

BEHAVIOUR IN CHRONIC WOUNDS OF VASCULAR ORIGIN

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Abstract

With an ageing population the number of people with chronic limb wounds of vascular origin is growing steadily. These wounds are managed conservatively, surgically and with hybrid approach. They have been treated by different specialists. The aim of the present study was to compare the results between the different methods of treatment – conservative, surgically and with hybrid approach, as well as to offer an approach to these wounds from vascular origin based on our experience in the clinic. For a period of 3 years 220 patients with venous wounds have been accepted in the department of vascular surgery in UHAT “St. Ekaterina”, Sofia. One hundred of them have been treated conservatively, the rest 120 – with complex approach – surgically, pharmaceutically, elastopia or with bandages. The rate of ageing ulcuses of venous origin did not differ significantly in 3 months in the two groups (55% to 66%), on account of recurrences at 12-month follow-up, which were significantly more common in the conservative therapy group (15% to 30%). We have followed-up the frequency of the healed wounds on the 1st, 3rd and 6th month. A significant difference in healing wounds of vascular origin with a complex approach (with open surgery and conservatively) even during the 1st month has been noticed. The complex approach applied as a treatment of chronic wounds with vascular origin is particularly important. The surgical or interventional correction of pathological changes of the vascular system are of great importance for the successful treatment of these ulcuses.

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Introduction. Chronic wounds are a major problem not only in specialized health institutions, but also in the daily practice of family doctors and a wide range of different disciplines [1]. With the increase of life expectancy will increase the number of people suffering from vascular diseases, as well as the number of people with chronic wounds of vascular origin. From the population ageing over 60 years old around 0.6–3% suffer from chronic wounds to the lower extremities as this percentage is growing over 5% of the people who age over 80. The chronic arterial disorder of the limbs is a common reason for chronic wounds and the sick rate in the community ranges from 1.9% to 13.1% [2]. It is considered that the frequency of chronic wounds is increasing as a result of ageing population and some factors such as stress, smoking, arterial hypertension, diabetes [3,4]. Chronic arterial disease of the lower extremities, as the main cause of chronic wounds, affects about 8 million Americans and 12–20% of them aged 65–72 [5]. According to a study conducted in Germany on the causes of chronic wounds of vascular origin, chronic venous insufficiency is a dominant factor causing 47.6%, arterial insufficiency of 14.5% and 17.6% of ulcers due to combined arterial and venous pathology. Rare causes include vasculitis (5.1%), exogenous factors (3.8%), and gangrenous pyoderma (3.0%) [6]. According to other authors, venous anomalies and disorders are among the most common health problems, and about 70% of the lower limbs ulcers are caused by venous diseases [7]. In Europe, 30% of the adult population suffer from chronic venous insufficiency (CVI) [8]. According to a research made in 2006 in Bulgaria, 37% of the patients seeking medical assistance suffer from chronic venous insufficiency of the lower limbs (47% women and 30% men) [9]. Of all patients with chronic venous insufficiency, 1–2% develop varicose ulcers in lower limbs or about 300 000 patients in the Republic of Bulgaria, reach V and VI stages according to the CEAP classification [1,6]. From patients who suffered lower extremity deep venous thrombosis (DVT) 10% develop a chronic venous wound of the target lower limb during their lives [7,8].

A chronic wound is a wound that does not heal in an orderly set of stages and in a predictable amount of time the way most wounds do; wounds that do not heal within three months are often considered chronic.

Blood circulation disorders of the lower limbs may be caused by both atherosclerosis in the aorta and in the peripheral arteries. All pathological changes to the blood vessels, even if of different origins, lead to disorders in tissue nutrition, with increasing ischemia and hypoxia, which in turn leads to cell death, with the formation of a trophic wound. Men suffer 5 times more often than women, as with age, this difference decreases. It is estimated that 15% of all diabetics have a chronic wound in their lives. For example, about 18% of patients with diabetes aged over 65 years in the USA have non-healing lower extremity ulcers. In 15–20%

of patients with these ulcers, amputation at different levels is required. Arterial trophic wounds of the lower limbs appear on the back of hypotrophic skin. Arterial ulcer usually occurs in the area of the fingers, dorsal and plantar area, heels and bone protrusions of the foot. The ulcers are with poorly defined edges and a pale, non-granulating necrotic base. Chronic wounds in patients suffering from chronic venous insufficiency appear in the background of the thigh.

Proper diagnosis is essential to avoid inappropriate treatment, which can lead to wound deterioration or delay wound healing.

Treatment of chronic wounds of vascular origin remains a challenge for vascular surgeons, dermatologists, endocrinologists, rheumatologists and other specialists.

The aim of the present study was to compare the results between conservative and complex, surgical and hybrid treatment, as well as to offer an approach to these wounds from vascular origin based on our experience in the clinic.

Materials and methods. For a period of five years 220 patients with chronic wounds of vascular origin were treated at the department of vascular surgery in UHAT "St. Ekaterina" – Sofia. The patients were divided into two groups. 1st group – 100 patients with conservative treatment. 2nd group – 120 patients with complex treatment – surgical approach, dressings, vacuum therapy, elastic compresses, and medicaments. The conservative treatment includes everyday dressings, elevation of the limb, for about 14 days, after which the patients wore elastic socks above the knee with a second level of compression. Operative procedures – stripping with ligation of the perforated veins and radiofrequency ablation (RFA) of VSM, surgical treatment of the ulcer and a ligation of the perforated veins. Age composition of the patients: 20–29 years old – 40 patients, 30–39 years old – 60 patients, 40–49 years old – 80 patients, above 60 years old – 50 patients. The estimated ratio men:women was 120:100.

For a period of three years one hundred patients with wounds of arterial origin were admitted at the department of Vascular Surgery at UHAT "St. Ekaterina" – Sofia. Fifty patients were treated only conservatively and 50 patients with a complex approach – surgical, bandages and medication. Conservative therapy included medications, daily wound dressing and bandages. Open surgical procedures included endovascular stenting, dilation, rotarax, bypass on various segments (iliac, femoral and tibial arterial vessels), patch plasty of deep femoral artery.

By age distribution the patients were: under 50 years of age – 6 patients, 50–59 years old – 15 patients, 60–69 years old – 20 patients, over 70 years of age – 59 patients. The estimated ratio men:women was 60:40.

The following procedures were conducted: full vascular status, Echo Doppler diagnostic, Doppler sonography and ankle-brachial ABI index, CT angiography, venography, full blood count, biochemistry and microbiology of the wounds. Macroscopic evaluation of the wound – size, depth, necrotic tissues, granulation, secretion and epithelization.

Criteria for the included patients: patients with chronic wounds of vascular origin independently from age and comorbidities.

Results. We observed the healing of chronic wounds from vascular origin on the 1st, 3rd, and 6th month.

On the 3rd month no significant difference in the healing of the wounds of the patients from both groups was observed: 1st group – 55% (55/100); 2nd group – 60% (72/120).

There is, however, a significant difference in the percentage of relapses in both groups after one year: 1st group – 30% (30/100); 2nd group – 15% (18/120).

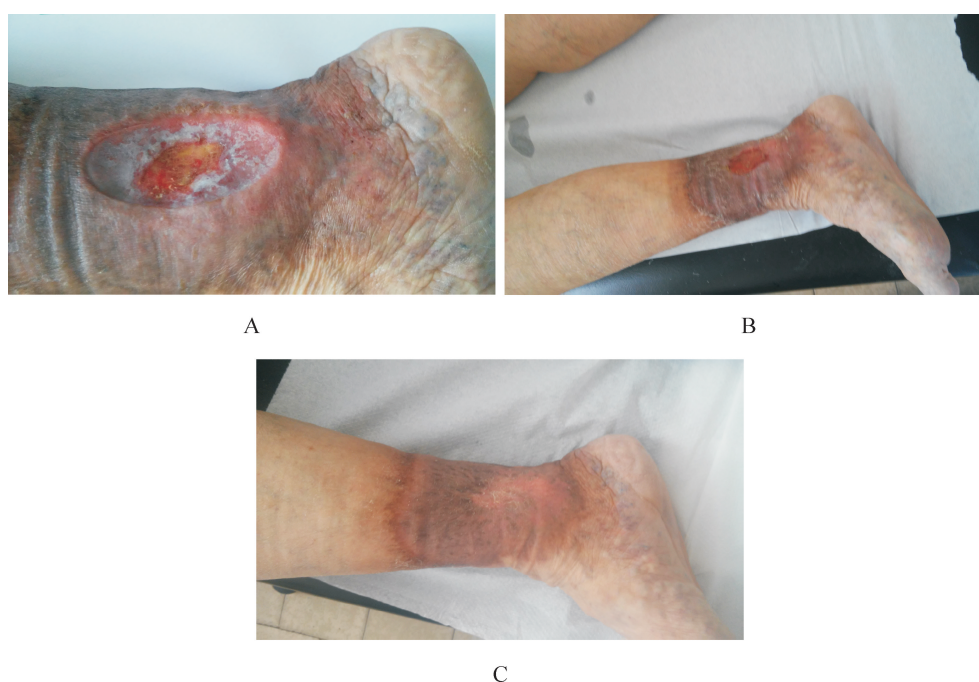


Fig. 1. Conservative treatment of a chronic venous wound from 13 years; A) first day; B) second month; C) third month

A significant difference is noticeable in favour of the healing of the wounds using a complex treatment.

We followed the incidence of healed wounds of arterial origin at 1, 3 and 6 months. The patients were divided into two groups:

First group – conservative treatment – 50 patients. In this group of patients, only conservative therapy was used which included: medication-vasodilators, antiaggregants, antibiotics according to antibiotic and treatment of accompanying diseases, daily treatment of wounds with surgical and chemical debrisan, dressings supporting the healing process in all phases, vacuum therapy, etc.

Second group – complex treatment – 50 patients. In this group of patients, together with conservative therapy, revascularization of the relevant area was per-

formed, which involved different surgical techniques, depending on the cause, occlusion level, and comorbidities.

It makes a significant difference in wound healing in the first month.

In 10 patients from the first group the wounds decreased the area and the depth by 20%, fresh granulations appeared, the necroses disappeared as early as the first month. At 3 months, we observed a decrease in area and wound depth in 15 patients with 15% fresh granulation with partial necrosis. At the 6th month in 25 patients, we have complete healing of the wounds, although with partial amputation of the foot, mostly fingers. In 15 patients, we have reduced area and depth and fresh granules but did not heal wounds. In ten patients we have amputations of which five transmetatarsal and five of the lower leg and thigh.

In 25 patients from the second group the wounds healed completely on the first month. In ten patients we had a decrease in area and depth by 60%. Necrotic tissues completely disappeared and fresh granulations appeared. In three patients because of advanced ischemia, we had amputations, with one patient having amputation at the level of the fingers and with two at the level of the thigh. At 3 months in 40 patients, we had complete wound healing. In seven patients we had partial wound healing, but with significant improvement and a tendency for complete healing.

Conclusions. 1) Complete vascular status is of great importance in patients with chronic wounds of the lower limbs. In addition the causes for the wound (unadequate perfusion, venous reflux or both) should be established.

2) Open surgical and/or endovascular reconstruction of the affected segments of the arterial and venous system is of great importance.

3) The complex treatment is the method of choice in patients with chronic wounds from vascular origin.

4) The conservative therapy is a method of choice only when further vascular reconstruction is impossible.

5) The complex technique leads to acceleration of the healing process and diminishes the financial costs of the treatment of chronic wounds which improves the life quality of the patients.

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