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Received 23 January 2022;
Received in revised form 24 April 2022;
Accepted 26 April 2022

MODERNIZATION OF THE MEDICAL TREATMENT ALGORITHM ON VARICOSE VEINS OF LOWER EXTREMITIES

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ABSTRACT

Aim: This article is devoted to the study of current information and the identification of the latest methods of treatment for varicose veins of the lower extremities.

Materials and methods: the work is based on the results of a comprehensive examination and surgical treatment of 20 patients with primary varicose veins of the lower extremities and a literature survey.

Results: The advanced methods of varicose disease treatment are commonly used and demonstrate highly positive results.

In our research 10 patients were operated by radiofrequency ablation, while in the other half sclerotherapy was performed. It's worth mentioning that in the group of patients who underwent sclerotherapy, there was a minimum percentage (5%) of recurrence of disease. In the case of radiofrequency ablation, no recurrence was observed, which allows us to recommend these methods for the treatment of varicose veins of the lower extremities.

Conclusion: Recommendations have been developed for performing operations of various volume and complexity depending on the level of varicose transformation. Modern methods of treatment of varicose veins were discussed, which can be carried out in outpatient departments: they are low-traumatic and have a high cosmetic effect.

Keywords: varicose veins, sclerotherapy, radiofrequency ablation, vein stripping, varicose disease, endovascular method

INTRODUCTION

Varicose vein disease of lower extremities presents a major problem in modern healthcare. The disease is characterized by high occurrence and has obvious and well known visibly seen manifestations. Thus, in the USA and Western Europe approximately 25% of population has one of the forms of varicose vein disease [1]. Clinical manifestations of this disease are not always considered as demanding serious and systematic treatment and constant monitoring.

The most important way to prevent varicose veins is a periodic medical examination of the population, which allows to identify disease at the initial stage, before the onset of chronic venous insufficiency. Currently, so called gold standard in diagnostics is duplex ultrasound conduct of veins.

Genesis of varicose disease of lower extremities veins depends on inheritance, obesity, hormone disorder, lifestyle, and pregnancy. The disease is manifested in the varicose transformation of saphenous veins along with the development of chronic venous insufficiency, which is associated with a radical change in lifestyle among the population [1,3,5,9,10]. Varicose veins have a number of characteristic features that can't be treated by standard scheme of a surgical technologies.

Unfortunately, the majority of patients receive surgical care in general surgical departments, where operations are performed in a standard way, and that causes relapses in 70% of cases [1,4,6,8]. Traditional methods cause trauma of tissues (Modelung, Liston, Felder and others), which leave rough scars, high risk of lymphatic edema of the lower extremities, wound suppurations and marginal necrosis of the skin [2,5,8].

The most common treatment for varicose veins is sclerotherapy, which allows to quickly and effectively eliminate cosmetic problems and venous congestion, which causes varicose transformation of new veins. Modern methods of surgical treatment of varicose veins of the lower extremities should also include minimally invasive ones: endovasal thermal methods of radiofrequency ablation and endovasal laser ablation, endovasal chemical treatment methods, represented by sclerotherapy and mechanochemical ablation, subfascial dissection of perforating veins, cryostripping, microflebectomy. Ambulatory conservative hemodynamic treatment of insolvent varicose veins and ambulatory selective varicose vein ablation under local anesthesia should be emphasized among the venous-preserving operations. These methods's main goal is to achieve the maximum effective result of treatment with minimal surgical aggression [5].

MATERIALS AND METHODS

This work is based on scientific literature searching and assessment of the results of a comprehensive examination and surgical treatment in 20 patients with primary varicose veins of the lower extremities. According to the international classification CEAP they are related to group C2 (varicose – altered subcutaneous veins - 3 mm or more). The study involved 13 women and 7 men. The age of patients in our sampling varies from 36 to 68 years.

At the conference held in Moscow in 2018 experts approved the International Standards of diagnosis and treatment of varicose disease of lower extremities known as CEAP (C - clinic, E - etiology, A - anatomy, P - pathophysiology). Based on these standards the following classification has an evident tactic direction [1].

CEAP classification:

- C0 – there are no visible signs;
- C1 – spider veins (intracutaneous veins with a diameter up to 1 mm) or reticular varices (intracutaneous veins with a diameter of 1 to 3 mm);
- C2 – varicose-modified subcutaneous veins (3 mm or more)
- C3 – edema
- C4 – trophic changes of the skin and subcutaneous tissues
 - a – hyperpigmentation and / or venous eczema
 - b – lipodermatosclerosis and / or white skin atrophy.
- C5 – healed venous ulcer
- C6 – open venous ulcer

Clinical research for 20 patients was carried out, 10 patients were operated by radiofrequency ablation, while the other half had sclerotherapy. The condition of patients (trophic changes, phlebitis, etc.), according to the CEAP international classification, belongs to group C2, C3 and C4a.

Among 20 patients, trophic skin changes (C4) were initially observed in 18 out of 20 (90%) and in 2 out of 20 patients (10%) – varicose – altered subcutaneous veins of 3 mm or more (C2), blood reflux was also noted among 3 patients in the distal parts of the large subcutaneous vein (15-16%) - the observation period was 30 months.

Sclerotherapy is administration of irritating chemicals into lumen that causes inflammation in endothelium of vein wall, followed by obliteration of vein site through fibrosis.

Types of sclerosants: 1. Aethoxysklerol (Kreussler Pharma, Wiesbaden, Germany) is polydocanol

polyatomic alcohol; 2. Fibrovein (STD Pharmaceuticals, Hereford, England) is a synthetic salt of sodium tetradecyl sulfate.

Thermal ablation was performed by the VNUS ClosureFast unit (VNUS Medical Technologies, San Jose, California), which provides thermal ablation in 7-centimeter segments, in a temperature range from 85 to 120 degrees Celsius, within a certain time interval. There is another radiofrequency device with a bipolar electrode, the KELON RfITT system (Olympus, Teltov, Germany). Operating principle is similar to the VNUS device. Technique of radiofrequency vein ablation: under ultrasound control, a vein is catheterized, after which tumescent anesthesia is administered around the varicose vein segment. After monitoring the position of the catheter with an ultrasound sensor, the radiofrequency ablation procedure begins. The treatment cycle was 20 seconds.

RESULTS

Among 20 patients, trophic skin changes (C4) were initially observed in 18 out of 20 (90%) and in 2 out of 20 patients (10%) – varicose – altered subcutaneous veins of 3 mm or more (C2), blood reflux was also noted among 3 patients in the distal parts of the large subcutaneous vein (15-16%) - the observation period was 30 months.

10 patients underwent radiofrequency ablation, while other half of patients got operated with sclerotherapy. It is worth noting that in the group of patients who underwent sclerotherapy, a disease recurrence was noted for 1 patient (5%), and in the other group no recurrence was observed. Hyperpigmentation and burns were not observed. Superficial phlebitis appeared for 2 patients (10%) after radiofrequency ablation.

According to general statistics of 2015, allergy when using sclerotherapy occurred in 0.3% of all cases, when using endovasal laser ablation and radiofrequency ablation in 0.1%. Skin burn occurred when sclerotherapy was used in 0.8% of all cases, when endovasal laser ablation was used - in 4%, when radiofrequency ablation was used - in 0.1%. Hyperpigmentation occurred in 5% of all cases for sclerotherapy and in 11% for endovasal laser ablation. There was a paresthesia in 1% of all cases of sclerotherapy, 8% of endovasal laser ablation and 0.6% of radiofrequency ablation. superficial phlebitis was noted in 1 to 3% of all cases when using sclerotherapy and in 5% of all cases when using endovasal laser ablation and radiofrequency ablation. disease recurrence emerged more often for those, who underwent a sclerotherapy.

After the treatment, the patients used elastic compression in the form of medical stockings, which provides support for weak veins, while improving blood circulation. All patients underwent rehabilitation measures (massage and physical exercises).

CONCLUSIONS

We have identified a number of practical recommendations for the treatment of varicose veins of the lower extremities based on the literature studied and the analysis of complications during least invasive treatment methods.

First of all, the removal of a great saphenous vein should be done only within the limits of pathological blood reflux.

Second of all, the complete removal of a great saphenous vein is often accompanied by damage to the lymphatic vessels and skin sensitive nerves.

Third of all, the segment of a great saphenous vein on the tibia, if necessary, can be used as a material for coronary artery bypass grafting.

Fourth of all, a part of a great saphenous vein on the lower leg can be used in the future as an autoprosthesis. As a result of the study, we've come to the following conclusion: removal of a great saphenous vein only at the level of the altered site is pathogenetically justified and low-traumatic way compared to traditional Babcock phlebectomy.

Doppler duplex ultrasound allows you to detect and monitor the condition of the entire blood flow and, if necessary, adjust improvements in therapy. According to the results of treatment, all interventional methods of modern treatment of varicose veins are cost-efficient and effective.

If there are contraindications to endovasal thermal methods of treatment, sclerotherapy is the optimal therapy, and only if it is impossible to carry out any of the least invasive methods of treatment, traditional phlebectomy is used.

Nowadays it is possible to carry out prevention in patients with a genetic tendency to chronic venous insufficiency, changing their lifestyle and conducting periodic preventive examinations.

In general, modern methods of treatment of varicose veins can be carried out in outpatient departments. Moreover, they are low-traumatic and have a high cosmetic effect.

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