CURRENT TREATMENT OF PATIENTS WITH GIANT TROPHIC ULCERS

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Abstract: The prevalence of venous ulceration in legs among the population is 0.1–1.5 %, in 24 % of patients and the duration of their treatment is more than a year. As a result, 45 % of patients suffer from limited mobility, and many patients move only within the home. Wound healing rate in specialized centers for 6 months is 70 % and 45 % – in non-specialized hospitals.

The aim of the study: Reduce the length of hospital stay and the duration of treatment for patients with giant trophic ulcers.

The therapeutic tactics of 13 patients with giant trophic ulcers who were treated during the 2016 in the clinic of the Department of Surgery No. 2 of Danylo Halytsky LNMU were analyzed. Patients had an area of ulcers greater than 150 cm^2 without tendency to heal. One-time treatment was carried out, consisting of surgery debridement, removal of fibrous tissue (shave-therapy), autodermoplastics with the use of negative pressure wound therapy (NPWT). The intervention was performed under i. v. or regional nerve blockade. With the use of the NPWT, a patient can be mobilized rather quickly, there is no need for constant bed rest, and with the possibility of adequate and supervision care is transferred to outpatient treatment on the first days. The total term of patients staying in a hospital was from 1 to 6 days. This technique has allowed to achieve a significant improvement in the quality of treatment and reduction of its terms.

Keywords: venous insufficiency, post-thrombotic syndrome, trophic ulcers, circular, autodermoplastics, skin grafting, NPWT, lymphedema, debridement, shave-therapy.

1. Introduction

The prevalence of venous ulceration in legs among the population is 0.1–1.5 % (**Fig. 1**), in 24 % of ulcer persist more than a year. As a result, 45 % of patients suffer from limited mobility, and many patients move only within the home [1, 2].

Approximately 0.6–1.4 % of the population have healed ulcers [1]. The number of patients increases in older age groups, along with the increase in the financial costs of treatment, which amounts to 1–2 % of the total budget of health care in developed countries [3]. Wound healing rate in specialized centers for 6 months is 70 % and 45 % – in non-specialized hospitals [4].

In this group of patients, there is a large number of recurrent ulcers and, as a result, a large number of repeated appeals and hospitalizations of patients. According to the statistics for the first year after healing, recurrence of ulcers is observed in 60 % of patients with post-trombophlebitis syndrome [4]. This problem requires a constant search for new and effective treatments. We can use a large amount of dressings, medicines with different characteristics, different surgical methods of treatment and medical devices available, but none of the methods mentioned are self-sufficient.

The purpose of the study is to combine different treatments for better results.

To heal venous ulcers, the new skin should fill the wound defect bed. This is a very long process, so use the skin to accelerate the process of healing large wounds. Fragments of the skin are taken from the rest of the body and mixed into a prepared wound bed. Subsequently, the skin is combined with the edges and fills the entire wound [5]. A lot of researches were conducted to find out the benefits of skin grafting prior to the standard methods for treating trophic ulcers on the legs. They were looking for studies that tested whether the skin can increase the chance of healing in venous legs [6]. A number of studies show the advantage of using the skin flap, but there are no convincing differences and advantages in the application of various types of flaps [7].

Shave-therapy is mostly widespread in Europe. The technology includes layered tangential and only superfacial necrozectomy and fibrosectomy of ulcerous venous leg disease, in conjunction with concurrent skin grafting. The published data point to very good long-term results, confirmed by several retrospective studies. Additional benefits include simple technique, short interference and security, with minor complications. Because of the low risk of shaving, it is suitable for older patients with ulcers. The operation takes place using an electric dermatome or similar device. But there may be some complications, including the formation of hematoma.

Typically, the venous ulcer differs by a significant fluid from the wound surface. Hematoma after shave therapy and significant exudation may worsen the results of skin grafting at this disease.

Over the past few years, NPWT has become a well-developed method for maintaining transplantation in recipient beds [8].

The NPWT is used to match the wound surface. This stabilizes the graft and helps to prevent deterioration and removal [7]. Removing the exudate reduces the risk of hematoma and serum formation, helping to prevent contamination and flaking off the flap [9]. Increased granulation facilitates revascularization and joining the graft to the wound bed [10–12].

The undeniable condition for good results is a standardized post-intervention treatment, including lifelong compression therapy, patients' education and information on how to manage their illness, and regularly monitor wound healing and the inclusion of outpatient services.

2. Material and Methods

The therapeutic tactics of 13 patients with giant trophic ulcers who were treated during the 2016 in the clinic of the Department of Surgery No. 2 of Danylo Halytsky LNMU were analyzed. Patients had an area of ulcers greater than 150 cm^2 without the tendency to heal. One-time treatment was carried out, surgical debridement, removal of fibrous tissue (shave-therapy), skin grafting with the use of vacuum-assisted therapy. Total necrectomy was performed to remove fibrotic tissues along with biofilm surface with the help of a dermatome (shave-therapy). The wound bed was covered with split, perforated skin flaps, followed by NPWT in steady state, with a negative pressure of –55 mm Hg. for 3 days.

In the above-mentioned patients, the term for the presence of ulcers ranged from 1 to 14 years. In the structure of the pathology, patients with the post-thrombotic syndrome (7 patients) were dominant, and in 4 patients was detected the diseases of lymphatic system. In 2 patients – varicose veins (patients have previously refused from operation treatment). In 2 patients, an accompanying atherosclerotic lesion of the arteries of

the lower extremities was observed, requiring a more thorough selection of elastic compression.

3. Results

The term of patients staying in a hospital until the time of surgical treatment was from 1 to 3 days (average 1.4 days), during which compulsory patient examination was performed, ultrasound examination of the vessels of the lower extremities, preoperative preparation, consultations of another specialists if necessary. With the use of the NPWT, a patient can be mobilized rather quickly, there is no need for constant bed rest, and with the possibility of adequate care under condition of the bandage and device is transferred to outpatient treatment on the first days. The duration of staying in the hospital after the intervention was from 1 to 4 days (average duration 2.3 days), the total stay in the hospital – was from 1 to 6 days of bedding. This technique has allowed to achieve a significant improvement in the quality of treatment and reduction of its terms (**Table 1**).

Table 1
The terms of complete healing of ulcers

pathology	number	duration		
		Till 2 days	3-4 weeks	5-6 weeks
Post-thrombotic syndrome	7	–	3	4
Lymphodema	4	–	4	–
Varicose disease	2	2	–	–
Mixt ulcer	2	–	–	2

4. Discussion

The results obtained by us indicate a significantly better result compared with the treatment methods used in the treatment of trophic ulcers before.

The use NPWT in the treatment of trophic ulcers and skin grafting allowed rapid mobilization of patients, preventing the migration of transplanted flaps, evacuation of excess fluid, and providing protection from external factors (**Fig. 2**).

NPWT has no adverse effects on the transplanted skin flap and prevents migration.

The use of shave-therapy improves the nutritional conditions of the skingrafts and potentially improves the results of transplantation, reduces the possibility of re-skin grafting.

The use of conducting therapy makes it possible to spend the entire amount of necessary intervention absolutely comfortable and safe. Especially, this method of anesthesia gave preference in patients with concomitant diseases, where the use of general anesthesia risks is greater.

Combining several surgical manipulations has been able to reduce the duration of patient's treatment in hospital significantly and in some cases outpatient treatment is sufficient.

We noted the reduction of required operating procedures, anesthesia and working medical staff.

What is important is the rapid improvement of the quality of life of our patients, in whom we used this method of treatment, and their faster return to social activity.

The healing period varied depending on the etiology and was the longest for mixed arterial venous ulcers (**Fig. 3**). It may be necessary to adjust the treatment tactics depending on the specific etiology of the ulcer and supplement with other manipulations, which will require the further study.

Fig. 1. Before treatment

Fig. 2. After shave-therapy, skin grafting, NPWT 3 days and extract from hospital

Fig. 3. 3 weeks after begin of treatment

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