Chronic venous insufficiency and venous leg ulcers

Bernd von Hallern
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At least 70 percent of all leg ulcers have their origin in chronic venous insufficiency (CVI). A therapy refractory course though should always raise the suspicion of a leg ulcer of non-venous aetiology. A comprehensive diagnostic evaluation and the resulting specific interventions are essential for sustained success of treatment.

CVI can be defined as a persisting impairment of the flow of blood returning from the peripheral to the central veins and its complications. It therefore describes the inability, after activating the muscle vein pump, to bring about an adequate fall in pressure in the veins of the affected regions.

CVI results from
- postthrombotic syndrome,
- varicosis, or
- vascular abnormalities.

In the majority of patients, postthrombotic syndrome is the central factor in the development of CVI or venous leg ulcers. After phlebothrombosis, 80 percent of those affected develop CVI and at least 10 percent of these patients will develop a postthrombotic venous leg ulcer during the course of their life.

Patient 1

Diagnoses
- Bilateral venous leg ulcer with inflammation
- Postthrombotic syndrome of left lower leg
- Obesity

Treatment
Surgical debridement without primary wound closure and antibacterial therapy. Consistent compression therapy.

History and course
The 42-year-old female patient presented with a giant venous ulcer of the left lower leg. The ulcer was infected and covered with smeary, malodorous necrotic slough. Further ulcers were present on the left medial malleolus and on right-sided bimalleolar sites with palpable pedal pulses. The patient had a history of postthrombotic syndrome following deep thrombosis six years previously. The patient had already been receiving treatment for the ulcers from various sources. In 2005, for example, the ulcer on the left side was covered with a skin graft.

Duplex sonography of the veins showed a patent deep venous system with pronounced reflux. The anterior tibial vein could be demonstrated on the lower leg. The long and short saphenous veins were sufficient.

We successively removed necrotic material especially from the large ulcer and applied an antibacterial, hydrogel coated wound dressing (Cutimed® Sorbact® gel). This resulted in a granulating ulcer free from necrosis and infection after only 11 days. Compression therapy with short-stretch bandages and 2 days’ lymph drainage completed the wound management program. The patient left the hospital after 13 days at her own request for private reasons.
Day 3
Wound cleansing continues and infection signs decrease. Surgical debridement is performed under local anesthesia with EMLA® cream to remove remaining necrotic material.

Day 4
After wound cleansing and irrigation, wound conditions free from necrotic material and infection are observed. Now switch to semiocclusive foam dressings (e.g. Allevyn® plus) and granulation promoting measures with a hyaluronic acid based dressing (Hyalofill®).

Day 7
The wound status has further improved. Incipient granulation is observed.

Day 11
With clean and granulating wound conditions, the patient surprisingly informs us that she has to leave the hospital today for private reasons. She fails to attend a repeat appointment for skin graft coverage.

Patient 2
Diagnoses
• Bilateral venous leg ulcer associated with chronic venous insufficiency
• Factor VIII deficiency with disorder of vascular endothelial function
• Homocysteinemia

Treatment
Wound bed sanitation and mesh-graft skin transplantation.

History and course
This 74-year-old patient had chronic venous leg ulcers for several years following repeated thromboses, for which he had been marcumarised in the past. At the start of treatment we saw a pretibial and medial ulcer the size of the palm of the hand, with the tendons exposed above the ankle joint. The entire wound area was covered with fibrinous necrotic slough with residual skin necroses around the margins. The periwound area of the colonised and malodorous ulcer was erythematous and swollen. The patient had severe wound contact pain.

Under local anesthesia with EMLA® cream we debrided the wound, performed antiseptic irrigation with octenidine solution and applied Cutimed® Sorbact® swabs for antimicrobial treatment. On the third day, the exposed tendon above the ankle joints was removed under local anesthesia. The ulcer became progressively cleaner with daily treatment and anti-bacterial dressings.

15 days after admission, the wound was granulating and infection-free. Following comprehensive preoperative diagnostic and coagulation diagnostic evaluations, varicose vein surgery was performed on the left leg with stripping of the long saphenous vein. A mesh-graft skin transplantation was performed during the same session.
Day 1
Large, semicircular, infected venous leg ulcer with a layer of fibrinous necrotic slough with some areas of necrotic tissue. The ulcer has been present for 26 months and has been constantly increasing in size. Previous wound therapy comprised ointment dressings, silicone dressings, silver alginates and absorbent compresses. Compression therapy with compression hosiery had only been performed to an insufficient extent.
The first activities on admission to hospital consist in mechanical debridement and thorough wound irrigation with octenidine solution. Cutimed® Sorbact® swabs and absorbent pads are applied for 24 hours. Consistent compression therapy with short-stretch bandages is initiated.

Day 5
After only four days of treatment, distinctly improved wound conditions and a decrease in the signs of infection are observed. The exposed tendon was removed on the previous day. The initiated therapy is being continued.

Day 11
The Cutimed® Sorbact® swabs, coated with Cutimed® Gel before being applied, are removed without traumatising the wound bed. Pronounced granulation. With infection-free wound conditions, now change to hydroactive wound dressings (Alione® hydrocapillary dressing).

Day 15
Wound conditions show fresh granulation. The decision is taken to perform mesh-graft skin transplantation on the next day.

Day 20
Fully established graft on the fourth postoperative day. The patient will be discharged from hospital four days later.

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Note:
The product name Cutisorb® Sorbact® was changed to Cutimed® Sorbact® in 2008. The case reports were performed using Cutisorb® Sorbact® swabs and absorbent pads.