



Chronic venous disease and leg ulcers

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Leg ulcers

- **prevalence** : 1% of adults
- **incidence**: in population over 50
 - 0,3 to 1000 inhabitants
- **chronic disease** : - 60 % of ulcers heal more than 6 months,
 - 33 % heal more than 1 year
- **impact on quality of life**
- **reccurences** – **2/3** of healed leg ulcers

Etiology of leg ulcers

- 75% venous
- 15% arterial
- 10% other



Venous leg ulcers

- 75% of all leg ulcers
- pathogenesis – valvular insufficiency
- 2 types:
 - 1) **ulcus cruris varicosum** – due to primary varicose veins
 - 2) **ulcus cruris posttromboticum** – due to deep vein thrombosis

Chronic venous disease

- CVD



CEAP classification

- Classification and grading of **chronic venous disease** on the basis of:
 - **C** – clinical manifestations
 - **E** – etiologic factors
 - **A** – anatomic distribution of involvement
 - **P** – pathophysiologic findings

CEAP classification

C 0 – no visible or palpable signs of CVD

C 1 – telangiectases and reticular veins

C 2 – varicose veins

C 3 - edema

C 4 – skin changes: pigmentation, eczema, lipodermatosclerosis, atrophia blanche

C 5 - skin changes + healed ulcer

C 6 – **skin changes + leg ulcer**

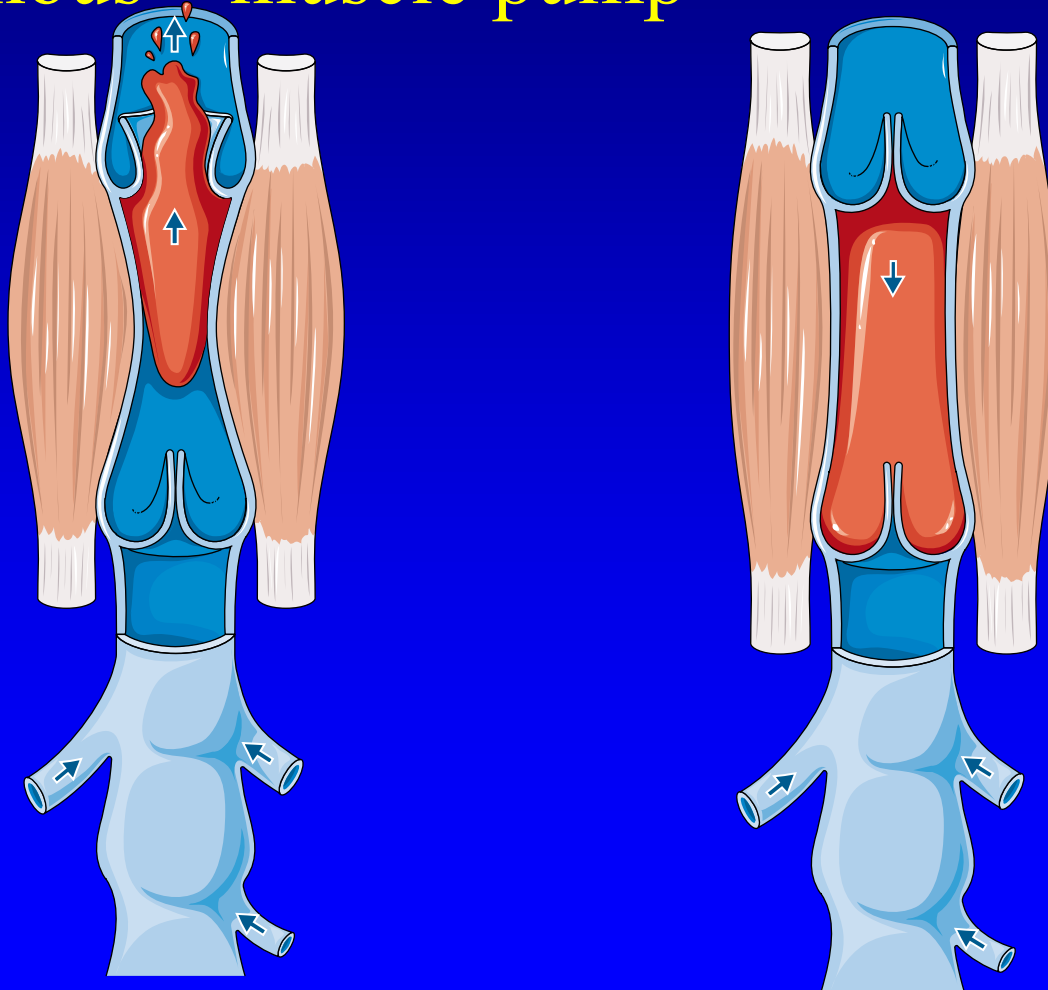


Chronic venous disease (CVD)

- **Vein Consult Program (2012)**
- epidemiologic study in Europe, Asia, Latin America, 90 000 persons
- CVD – **global problem**
- **prevalence:**
- **84%** - including stage C0s (symptomatic patients without clinical signs of the disease)
- **64%** - from stage C1

Venous return – physiological situation

- Venous – muscle pump



St. C4 - pigmentation



Atrophie blanche + leg ulcers



St. C6 – venous leg ulcers















Treatment of venous leg ulcers

- **invasive**
- **conservative:**
 - local treatment
 - pharmacological treatment
 - compression

Invasive treatment

- sclerotherapy (foam)
- surgical treatment
- thermal methods (endovenous laser, radiofrequency)
- non – thermal methods (glue)

Conservative treatment

- local treatment
- pharmacological treatment
- compression

Local treatment – wound healing - TIME

- **T** – tissue
- **I** – inflammation, infection
- **M** – moisture
- **E** – epithelization



Wound healing - TIME

- **A structured wound assessment tool in the form of acronym**
- **T** – tissue management
- **I** – inflammation, infection control
- **M** – moisture balance
- **E** – epithelization advancement

TIME – T - tissue

- debridement, wound bed preparation



Debridement

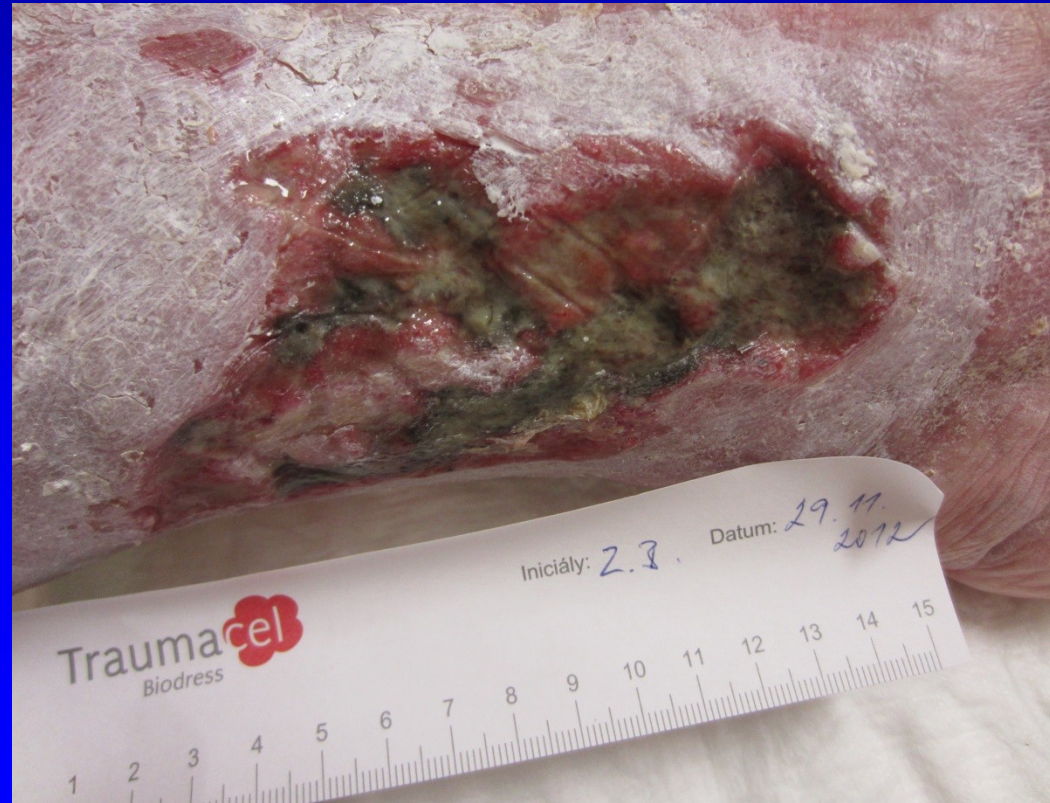
- treatment of wound bed and wound edges
- necessary for wound healing
- reduces odour, exudation
- improves quality of life

Debridement

- autolytic
- enzymatic
- biosurgical
- mechanical
- surgical
- hydrosurgical
- TNP (topical negative pressure)

TIME – I - infection

- infection, inflammation control
- antiseptics



Antiseptics

- synthetic antimicrobial drugs
- they kill or inhibit microorganisms
- they are not toxic for keratinocytes
- **they act non selective**
- **broad antimicrobial spectrum**
- resistance – rare

Antiseptics

- silver
- iodine
- chlorhexidin
- honey
- polihexanid

Silver dressings

- **a broad antimicrobial spectrum:**
- Staphylococcus aureus, including MRSA, VRE (vancomycin-resistant enterococci), Streptococcus pyogenes, Escherichia coli, Pseudomonas aeruginosa, Klebsiella pneumoniae
- viruses, yeasts

Silver dressings

- a variety of antimicrobial dressings containing silver
- a silver contact and physical and chemical properties vary greatly
- available in various formulations:
 - flat sheets
 - combined with hydrogels, alginates, hydrofibres
- resistance - rare





TIME – M - moisture

- moisture –
management of
exudate





Iniciály: H.T. Datum: 26.2.
2013



Moist wound healing

- **moist wound necessary for good healing**
- optimal hydration of the wound
- **copious exudate** – causes leakage, maceration, odour, infection
- **minimal exudate** delays autolytic debridement, inhibits epithelialisation and causes pain on dressing removal

Moist wound healing

- **dry wounds:** hydrogels
- **highly exudating wounds:**
 - alginates
 - hydrofibres
 - polyurethan foams



TIME – E - epithelization



Dressing change



Dressing change



Dressing change



Dressing change



Dressing change



Dressing change



Dressing change



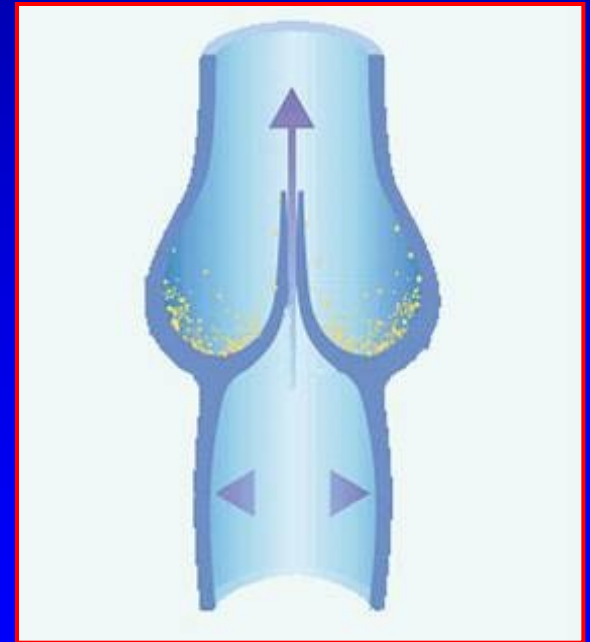
Compression

- Basic treatment of venous leg ulcers
- Compression leads to healing of 70% of venous leg ulcers smaller than 10 cm² in 3-6 months



Compression

- improvement of venous return
- reduction of venous dilatation
- ↓ venous reflux
- ↓ venous hypertension



Compression

- **1. short stretch compressive bandages:**
 - multilayer compression
- **2. compressive systems**
- **3. compressive devices**
- **4. compressive stockings for leg ulcers**

1. Compressive bandages

- short stretch compressive bandages:
- multilayer compression



Multilayer bandage



Multilayer bandage



Multilayer bandage



Multilayer bandage



Multilayer bandage - problems

- Wrong application in more than 50% patients













2. Compressive systems

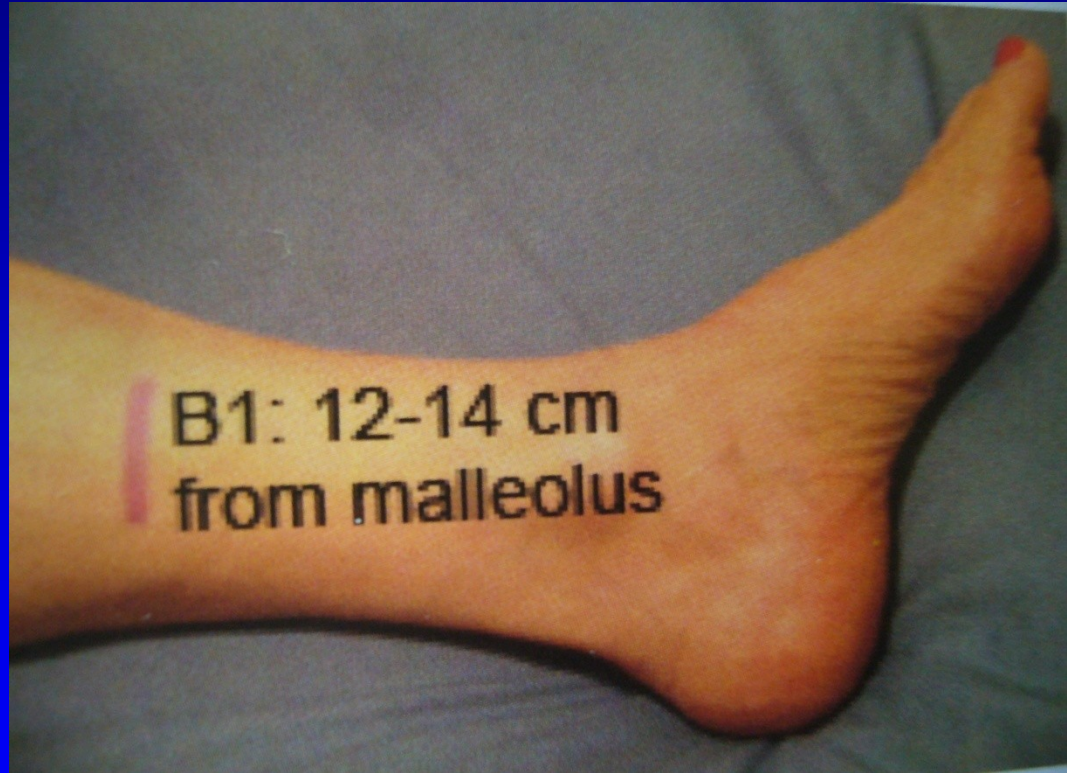


Compressive systems

- 4 basic properties: **P-LA-C-E**
- **P**ressure
- **L**Ayers
- **C**omponents
- **E**lastic properties

P - pressure

- Sub-bandage pressure
- 40 mm Hg in rest
- Pressure systems



Picopress



Compressive systems



*Management of chronic venous disorders of the lower limbs. Guidelines according to scientific evidence.
International Angiology 2018;37(3)*

Compressive systems



3. Compressive devices



Partsch H. reliable self-application of short stretch leg compression: Pressure measurements under self-applied, adjustable compression wraps. Phlebology 2019;34:208-213.

Circaid



Circaid



Circaid



Circaid



Circaid



Circaid



4. Compressive stockings for leg

- system of 2 stockings
- pressure - **40 mmHg**



Rabe E, Partsch H, Hafner J et al. Indications for compression therapy in lymphatic disorders: An evidence-based review.

Contraindication of compression

- PAOD – ABPI less than 0,5
- Acute erysipelas
- Acute eczema
- Heart failure

Pharmacological treatment

- micronized purified flavonoid fraction
- pentoxifylin
- sulodexid

