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**Annotation:** Varicocele is one of the most common problems in modern reproductive medicine. The incidence of varicocele in the structure of the general male population is 15%, 40% of which have problems with fertility. Among the causes of male infertility, varicocele ranks second after idiopathic, thus being the most common curable cause of male infertility. While researching the pathophysiological mechanisms of infertility in varicocele, the question of the reasons for the varicocele relapses, both after surgical and endovascular methods of treatment remains open, as well as the tactics of managing such patients. The review aimed to systematize knowledge about the problem of recurrent varicocele, to analyze the frequency and etiology of relapses after various methods of primary treatment, as well as to select the optimal diagnostic and treatment option for varicocele recurrence.

**Keywords:** review; varicocele; varicocelectomy; recurrent varicocele; male infertility

Varicocele is one of the most common problems in modern reproductology. The occurrence of varicocele in the general male population is 15%, of which 40% experience problems with fertility [1]. Among the causes of male infertility, varicocele ranks second after idiopathic, thus being the most common curable cause of male infertility. Along with the study of the pathophysiological mechanisms of infertility with varicocele, the question of the reasons for the recurrence of varicocele both after surgical and endovascular treatment methods, as well as the tactics of managing such patients, remains open. Recurrence rates vary widely and may depend on the population studied, indication for primary intervention, grade of initial varicocele, treatment modality, surgeon experience, criteria for defining recurrence (clinical/subclinical), and follow-up period [1].

Relapse rates with different treatment options

Retroperitoneal high Palomo ligation has an average recurrence rate of 15% (7 - 35%), while after laparoscopic surgery this figure is 4.3% (2.2 - 7) .1%). After macroscopic surgery with inguinal or subinguinal approaches, the recurrence rate remains quite high 2.63% (0 - 37%), and the use of microsurgical techniques gives a statistically significant reduction to 1.05% ( 0 – 3.57%). Unfortunately, X-ray endovascular methods do not reduce the rate of relapse (from 2 to 25% after embolization of the testicular vein).

Considering these data, we can conclude that microsurgical inguinal or subinguinal varicocelectomy reveals a lower percentage of relapses, which depends on the ability to visualize and ligate all spermatic veins at high magnification.

Based on the results of intraoperative venography, the Wishany study states that venous drainage from the testicles is primarily mediated by the testicular vein, with the external genital vein, vas deferens vein, and cremasteric veins listed in decreasing order of importance [2]. There are also transscrotal collaterals and veins gubernaculum that drain blood into the internal iliac vein system through the venous plexus of the scrotum. These vessels are components of the testicular guide ligament (Guenther's ligament, Gubernaculum testis), which plays an important role in the descent of the testicle into the scrotum and is a homologue of the round ligaments of the ovary and uterus in women.

Preservation of venous outflow from the testicles after ligation of the testicular vein during varicocelectomy occurs due to collaterals. Variations in the structure of the testicular vein are detected quite often in pathological studies. The classic anatomical configuration occurs on the right in 78%, and on the left in 79% of patients [3].

Due to the presence of a large number of anatomical variations in the structure of the testicular vein system, two similar classifications of varicocele types were published by W. Bühren et al. and R.R. Murray et al., based on venography data.

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