

УДК: 616.147.22-007.64-07-089

THE EFFECT OF VARICOCELE ON THE SEXUAL FUNCTION OF MEN

Soliyev Mukhammadjon Bakhtiyor ugli

student of the Faculty of Pediatrics Andijan State Medical Institute

Gafurov Adham Anvarovich

Doctor of Medical Sciences, Professor, and Head of the Department of Pediatric Surgery at the Faculty of Medicine

Bektasheva Gulbahor Maxammadisak kizi

Family doctor at the 7th Family Polyclinic of the Andijan City Medical Association
Andijan, Uzbekistan

Abstract. Varicocele is one of the urgent problems of modern medicine. According to various data, the prevalence of varicocele among men is 15-30%. About half of these patients suffer from male infertility. As a result of many years of research, doctors have found that in patients with long-term varicocele, the testicles become soft and decrease in size. The results of the study showed that the size of both testicles in patients with varicocele is significantly smaller than in healthy men, regardless of the severity of the disease. Scientific studies show that varicocele can reduce testosterone levels in men, and, in turn, varicocelectomy can correct this deficiency, which has been confirmed in experimental studies. Of additional interest is the question of whether varicocelectomy can be used to treat age-related hypogonadism in older men. The authors concluded that further research in this area with control groups is needed.

Keywords: occlusive erectile dysfunction of veins, body mass index, final diastolic level, international index of erectile function, urolithiasis, high systolic frequency, Ultrasound dopplerography, erectile dysfunction.

Relevance. Varicocele occurs in 10–30% of men, and its prevalence depends on age and race, being more common among Caucasians. Among boys aged 1–10 years, varicocele is found in 15%, and it is more frequently diagnosed during puberty. The incidence of the disease increases with age. In individuals over 50 years old, varicocele is more common due to changes in the vascular system and internal organs, especially in the retroperitoneal region, as well as the frequent occurrence of inguinal hernias. Additionally, many patients may have dilation not only of the spermatic veins but also the scrotal veins. According to Koryakin M. V., among elderly patients aged 50–79, varicocele was detected in 77.3%.

Levinger U. concluded similarly, noting that the frequency of varicocele increases by 10% every decade and may reach 75% in the population by the age of 80.

The WHO classification (1997) is widely used:

- **Grade I:** Dilated veins are visible and palpable only during the Valsalva maneuver.
- **Grade II:** Veins are not visible but can be easily palpated.
- **Grade III:** Venous dilatations are visible through the scrotal skin and are easily palpable.

The Russian classification (1978) is as follows:

- **Grade I:** Varicocele is detectable by palpation only when the patient is standing and straining.
- **Grade II:** Varicocele is visually detectable; testicular size and consistency remain unchanged.
- **Grade III:** Clear dilation of the pampiniform plexus, with testicular atrophy and changes in firmness.



The Coolsaet (1980) classification, based on hemodynamic reflux types, is also used for diagnosis and treatment:

- **Type I:** Reno–testicular reflux
- **Type II:** Ileo–testicular reflux
- **Type III:** Mixed type

According to the American Urological Association classification:

- **Subclinical varicocele:** Detected only by Doppler ultrasonography (USDG)
- **Grade I:** Dilatation of the spermatic veins during the Valsalva test
- **Grade II:** Dilatation palpable during physical examination

Left-sided varicocele is associated with the anatomical structure of the venous system: the left testicular vein drains into the left renal vein, while the right testicular vein drains into the inferior vena cava. The “aorto-mesenteric clamp” theory explains left varicocele development: in an upright position, the left renal vein is compressed between the aorta and the superior mesenteric artery, causing local hypertension in the left renal vein. The angle of compression varies with posture: in the supine position, the angle is larger and venous outflow is unobstructed; in the upright position, the angle narrows, causing partial compression of the left renal vein.

Elevated renal vein pressure may lead to valve failure in the internal testicular vein and rerouting of venous blood through the pampiniform plexus, then along the external spermatic vein to the common iliac vein, forming a compensatory reno-caval anastomosis.

Right-sided varicocele can result from drainage of the right testicular vein into the right renal vein, observed in 2.1–8.3% of cases. Grillo-Lopez A. J. suggested that right-sided varicocele may develop due to inferior vena cava thrombosis and occlusion at the level of the right renal vein.

Research Objective. To improve the diagnosis and treatment outcomes of sexual disorders in patients with varicocele. To determine the prevalence of sexual disorders among patients, study the nature of dysfunction based on the pathogenesis of sexual disorders, and investigate the impact of varicocelectomy on sexual function and hormone levels. To develop a diagnostic and treatment algorithm for varicocele depending on the presence or absence of sexual disorders and the fertility status of patients.

Research Materials and Methods. A total of 44 patients (100%) were included in the study. The patients’ ages ranged from 20 to 59 years, with a mean age of 34.7 years. Among them, 40 patients (90.9%) were aged 20–44 years, and 4 patients (9.1%) were aged 45–59 years. Twenty-five patients (57.1%) reported scrotal pain associated with varicocele, and 19 patients (42.9%) reported infertility.

In infertile men, the duration of infertility ranged from 1 to 7 years, with a mean of 2.36 years. Previously, 38 patients (10.7%) had received conservative treatment for infertility. Three patients (6.5%) had a history of failed IVF/ICSI attempts due to male factor infertility.

The mean body weight of patients was 82.3 ± 15.9 kg (range 60–105 kg). The mean BMI was 26.4 ± 11.8 kg/m². Pulse rate averaged 71.6 ± 4.7 beats/min (62–82 bpm). Mean systolic blood pressure was 124.5 ± 14.3 mmHg (110–170 mmHg), and mean diastolic blood pressure was 82.1 ± 9.6 mmHg (70–110 mmHg).

Active smokers accounted for 3 patients (8.8%). During the study, 19 patients (46.3%) did not consume alcohol, 21 patients (48.7%) consumed alcohol occasionally (once a week or less), and 1 patient (2.2%) consumed alcohol more than once per week.

Varicocele was diagnosed in all patients who complained of scrotal pain during physical exertion or sexual activity, representing nearly half of the study participants (26 patients, 42.9%).



Comprehensive andrological examination of 35 infertile men revealed that in 22 patients (62.6%), varicocele was the most probable cause of infertility. Sexual disorders were identified in 27 men with varicocele and in 62 infertile men without varicocele.

Research Results. The main reasons men sought consultation at the Andrology and Urology Department were infertility in marriage (defined as the absence of pregnancy after one year of regular unprotected sexual activity) and scrotal pain. Examination of 35 infertile men revealed that more than half, 22 patients (62.6%), had varicocele. Twenty-six patients complained of scrotal pain associated with varicocele. Overall, varicocele was present in 34 men (78.7%), forming Group A, while 10 men (21.3%) without varicocele were classified as Group B.

The study included patients aged 20 to 69 years, with a mean age of 36.6 ± 9.6 years. The average BMI was 24.3 ± 4.6 kg/m². Among them, a small portion, 8.4%, were smokers. Comorbidities in this group included epididymal cysts in 15 patients (3.1%), chronic prostatitis in 9 (1.8%), lower limb varicose veins in 8 (1.6%), coronary heart disease (CHD) in 3 (0.6%), hypertension in 2 (0.4%), urolithiasis in 2 (0.4%), and diabetes mellitus in 1 patient (0.2%).

Using specialized questionnaires (ICEF and AMS), sexual function was assessed in 44 patients. Sexual dysfunction (SD) was identified in 28 patients (62.1%). Erectile dysfunction (ED) was observed in 100% of patients with sexual disorders. Decreased libido was found in 9 patients (20.4%). Orgasmic dysfunction was detected in 1 patient (2.2%). No ejaculatory disorders were observed in Group A. Over one-third of patients, 17 (39.5%), were dissatisfied with sexual intercourse, and 11 patients (24.8%) reported a decrease in overall sexual satisfaction. The total AMS score for this group was 32.8.

Ultrasound examination of the scrotal organs in Group A showed a mean total testicular volume of 21.2 ± 4.1 cm³. The mean serum testosterone level was 14.2 ± 5.4 nmol/L. Estradiol and progesterone levels were also measured; in patients with varicocele, estradiol averaged 74.1 pmol/L and progesterone 12.3 pmol/L (or 1.6 and 0.5 nmol/L, respectively). All hormonal measurements adhered to international standards and met inclusion/exclusion criteria for the study.

The study included patients aged 20 to 59 years, with a mean age of 38.8 ± 10.4 years. Average BMI was 24.6 ± 4.4 kg/m², and 14 patients (10.5%) were smokers. Comorbidities included epididymal cysts in 4 patients (3%), CHD in 2 (1.5%), hypertension in 3 (2.3%), diabetes mellitus in 2 (1.5%), chronic prostatitis in 4 (3%), varicose veins of the lower extremities in 2 (1.5%), and urolithiasis in 1 patient (0.8%).

In Group B (n=11), sexual disorders were identified in 4 patients (46.6%), of which ED was observed in 3 patients (29.3%). Decreased libido, orgasmic disorder, and ejaculatory disorder were each observed in 1 patient (9.5%). Over one-quarter of patients (25.6%, 3 patients) were dissatisfied with sexual intercourse, and 2 patients (20.3%) showed reduced overall sexual satisfaction. Because of the low number of patients with orgasmic or ejaculatory disorders, no statistical comparison was performed for these parameters. The total AMS score in this group was 31.4 ± 18.4 . Ultrasound examination revealed a mean total testicular volume of 22.4 ± 3.6 cm³. The mean serum testosterone level was 15.3 ± 4.1 nmol/L, and the mean estradiol level was 74.6 pmol/L.

Among patients with varicocele, survey results indicated the presence and severity of sexual dysfunction. This section describes the subset of patients with varicocele and sexual disorders (n=32). This group included patients aged 20–59 years, with a mean age of 35.2 ± 9.1 years. Age distribution: 20–44 years, 28 patients (97.8%); 45–59 years, 2 patients (2.2%).

The average age of onset of sexual dysfunction was 33.1 years, and the mean duration of sexual disorders was 26 years. Mean BMI was 24.4 ± 4.8 kg/m²; most patients (96.7%) had a normal BMI (18.5–25 kg/m²). Eight patients (2.9%) were overweight (BMI 25–30), and one patient had



class II obesity (BMI 36). Most patients were non-smokers; only 2 patients (5.8%) smoked regularly.

Comorbidities included epididymal cysts in 4 patients (2.6%), CHD in 1 (1.7%), hypertension in 2 (3.7%), diabetes mellitus in 1 (1.7%), chronic prostatitis in 5 (2.5%), varicose veins of the lower extremities in 4 (2.2%), and urolithiasis in 1 (1.7%).

Hormonal analysis revealed a mean testosterone level of 12.9 ± 5.6 nmol/L. Half of the 18 patients (53.8%) had testosterone levels below 12 nmol/L. Testosterone levels above 12 nmol/L were observed in 16 patients (46.2%). Mean estradiol was 74.1 ± 12.3 pmol/L, and progesterone averaged 1.6 ± 0.5 nmol/L.

Conclusion. The prevalence of sexual dysfunction in patients with varicocele is significantly higher compared to patients without varicocele (62.1% vs. 46.6%). Among patients with clinical varicocele, the incidence of erectile dysfunction (ED) was 62.1%, with decreased libido observed in 20.4% of cases and orgasmic disorders in 1.2% of patients. Additionally, 39.5% of patients with varicocele reported dissatisfaction with sexual intercourse.

Risk factors for the development of sexual dysfunction in men with varicocele include bilateral involvement, the presence of grade II, III, and III hemodynamic types of varicose veins in the spermatic cord, and a total testicular volume of less than 18 cm³.

Compared to patients without varicocele, those with ED and varicocele tend to have more severe forms of ED. This is confirmed by lower erectile function scores on the ICEF questionnaire (12.1 ± 5.2 vs. 17.4 ± 6.1) and a higher prevalence of severe ED (39% vs. 9.7%).

References

1. Alkhasov, G. M. Bilateral varicocele. Epidemiology and diagnosis: Doctoral dissertation. Russian Academy of Sciences, Moscow, 2014.
2. Artifeksov, S. V., Rijakov, Yu. D., & Mojjuxin, V. B. Varicocele: The role of temperature factor in the pathogenesis of subfertility in urology. 2016.
3. Bozhdanov, V. A., Nikolaeva, M. A., Ushakova, I. V., et al. Etiology of autoimmune male infertility. Obstetrics and Gynecology, 2013.
4. Qodirov, Z. A., Teodorovich, O. V., & Zokirov, A. A. Varicocele treatment: Epidemiology, clinic, and diagnosis. Urology, 2017.
5. Qodirov, Z. A. Varicocele. 2nd ed., revised. Moscow: MEDitsina Publ., 2016.
6. Kamalov, A. A., Lopatkin, N. A. Men's diseases. Moscow: MEDitsinskoe Informatsionnoe Agencie, 2018.
7. Kapto, A. A. Diagnosis and surgical treatment of subclinical varicocele in male infertility: Candidate of Medical Sciences dissertation abstract, Moscow, 2014.
8. Kovrov, I. V. Anatomical and anthropological approaches to diagnosis and treatment of patients with varicocele. Candidate dissertation, Russian Academy of Sciences, Novosibirsk, 2011.
9. Koryakin, M. V., Zubarev, A. R., Akopyan, A. S. Varicocele in elderly men: incidence, consequences, and risk of developing benign prostatic hyperplasia. Andrology and Genital Surgery, 2014.
10. Maso, E. B., Tirsi, K. A., Andranovich, S. V., Dmitriev, D. G. Preoperative ultrasound and scrotal Doppler echography in the diagnosis of hemodynamic varicocele types, 2014.
11. Tirsi, K. A. Types of venous hemodynamics in left-sided varicocele in secretory infertility: biological aspects, diagnosis, and treatment. Candidate dissertation, Moscow, 2012.
12. Lopatkin, N. A. Urology: National manual. Moscow: GEOTAR-Media Publ., 2014.
13. Sukanov, A. Yu. Selection of surgical treatment methods for varicocele based on new data on diagnostics, etiology, and pathogenesis. Doctoral dissertation abstract, Moscow, 2016.

