MINIMALLY INVASIVE TREATMENT METHODS OF LOWER LIMB VARICOSITY OF C5-C6 CLASSES (CEAP)

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Objectives. To evaluate the results of minimally invasive methods for treatment of chronic venous insufficiency in patients with trophic ulcers.

Methods. In 2015 79 patients with chronic venous insufficiency (CVI) stages C5-C6 according to the CEAP classification had been treated. All the patients were divided into 2 groups. Group I included 45 (60.7%) patients with CVI according to CEAP class C5 (healed venous ulcer). Group II included 34 (39.3%) patients with CVI according to CEAP clinical stage C6 (active venous ulcer). Two types of thermal obliteration procedures: radiofrequency obliteration (VNUS ClosureFast) and endovenous laser obliteration (ELVES – 1470 nm) were used. In general, thermal obliteration of the venous trunks was performed in 69.6% of studied patients. Recrossectomy for recurrent varicose veins was performed in 6.3% of patients; mini-phlebectomy was carried out in 25.3% of cases. 16.5% of patients with incompetent perforating veins underwent sclerotherapy; surgical ligation of incompetent perforating veins was performed in 11.4% of patients.

Results. In the postoperative period within 4-6 months the complete healing of trophic ulcer was observed in 26 (76.5%) patients of group II (CEAP stage C6). In 3-4 months after surgery the reduction of the trophic ulcer area by more than 50% was observed in 3 patients with a large circular defect. Transfascial sclerotherapy of tibial perforating veins due to recurrent ulcer 5 and 7 months after radiofrequency obliteration was performed in 4 patients.

Conclusion. Endovenous methods of treatment of lower extremity varicose vein in patients with trophic ulcers allow to achieve good postoperative results. Complete healing of trophic ulcer was observed in 76.5% of patients. The performance of the local treatment of wounds and adequate compression therapy allowing to achieve the positive results and to eliminate the venous reflux for patients with active ulcer.
Keywords: chronic venous insufficiency, varicose vein disease, venous reflux, radiofrequency obliteration, trophic ulcers, compression therapy, complete healing

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Minimally Invasive Treatment Methods of Lower Limb Varicosity of C5-C6 Classes (CEAP)
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Introduction

Chronic venous diseases (CVD) represent a wide spectrum of morphological and functional abnormalities of the venous system in the lower limb — ranges from mild telangiectasias to trophic ulceration [1]. All these forms of chronic venous insufficiency cause significant social and economic impact on the patient’s life quality. [2]. Long-lasting ignoring a chronic venous insufficiency leads to clinical-morphological changes in the lower limbs such as edema, hyperpigmentation, lipodermatosclerosis and development of trophic changes. [3]. Nowadays the mainstay of treatment of chronic venous insufficiency involves compression therapy, venotonic drugs, classical venous surgery, radioablation, sclerotherapy and the choice of treatment depends on the stage of chronic venous insufficiency (CVI). [4]. The patients with trophic ulcers (clinical classes C5-C6 according to CEAP international classification) are considered to be the most difficult group, where appropriate to apply the combined treatment of CVI. [1]. The main cause for the development of trophic skin changes is the formation of a stable pathological reflux in the deep and superficial venous system, as well as the occurrence of reflux at the level of communicating and perforating veins, which are located in the lower third of the leg [4]. Therefore, considering the pathogenesis of trophic ulcers formation, treatment of patients with CEAP class C5-C6 remains a major problem.

Objectives. To evaluate the results of minimally invasive methods for treatment of chronic venous insufficiency in patients with trophic ulcers of CEAP class C5-C6.

Material and methods

In the vascular center «IMEA CC», Kosice, the Slovak Republic, during the period of 2015, 79 patients with CVI of CEAP class C5-C6 were being treated. Among them 44 (55,7%) were women and 35 (44,3%) were men with an average age 55,4 ± 3,5 years (M±σ). The patients were subdivided into 2 groups: I group — 45 (60,7%) patients with CVI of CEAP class C5 (healed ulcer). II group — 34 (39,3%) patients with CVI of CEAP class C6 (open ulcer). Age and sex criteria were not taken into consideration in those groups. In group II the surface area, volume and depth of ulcer were addition-
In 3 patients, recrossectomy was conducted. In 8 patients in this subgroup sclerotherapy or the ligation of leg perforating vein was additionally performed. 4 patients (group II) were administered the topical treatment of venous ulcers due to their refusal to undergo the invasive therapy.

Characteristic of the performed interventions is presented in the Table 2.

Thermal obliteration was performed according to 2 methods: radiofrequency obliteration (VNUS closureFast); endovasal laser obliteration (ELVES – 1470 nm). The puncture place of the venous trunk was chosen individually and depended on the local parameters and the venous bed status for the catheter passage into the sapheno-femoral anastomosis to eliminate reflux. In patients with recurrent varicosity to perform thermal obliteration the mandatory basis was occurrence of a vein with reflux having sufficient diameter to permit passage of the catheter therethrough.

In the area of trophic ulcers no any incisions and removals of varicose veins were done. The method of choice was sclerotherapy of the perforating veins in case of their insufficiency. Local treatment of venous ulcers was carried out according to the principles of wet therapy with the imposition of absorbent dressings (Aquacel, Askinafoam, Actillite). Results of treatment of the lower limb varicosity in patients with trophic ulcers were evalu-
ated using the 3-point scale:
1. Good — complete healing of trophic ulcer for 3-6 months after the operation, the elimination of venous refluxes;
2. Satisfactory — the reduction of the area of trophic ulcers for more than 50% within 3-6 months;
3. Unsatisfactory — the presence of venous reflux after surgery, the disclosure of an active ulcer within 3-6 months.

Results

In one patient (group I) after the surgical ligation of perforating veins two weeks later an active ulcer was opened. 6 months after the operation in two patients (CEAP stage C5) who were treated conservatively, during the control examination, the active ulcer was also diagnosed. Seven patients had a feeling of discomfort and burden in the area of the obliterated venous trunk. In the incisional period within 4-6 months in 26 patients (76.5%) with CEAP class C6 (group II), a complete healing of venous ulcers was observed. 3-4 months after the invasive treatment in 3 patients with the large circular defect the reduction of trophic ulcer area was registered for more than 50%.

The fastest healing of the trophic ulcer (6×7 cm) was observed in a 72-year-old patient during 8 weeks after GSV radioobliteration. In 4 patients because of the ulcer recurrence 5 and 7 months after radioobliteration, transfascial sclerotherapy of the perforating veins in the lower leg was performed. Three patients complained of the feeling of a heavy leg in the area of the obliterated trunk.

Discussion

Endovenous treatment methods of the lower limb varicosity combine a wide range of interventions, the main aim of which is considered to be the obliteration of the venous trunks and the main venous tributaries with minimal invasive puncture access under sonographic guidance. [5].

In the 90-s of the last century minimally invasive techniques have started to be wed and they can be divided into 3 groups: thermal, chemical, mechanical [6]. In comparison with the surgical methods of treatment, endovascular interventions have their own advantages, namely: less traumatism, faster rehabilitation, ambulatory admissions. [3].

However, it is difficult to compare objectively the long-term results (within the period of 10-15 years) of surgical and endovenous treatment methods of CVI [4]. Both surgical and endovascular interventions are thought to be effective methods of treatment if all procedures are done correctly.

To achieve good treatment results it is important to take into consideration hemodynamic disturbances for each individual patient with varicose veins that can be revealed under ultrasonography guidance.

A special place is occupied by patients with active trophic venous ulcers, where a local therapy is an important step, except of solving the problem of reflux. [1]. Many discussions are being held regarding the performance of biological necrectomy, vacuum therapy, autodermoplasty [1].

When forming the treatment algorithm for patients with CVI of CEAP stage C5-C6 the following approach was guided: ultrasound-guidance of the superficial and deep venous system of the lower limbs had been done; determination of the localization of venous reflux and the occurrence of incompetent perforating veins.

When choosing thermal obliteration techniques (radiofrequency obliteration or endovasal laser obliteration) it was necessary to take into account the diameter of the venous trunk. At GSV diameter of 1 cm radiofrequency obliteration was preferred. With GSV diameter larger than 1 cm endovasal laser obliteration was performed.

A matter of dispute is the tactics for treating incompetent perforating veins. According to V.I. Rusin et al. [4] the indication for scleroobliteration are incompetent perforating vein diameters of 3.5 mm or larger with the pathological horizontal reflux of the blood.

The advantage of perforating veins sclerotherapy using ultrasound-guidance allowed better anatomic visualization and the obliteration of collateral veins, which can be communicated with other perforating veins [3].

The disadvantage of sclerotherapy is quite a high probability of recanalization of perforating veins and the complexity of obliteration due to impossibility of compression of fibrously altered perforating veins [1]. In such cases, the method of choice is surgical ligation of perforating vessels. The disadvantage of surgical treatment of perforating veins is a high traumatism of surrounding tissues, especially in patients with trophic changes relating to chronic venous insufficiency. Furthermore the pre-operative marking of perforating vessels is thought to be obligatory prior to operation or intraoperative use of ultrasound.

There are some reports where the simultaneous radioobliteration of the venous trunk and sclerization of the perforating veins and peripheral varicose veins have been described [7].

2 stages of treatment have been conducted. During the first stage radioobliteration of the venous trunk was carried out, and during the second — sclerotherapy. Simultaneously the radioobliteration and microveinectomy or surgical ligation of perfo-

REFERENCES


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