Sub- Inguinal Varicocelectomy in the Treatment of Infertile Males with Varicoceles

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ABSTRACT:

BACKGROUND:

Varicocele is an abnormal dilatation of pampiniform plexus within the spermatic cord. Varicoceles are present in 15% of the normal male population and in up to 35-40% of patients with infertility. In approximately 70-81% of patients with secondary infertility, a varicocele is an underlying cause. It is a disease of puberty and is only rarely detected in boys less than ten years of age.

OBJECTIVE:

Is to evaluate the sub inguinal approach of varicocelectomy in infertile males with grade II and III varicoceles.

METHODS:

A total of 150 patients were included in the study from 2004 to May 2010. Their ages ranged from 18 to 42 years. Fifty patients (33.3%) had grade II while 100 (66.6%) patients had grade III varicoceles. All the patients had history of more than one year infertility (ranging from 14 to 36 months) and all of them were sexually competent. Physical examination was performed with no apparent other clinical cause of infertility. Although varicoceles were diagnosed primarily by physical examination, color Doppler ultrasound was done for further documentation of the patient's condition. Only patients with grade II and grade III primary varicoceles were included in the study with exclusion of those with grade I varicoceles. Seminal fluid analysis and hormonal assay were done for all patients. Any patient with sperm concentration below 10 millions / milliliter was also excluded. Sub inguinal varicocelectomy was done for each patient. The operative time ranged from 20-25 minutes. The patients were followed for one year.

RESULTS:

The overall pregnancy rate at one year was 66, 6 % .The time from the operation till pregnancy was ranged from 4 to 12 months. Ten patients (6.6%) developed recurrence , 2 patients (1.3%) developed scrotal pain for 3 weeks postoperatively and then disappeared , and only 4 patients (2.6 %) developed hydrocele .

CONCLUSION:

Whereas most male infertility surgeons now use the microsurgical approach, varicocele repairs can be achieved with successful results and minimal complications without microsurgery as long as they are carefully performed. Although microscopic sub inguinal varicocelectomy is better than non microscopic one, the later can be done successfully with shorter operative time.

KEY WORDS: varicocele, sub inguinal varicocelectomy, pregnancy rate, hydrocele.

INTRODUCTION:

Varicocele is an abnormal dilatation of pampiniform plexus within spermatic cord[1]. Varicoceles are present in 15% of the normal male population and in up to 35-40% of patients with male infertility [2,3].In approximately 70-81% of patients with secondary infertility, a varicocele is an underlying cause[3,4].It is a disease of puberty and is only rarely detected in boys less than ten years of age[5].

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Barfield, a British surgeon, first proposed the relationship between infertility and varicocele in the last 19th century. It remains the most common specific cause of male infertility and varicocelectomy is the most frequently performed surgery for male infertility [6]. The world health organization (WHO)investigated the influence of varicocele on fertility in men presenting to infertility clinics and concluded that it is clearly associated with duration dependent decline in testicular function and infertility[4,7,8,] .

The indications for correction of varicocele include scrotal pain, testicular atrophy, and infertility without other apparent causes [9].

The treatment options for varicocele can be divided into two major categories: (1). Percutaneous occlusion by intravenous injection of various materials to occlude the varicoceles and (2).Surgical repair by ligation or clipping of the varicoceles to prevent venous reflux [10, 11]. The three most common approaches for surgical repair are inguinal (groin) , retroperitoneal (abdominal) , and infrainguinal / sub inguinal (below the groin)[12] .

The extent of improvement in semen parameters correlate to the grade of the varicoceles treated, with the biggest improvement in men treated with grade III varicoceles [13, 14].

AIM :

Is to evaluate the non microscopic sub inguinal approach of varicocelectomy in infertile males with grade II and III varicoceles.

PATIENTS & METHODS:

A total of 150 patients were included in the study from 2004 to May 2010. Their ages ranged from 18 to 42 years. Fifty patients (33.3%) had grade II while 100 (66.6%) patients had grade III varicoceles (table I). All patients had history of more than one year infertility (ranging from 14 to 36 months) and all of them were sexually competent.

Physical examination was performed with no apparent other clinical cause of infertility. Although varicocele was diagnosed primarily by physical examination, color Doppler ultrasound was done for further documentation of the patient's condition. Only patients with grade II and grade III primary varicoceles were included in the study (picture I) with exclusion of those with grade I varicoceles. Seminal fluid analysis and hormonal assay were done for all patients. Any patient with sperm concentration below 10 millions / milliliter was also excluded.

Sub inguinal varicocelectomy (picture II & III) was done for each patient. Three to 3.5 centimeters transverse incision was made at the level of the external ring. The incision was carried down to the external oblique fascia, which is not incised. The spermatic cord is identified as it exits the external ring .The tortuous dilated veins were identified and ligated. Any visible posterior cremasteric veins were also ligated. The operative time ranged from 20-25 minutes. The patients were followed for one year.

RESULTS:

The overall pregnancy rate at one year was 66, 6 %. The time from the operation till pregnancy ranged from 4 to 12 months. Ten patients (6.6%) developed recurrence , 2 patients (1.3%) developed mild scrotal pain for 3 weeks postoperatively and then disappeared , and only 4 patients (2.6 %) developed hydrocele (table II) .

DISCUSSION:

Surgical repair of varicocele remains the most popular form of treatment and it can be achieved by conventional open varicocelectomy (retroperitoneal high ligation, inguinal and sub inguinal ligation), laparoscopic and microsurgical varicocelectomy [15]. The introduction of microsurgical techniques significantly reduced the persistence / recurrence rate [2].

The extent of improvement in semen parameters correlate to the size of the varicoceles treated , with the biggest improvement in men treated with grade III varicoceles [13,14] and for that reason the patients with grade I varicoceles were excluded from the study.

The pregnancy rate (66.6 %) is higher than that obtained by Goldstein *et al* in 1992 (43 %) [2] , Marmar in 1994 (36.5 %) [16], and relatively similar to that obtained by Kamal *et al* in 2001(61 %) [17] This may be explained by better selection of patients for surgery as any patient with sperm concentration below 10 millions / milliliter was excluded from the study and this is consistent with the fact obtained by Kamal *et al*, 2001 that the spontaneous post-repair pregnancy rate was significantly higher in couples in whom the man's sperm concentration was greater than 5 million sperms / milliliter [17].

The most common complications of varicocelectomy are hydrocele, varicocele recurrence, and testicular artery injury [2]. The surgical procedures are compared to each other in relation to these complications.

In this study the percentage of hydrocele was 2.6 % which is lower than that occurred following the retroperitoneal approach (7%)[18] , laparoscopic approach (5-8 %) [19] , the conventional non microscopic inguinal approach (3-39) and higher than that occurred following microscopic sub inguinal varicocelectomy (0 %) [2] .

The recurrence rate in this study is 6.6 %. It is higher than that occurred following laparoscopic approach (less than 2%) [19,20] , the microsurgical

sub inguinal approach (1-2%)[2] and is lower than the retroperitoneal approach (11-15%) [21, 22] and the non microscopic inguinal approach (9 – 16 %) [2,16] .

The operative time in this study was from 20- 25 minutes compared to 25-60 minutes for the microsurgical varicocelectomy [15].

CONCLUSION:

Whereas most male infertility surgeons now use the microsurgical approach, varicocele repairs can be achieved with successful results and minimal complications without microsurgery as long as they are carefully performed.

Although microscopic sub inguinal varicocelectomy is better than the non microscopic one, the later can be done successfully with shorter operative time.

Table I: Patient's data

Number of patients	Data
Age(18 – 42 years)	150
50 (33.3%)	Grade II varicoceles
100(66.6%)	Grade III varicoceles

Table II: Results

Results	% of patients
Pregnancy rate	66.6%
Recurrence rate	6.6%
Hydrocele	2.6%

Picture I: Grade III varicocele seen by naked eyes.

Picture II: Small surgical incision (3-3.5 cm) used for varicocelectomy.

Picture III: Isolation of dilated veins for ligation.

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