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