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Research Article

JUSTIFICATION OF MINIMALLY INVASIVE SURGICAL METHODS FOR THE TREATMENT OF DECOMPENSATED FORMS OF VARICOSE VEINS OF THE LOWER EXTREMITIES

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Zhuraev O.U.
Samarkand State Medical University, Uzbekistan

Kurboniazov Z.B.
Samarkand State Medical University, Uzbekistan

Sayinaev F.K.
Samarkand State Medical University, Uzbekistan

ABSTRACT

The results of surgical treatment of 71 patients with chronic venous insufficiency (CVI) of types C-4 (34), C-5 (17), C-6 (20) were analyzed. Of these, 34 patients of the main group underwent minimally invasive interventions. The sufficient effectiveness of crossectomy, supplemented by sclerotherapy, has been proven, allowing more than 80% of cases to avoid traumatic interventions.

KEYWORDS

CVI, crossectomy, sclerotherapy.

INTRODUCTION

In recent years, the number of patients suffering from chronic venous insufficiency of the lower extremities (CVI) has been sharply increasing due to young people who are extremely demanding of the cosmetic results of surgery [3, 6].

At the same time, trophic ulcers in 50-60% of cases are found in gerontological patients, in whom the performance of the Linton operation, due to its invasiveness and high incidence of purulent complications, is extremely limited [1, 2, 3].

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Today, in traditional surgical treatment of varicose veins, operations with wide surgical access predominate. These operations are characterized by high invasiveness, remain unsatisfactory from the point of view of aesthetic requirements, are accompanied by a high incidence of purulent-inflammatory complications and a long period of postoperative rehabilitation [4, 5].

The recurrence rate of the disease reaches 50% within 5 years after surgery and can increase to 80% in the more distant period [6].

Aim of the study

The aim of the study was to optimize the surgical treatment of patients with CVI of the lower extremities by using methods of minimally invasive correction of venous hypertension.

MATERIALS AND METHODS

Today, clinicians use the CEAP (Clinical, Etiology, Anatomy, Pathophysiology) classification of CVI. The clinical section consists of 7 types. Trophic changes are present in patients of type C-4, C-5 and C-6.

In the period from 2010 to 2019, 867 patients with varicose veins of the lower extremities were operated on in the surgical department of the 1st clinic of the SamMI, of which 71 (8.2%) had CVI type C-4 (34), C-5 (17) and C-6 (20).

Color duplex scanning was used to assess venous hemodynamics.

The indications for surgical correction of venous hypertension were:

- Insufficiency of perforating veins, when their diameter, established by ultrasound examination, was more than 5 mm;
- Multiperforant insufficiency at any stage of CVI;
- Severe trophic skin changes in the area of the perforating veins.

Depending on the surgical tactics, the patients were divided into two groups. In the main group (34), minimally invasive interventions were performed, in the comparison group (37) CVI with trophic changes was eliminated by traditional means (table 1).

Table 1.

Distribution of patients according to surgical treatment tactics (n=71)

Surgical tactics	Number of patients	
	Abs.	%
Main group, (n=34)		
Crossectomy+Coquette+sclerotherapy	22	64,7%
Crossectomy+sclerotherapy	12	35,3%
Comparison group, (n=37)		
Linton's operation	14	37,8%
Linton operation + combined. phlebectomy	18	48,6%
Linton operation + crossectomy	5	13,6%

Table 2 presents the characteristics of the compared groups, which took into account age, gender, degree and cause of CVI.

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Table 2.

Characteristics of the compared groups

Parameters of the study groups	Main group, n=34	Comparison group, n=37
Age, years	44,5 ± 15,2	44,4 ± 12,2
Min	18	22
Max	73	68
Gender (Male/Female)	17/9	12/5
CVI (S-4 and S-5/S-6)	12/13	8/10
Cause of CVI: primary varicose veins/PTFS	9/25	25/12

In the main group of patients, crossectomy was performed through a mini-incision, and at the end of the operation, intradermal sutures were applied with satisfactory cosmetic effect in the long-term postoperative period. In cases of non-healing trophic ulcers, phlebectomy was supplemented with sclerotherapy. For sclerotherapy, 10mg of etoxisclerol was used.

RESULTS OF THE STUDY

The duration of the operation in patients in the main group was shorter than in the comparison group, and also the patients in the main group recovered earlier. In the comparison group, 10 patients had purulent-necrotic complications of the operation site in the early postoperative period (table 3).

Table 3.

Immediate results of surgical treatment

Index	Main group, n=34	Comparison group, n=37
Duration of intervention, min	53,2±4,7	102,6±7,6
Patient activation time, days	1,13±0,08	3,0±0
Bed day	3,98±0,6	22,9±2,5
Period of epithelization of ulcers, days	14,3±3,8	20,2±6,9
Purulent-necrotic complications of the intervention area	0	10 (27,0%)

In the course of a month, in 84.6% of cases, the ulcer was completely healed in the main group of patients, while in the comparison group this indicator was 70% (table 4).

Table 4.

Dynamics of healing of trophic ulcers

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Group	Total patients	C-6	Complete healing of ulcers within 1 month.	
			abs.	%
Main group	34	13	11	84,6
Comparison group	37	10	7	70,0
Total	71	23	18	78,3%

In the long-term period, 49 patients were observed. During the examination of patients, attention was paid to the local clinical symptoms (table 5). In the main group of patients, one year after the operation, almost all of them had no pain or swelling of the lower extremities, trophic ulcers completely healed, and the quality of life of patients improved (figure 1).

Table 5.

Оценка отдаленных результатов хирургического лечения ХВН

Clinical symptoms	Main group, n=29		Comparison group, n=20	
	Before surgery	1 year after surgery	Before surgery	1 year after surgery
Pain	2,06±0,11	0,35±0,23	1,75±0,40	0,40±0,26
Varicose veins	2,41±0,24	0,29±0,22	1,80±0,37	0,45±0,22
Venous edema	1,06±0,49	0,41±0,29	1,35±0,50	0,30±0,21
Skin pigmentation	0,35±0,37	0,18±0,19	1,00±0,40	0,75±0,31
Skin inflammation	-	-	0,35±0,31	-
Induration (thickening) of the skin	0,53±0,30	0,12±0,16	1,75±0,31	1,00±0,28
Number of open ulcers	0,47±0,24	0,12±0,15	0,60±0,33	0,05±0,098
Duration of existence of an open ulcer	0,47±0,24	0,29±0,40	1,55±0,59	0,10±1,196
Size of largest open ulcer	0,65±0,37	0,12±0,16	1,05±0,52	0,05±0,098
Compression therapy	1,9±0,12	1,65±0,29	2,80±0,23	0,40±0,298

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Pic.1. A patient with CVI complicated by a trophic ulcer before and after complex treatment: a) condition of the lower limb upon admission; b) the condition of the lower limb on the 10th day after phlebectomy, supplemented with sclerotherapy; c) 3 months after complex treatment; G). after 8 months after complex treatment.

CONCLUSIONS

1. Sonographic assessment of venous hemodynamics of the lower extremities demonstrates that trophic disorders in CVI are not only due to perforating insufficiency, but also to reflux of blood flow through superficial veins. The severity and duration of trophic disorders of the lower extremities have a direct correlation with the severity of horizontal reflux.
2. The pathogenetically important component of surgical treatment of decompensated forms of CVI should be considered dissection of perforating veins and elimination of pathological reflux along the subcutaneous veins.
3. Crossectomy, supplemented with sclerotherapy, can be a sufficiently effective arsenal of complex treatment of CVI, which in more than 80% of cases allows to avoid more traumatic surgical interventions, and is distinguished by cosmetic results.

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