Chronic Venous Ulcer: A Comprehensive Overview

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1 Definition

A chronic venous ulcer (CVU), also known as a venous stasis ulcer, is a persistent skin ulceration due to chronic venous insufficiency. It typically lasts more than **6 weeks** and is commonly located around the **medial malleolus** (inner ankle).

2 Pathophysiology

Chronic venous ulcers develop due to **venous hypertension**, resulting from venous valve incompetence or deep vein obstruction. The pathophysiological process includes:

- **Venous stasis** leading to increased capillary permeability.
- Formation of **fibrin cuffs** around capillaries, restricting oxygen diffusion.
- **Leukocyte activation** causing inflammatory tissue damage.
- Progressive **tissue hypoxia** and ulceration.

3 Risk Factors

- Chronic venous insufficiency (CVI)
- Deep vein thrombosis (DVT)
- Varicose veins
- Obesity
- Prolonged standing or sedentary lifestyle
- Advanced age
- Diabetes mellitus
- Smoking

4 Clinical Features

4.1 Location

- Typically over the **medial ankle** (gaiter region).

4.2 Appearance

- **Irregular borders** with shallow ulceration.
- **Yellow slough** with granulation tissue.
- **Exudative** with varying discharge levels.

4.3 Associated Skin Changes

- **Hemosiderin deposition** (hyperpigmentation).
- **Lipodermatosclerosis** (fibrosis of subcutaneous tissue).
- **Atrophie blanche** (white scarred areas).
- **Stasis dermatitis** (eczema-like inflammation).

4.4 Pain

- **Mild to moderate** pain.
- Worse when **legs are dependent**, relieved by **elevation**.

5 Differential Diagnosis

- **Arterial ulcers**: Punched-out appearance, painful, usually on pressure points.
- **Diabetic foot ulcers**: Located on weight-bearing areas, often painless.
- **Pressure ulcers**: Over bony prominences in immobile patients.
- **Pyoderma gangrenosum**: Painful ulcers with violaceous borders.

6 Diagnosis

6.1 Clinical Examination

- Assessment of ulcer location, appearance, and skin changes.

6.2 Ankle-Brachial Index (ABI)

- Used to rule out arterial disease.
- Normal: 0.9 - 1.3.
- **ABI ¡ 0.8** suggests arterial involvement (compression therapy contraindicated).

6.3 Duplex Ultrasound

- Evaluates venous reflux and obstruction.

7 Management

7.1 Conservative Treatment

- **Leg elevation** to reduce venous hypertension.
- **Compression therapy**: First-line treatment.
  - **Multilayer compression bandaging**.
  - **Graduated compression stockings** (30-40 mmHg) after ulcer healing.
- **Wound care**:
  - **Debridement** of necrotic tissue.
  - **Moist wound healing** with dressings (hydrocolloids, foams, alginates).
  - **Topical antiseptics** or antibiotics if infected.
- **Skin care**:
  - Emollients for stasis dermatitis.
  - Topical steroids for severe eczema.

7.2 Medical Treatment

- **Pentoxifylline (Trental®)** to improve microcirculation.
- **Aspirin** may promote healing.
- **Antibiotics** only if clinical infection is present.

7.3 Surgical and Advanced Therapies

- **Endovenous Ablation** (Laser/RF therapy) for superficial venous reflux.
- **Sclerotherapy** for varicose veins.
- **Skin grafting** for large ulcers unresponsive to conventional therapy.
- **Negative Pressure Wound Therapy (NPWT)** in selected cases.

8 Prognosis and Prevention

8.1 Healing Time

- Typically **3-6 months** with appropriate management.

8.2 Recurrence Rate

- **70% within 5 years** if compression therapy is not maintained.

8.3 Preventive Measures

- **Graduated compression stockings**.
- **Regular exercise and weight control**.
- **Early treatment of venous insufficiency**.