

Varicocele's Correction and Improvement of Sperm Count among Libyans at Al-Khoms Teaching Hospital, Libya.

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ABSTRACT:

Varicocele is an abnormal enlargement of vein of pampiniform plexus vein draining the testis. The upward direction of flow of blood is believed to be maintained by the presence of valves within the veins. Defective valves or compression of the veins by adjacent structures can cause dilatation of the veins of pampiniform plexus leading to formation of varicocele. In the present study, the site of Varicocele, type of infertility among the patients and the sperm count were studied with the effect of Varicocelectomy.

The research work was conducted at Al-khoms Teaching Hospital, Libya between January 2013 and December 2014. 20 cases were observed during the study with Varicocele. Varicocelectomy method was undergone with different type of Anaesthetic procedures. After surgery, regular follow-up were done for 1 year including the sperm count analysis.

Results showed that there were about 13 cases have left side varicocele and 7 with bilateral. Recently more cases of bilateral Varicocele were reported may be due to the availability of latest technology for diagnosis. Sperm counts were also increased after surgery in almost all the cases which confirm that the surgery help in improving the fertility among the Varicocele cases. Prospective, long term, randomized trials are needed to help elucidate the benefit of varicocele repair on the improvement of fertility among humans at all stages of life.

KEY WORDS: Varicocele, Sperm count, Infertility and Al-khoms teaching hospital.

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I. INTRODUCTION:

Varicocele is a pathologic dilatation of the pampiniform venous plexus of the spermatic cord that occurs in approximately 15–20% of males and in up to 40% of infertile males (Hargreave, 1993). This condition occurs most frequently on the left side and can cause decreased testicular function (Naughton et al., 2001). It is like getting a varicose vein in your leg. Some patients may have scrotal pain and swelling but more importantly, varicocele is considered to be a potential cause of male infertility (Lee et al., 2006). Though the causal relationship remains an unsettled issue, improved fertility and sperm quality have been reported after various methods of treatment including occlusive treatment for varicoceles (Kumanov et al., 2008). On physical examination, large varicoceles are easily identified and described classically as “bag of worms” surrounding the testis. The dilatation of spermatic veins can be assessed by Valsalva manoeuvre. Doppler ultrasonography allows accurate diagnosis of varicoceles even at subclinical stage of varicocele (Tasci et al., 2001).

There are several theories like the angle at which the left testicular vein enters the left renal vein and a functional deficiency of valves at the junction of the testicular vein and renal vein on the aetiology of varicocele ranging from anatomical reason (Heaton, 2006). Infertile men with varicoceles were found to have decreased testicular volume, impaired sperm quality, and decline of Leydig cell secretion. Despite these findings in this infertile population, spontaneous pregnancy rates were identical in men with or without varicoceles (WHO, 1992). Varicocele is a physical abnormality found in the 11% of adult males (Pfeiffer et al., 2006) and in the 25% of those with abnormal semen analysis (Nieschlag, 1995). Varicoceles are more common on the left side of the scrotum. This is because the male anatomy isn't the same on both sides. Varicoceles can exist on both sides at the same time, but this is rare. About 10 to 15 boys out of 100 have a varicocele. The therapeutic approach for adolescent varicocele remains that of the patient to undergo several treatments, to be compared according to safety and effectiveness (Riccabona et al., 2003).

II. CAUSES:

Many causes of varicoceles have been offered. The valves in the veins may not work well (or may be missing). If blood flow is sluggish, blood may pool in the veins. Also, the larger veins moving from the testicles towards the heart are connected differently on the left and right side. So more pressure is needed on the left side to keep blood flowing through the veins towards the heart. If blood flows backwards or pools in the veins, that can cause them to swell. Rarely, swollen lymph nodes or other abnormal masses behind the abdomen block blood flow. This can lead to sudden swelling of the scrotal veins. This is often painful.

III. INDICATIONS OF REPAIR:

The American Urological Associations of Male fertility best practice policy committee and the American society for reproductive medicine practice committee (2004) state that treatment of adult Varicocele should be considered when:

1. Varicocele is palpable on examination.
 2. The couple has known infertility.
 3. The female partner has normal fertility or a potential treatable cause of infertility and
 4. The male partner has abnormal sperm parameters or abnormal result on sperm function tests.
- However, these indications are rarely available in the adolescent/young adult population.

In the present study, the site of Varicocele, type of infertility among the patients and the sperm count were studied with the effect of Varicocelectomy.

IV. MATERIALS AND METHODS:

The research work was conducted at Al-khoms Teaching Hospital, Libya between January 2013 and December 2014. The diagnosis of varicocele was made by clinical examination and was confirmed by Colour Doppler analysis. 20 cases were observed during the study with Varicocele. The patients' ages were between 21 and 47. The site of Varicocele, type of infertility (Primary and secondary) among the patients and the sperm count were analysed before the surgery. Varicocelectomy method was undergone with different type of Anaesthetic procedures. After surgery, regular follow-up were done for 1 year. During follow-up the sperm count was checked again to confirm the improvement of the patients. The Sperm count were analysed at the Central Laboratory, Al-khoms teaching hospital, Libya.

V. RESULTS AND DISCUSSIONS:

Varicocele affect the Semen parameters moderately by asthenospermia, teratospermia or asthenoteratospermia. Initially, sperm concentration is not seriously affected, though later all three sperm parameters can gradually deteriorate, resulting in azoospermia in very few cases (Papadimasand Mantalenakis, 1983). In the present study, about 13 cases have left side varicocele. Few bilateral cases (Table 1) were also reported in this study. Usually, 78% - 93% of cases varicocele is located on the left side (Saypol, 1983). But the increased frequency of bilateral localization documented in more recent studies can be due to the use of modern diagnostic means, such as conventional or Doppler ultrasound of the scrotum (Lund et al., 1999). Primary type of infertility cases were also observed more during the study. Almost in most of the cases, there was an improvement or progress in the sperm count after surgery (Table 1). But No correlation was found between the age of the patients and improvement in the sperm count.

Table 1: Varicocele site, infertility type and Sperm count (Before and after surgery):

S. No.	Varicocele site	Infertility	Anaesthesia	Sperm count (10 ⁶ /ml)		Age (Years)
				Before	After	
1	Left	Primary	Local	10	11	21
2	Left	Primary	Local	10	12	22
3.	Left	Primary	Local	11	17	23
4	Left	Primary	Local	15	31	23
5	Left	Primary	Local	02	15	25
6	Left	Primary	Local	14	16	28
7	Left	Primary	Local	16	21	29
8	Left	Primary	Local	07	18	30
9	Left	Primary	Local	10	11	36
10	Left	Primary	General	10	15	33
11	Left	Primary	General	11	35	35
12	Left	Secondary	Local	14	31	24
13	Left	Secondary	Local	09	24	43
14	Bilateral	Primary	Local	08	10	22
15	Bilateral	Primary	General	16	32	23
16	Bilateral	Primary	General	12	20	24
17	Bilateral	Primary	General	13	18	25

18	Bilateral	Secondary	General	03	11	25
19	Bilateral	Secondary	General	02	08	45
20	Bilateral	Secondary	General	10	16	47

The improvement in the sperm count of the present study is also supported by Moursy et al., (2013) that 70% of cases were observed with improved sperm count after the surgical procedure. Tulloch (1995) reported his results of high inguinal varicocele ligation on 30 men (5 bilateral), describing normalization of sperm counts and pregnancy in two azoospermic men and improvement in sperm counts in 87% of the group overall.

Reason for the Varicocele were expressed that Venous backflow with elevation of testicular temperature, increased spermatic vein pressure, accumulation of adrenal waste products and autoimmunity have been hypothesized to create a toxic environment to both Sertoli and Leydig cells (Shiraishi et al., 2010). Human studies by them have also shown that increased testicular temperature is closely associated with increased Leydig cell apoptosis. Recent evidence in adults suggests that varicocele may be a cause of hypogonadism (Ahmed and Andrew, 2014).

VI. CONCLUSION:

The surgical treatment of the adolescent varicocele is controversial and debated. Present study showed that there is an improvement in the fertility of the patients by increasing the sperm count. The over treatment and under treatment are medically and financially costly. So Prospective, long term, randomized trials are needed to help elucidate the benefit of varicocele repair on the improvement of fertility among humans.

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