**Definition Of Venous Ulcer: Clinical Evaluation, Wound Care, Compression, Surgical Treatment, Ancillary Measures And Primary Prevention**

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**Wound Care, Compression, Surgical Treatment, Methodology**

- Target audience - specialists who treat vascular disease and/or wounds.
- Methodology
  - Subcommittee Structure
    - Clinical Evaluation
    - Wound Care
    - Compression
    - Surgery
    - Ancillary
    - Primary Prevention
    - Evidence Review
  - Recommendations
    - GRADE – strength of recommendation / level of evidence
  - Knowledge and Evaluations Research Unit at the Mayo Clinic, Rochester MN

**Ancillary Measures And Primary Prevention**

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  - Multispecialty committee members
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**SVS – AVF Clinical Practice Guidelines Venous Ulcer - Definition**

- *Guideline 1.1: Venous Leg Ulcer Definition - We suggest use of a standard definition of venous ulcer as an open skin lesion of the leg or foot that occurs in an area affected by venous hypertension. [BEST PRACTICE]*

**Venous Ulcer - Definition**

- Clinical evaluation
  - Venous leg ulcer
  - Venous ulcer

**Venous Ulcer - Definition**

- *BEST PRACTICE*

- Recommendation deemed necessary to provide a comprehensive guideline that encompasses all the details needed for providing care for patients with venous ulcers.
- When there are no comparable alternatives to a recommendation, or evidence is lacking
- Case series supplemented by the best opinion of a panel of experts

**SVS – AVF Clinical Practice Guidelines Wound Care - Categories**

- Wound bed preparation
  - Wound cleansers
    - Antibacterial
  - Debridement
    - Mechanical
    - Enzymatic
    - Hydrostatic
  - Antimicrobials in topical dressings
  - Wound culture
    - Indications for culture
    - Method of wound culture
  - Management of foot ulcers

- Wound infection and bacterial control
  - Wound culture
    - Indications for culture
    - Method of wound culture
    - Management of foot ulcers
  - Wound colonization and bacterial biofilms
  - Treatment of wound infection

- Topical antibiotics
  - Systemic antibiotics

- Primary wound dressings
  - Topical dressing selection
  - Antimicrobials in topical dressings
  - Percutaneous skin management
  - Anti-inflammatory dressings

- Adjuvant wound therapies
  - Indications for adjuvant therapies
  - Split-thickness skin grafting
  - Colloidal therapy
  - Use of cellular therapy
  - Preparation for cellular therapy
  - Frequency of cellular therapy application
  - Negative pressure therapy
  - Electrical stimulation
  - Ultrasound therapy
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**Wound Therapy – Debridement**

- **Guideline 4.2: Debridement** - We recommend that venous leg ulcers receive thorough debridement at their initial evaluation to remove obvious necrotic tissue, excessive bacterial burden, and cellular burden of dead and senescent cells. [GRADE -1; LEVEL OF EVIDENCE -B]
- **Guideline 4.3: Anesthesia for Surgical Debridement** - We recommend that local anesthesia (topical or local injection) be administered to minimize discomfort associated with surgical venous leg ulcer debridement. In selected cases, regional block or general anesthesia may be required. [GRADE -1; LEVEL OF EVIDENCE -B]
- **Guideline 4.4: Surgical Debridement** - We recommend that surgical debridement be performed for venous leg ulcers with slough, non-viable tissue or eschar. [GRADE -1; LEVEL OF EVIDENCE -B]

**Wound Therapy – Infection Control**

- **Guideline 4.6: Management of Limb Cellulitis** - We recommend that cellulitis (inflammation and infection of the skin and subcutaneous tissue) surrounding the venous leg ulcer be treated with systemic gram-positive antibiotics. [GRADE -1; LEVEL OF EVIDENCE -B]
- **Guideline 4.7: Enzymatic Debridement** - We suggest enzymatic debridement of venous leg ulcers when no clinician trained in surgical debridement is available to debride the wound. [GRADE -2; LEVEL OF EVIDENCE -C]
- **Guideline 4.8: Biologic Debridement** - We suggest biologic debridement for the treatment of infected venous leg ulcers. [GRADE 2; LEVEL OF EVIDENCE -C]

**Wound Therapy – Topical Dressing**

- **Guideline 4.13: Topical Antibiotics for Infected Wounds** - We suggest a combination of topical antimicrobial therapy against systemic and local infections to reduce the risk of secondary infection. [GRADE -2; LEVEL OF EVIDENCE -C]

**Wound Therapy – Debridement**

- **Guideline 4.17: Indications for Adjunct Therapy** - We recommend adjunct wound therapy options for venous leg ulcers that fail to demonstrate improvement after a minimum of 4-6 weeks standard wound therapy. [GRADE -2; LEVEL OF EVIDENCE -B]

**Wound Therapy – Biological Dressing**

- **Guideline 4.18: Cellular Therapy** - We suggest the use of cultured allogenic skin substitutes in additional to compression therapy for the treatment of venous leg ulcers that have failed to show signs of healing after standard therapy for 4-6 weeks. [GRADE 2; Level of Evidence – B]

**Wound Therapy – Compression**

- **Guideline 4.5: Compression Therapy** - We recommend compression therapy, over no compression therapy, to increase venous leg ulcer healing rate. [GRADE -1; LEVEL OF EVIDENCE -A]
- **Guideline 4.20: Multi-Component Compression Bandage** - We suggest the use of multi-component compression bandages for the treatment of venous leg ulcers. [GRADE -2; LEVEL OF EVIDENCE -B]
- **Guideline 4.22: Intermittent Pneumatic Compression** - We suggest using intermittent pneumatic compression (IPC) when other compression options are not available, cannot be used, or have failed to aid in venous leg ulcer healing after prolonged compression therapy. [GRADE -2; LEVEL OF EVIDENCE -C]
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**Operative / Endovascular – Superficial**

- **Guideline 6.1**: Superficial Venous Reflex and Active Venous Leg Ulcer – Ulcer Healing - In a patient with a venous leg ulcer (C4) and incompetent superficial veins that have axial reflux directed to the bed of the ulcer, we suggest ablation of the incompetent veins in addition to standard compressive therapy to improve ulcer healing. [GRADE -2; LEVEL OF EVIDENCE -C]

- **Guideline 6.2**: Superficial Venous Reflex and Active Venous Leg Ulcer – Prevent Recurrence - In a patient with a venous leg ulcer (C4) and incompetent superficial veins that have axial reflux directed to the bed of the ulcer, we recommend ablation of the incompetent veins in addition to standard compressive therapy to prevent recurrence. [GRADE -3; LEVEL OF EVIDENCE -B]

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**Operative / Endovascular – Perforator**

- **Guideline 6.3**: Pathologic Perforator Venous Reflex in the Absence of Superficial Venous Disease, With or Without Deep Venous Reflex, and a Healed or Active Venous Ulcer - In a patient with isolated pathologic perforator veins (outward flow of >500 msec duration, with a diameter of >3.5mm) located beneath or associated with the ulcer bed regardless of the status of the deep veins, we suggest ablation of the “pathologic” perforating veins in addition to standard compression therapy to aid in venous ulcer healing and to prevent recurrence. [GRADE -2; LEVEL OF EVIDENCE -C]

- **Guideline 6.4**: Superficial Venous Reflex with Skin Changes at Risk for Venous Leg Ulcer (C4b), Healed Ulcer (C5), or Active Ulcer (C6) - Primary Valve Repair - In a patient with infrainguinal deep venous reflux and skin changes at risk for venous leg ulcer (C4b), healed venous leg ulcer (C5), or active venous leg ulcer (C6), we suggest individual valve ablation for those who have axial reflux in addition to standard compressive therapy to aid in ulcer healing and to prevent recurrence. [GRADE -2; LEVEL OF EVIDENCE -C]

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**Operative / Endovascular – Deep Reflux**

- **Guideline 6.5**: Combined Superficial / Perforator Venous Reflex With or Without Deep Venous Reflex and Active Venous Leg Ulcer - In a patient with a venous leg ulcer (C4) and incompetent superficial veins that have reflux to the ulcer bed in addition to pathologic perforating veins (outward flow of >500 msec duration, with a diameter of >3.5mm) located beneath or associated with the ulcer bed, we suggest ablation of both the incompetent superficial veins and perforating veins in addition to standard compressive therapy to aid in ulcer healing and prevent recurrence. [GRADE -2; LEVEL OF EVIDENCE -C]

- **Guideline 6.6**: Deep Vein Reflux with Skin Changes at Risk for Venous Leg Ulcer (C4b), Healed Venous Leg Ulcer (C5), or Active Venous Leg Ulcer (C6) - Valve Transposition or Transplantation - In a patient with infrainguinal deep venous reflux and skin changes at risk for venous leg ulcer (C4b), healed venous leg ulcer (C5), or active venous leg ulcer (C6), we suggest valve transposition or transplantation for those with absence of structurally preserved axial deep venous valves when competent outflow venous pathways are anatomically appropriate for surgical anastomosis in addition to standard compression therapy to aid in venous leg ulcer healing and to prevent recurrence. [GRADE -2; LEVEL OF EVIDENCE -C]

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**Operative / Endovascular – Deep Obstruction**

- **Guideline 6.7**: Proximal Chronic Total Occlusion / Severe Stenosis with Skin Changes at Risk for Venous Leg Ulcer (C4b), Healed (C5) or Active (C6) Venous Leg Ulcer – Endovascular Repair - In a patient with infrainguinal deep venous reflux and skin changes at risk for venous leg ulcer (C4b), healed venous leg ulcer (C5), or active venous leg ulcer (C6), we suggest individual valve ablation in addition to standard compressive therapy to aid in venous ulcer healing and to prevent recurrence. [GRADE -2; LEVEL OF EVIDENCE -C]

- **Guideline 6.8**: Proximal Chronic Total Occlusion / Severe Stenosis (Bilateral) with Recurrent Venous Ulcer - Open Repair - In a patient with recurrent venous ulcer (C5) and incompetent superficial veins that have axial reflux directed to the bed of the ulcer, we recommend ablation of the incompetent veins in addition to standard compressive therapy to prevent recurrence. [GRADE -1; LEVEL OF EVIDENCE -C]

- **Guideline 6.9**: Proximal Chronic Total Occlusion / Severe Stenosis With Recurrent Venous Ulcer – Open Repair - In a patient with a venous leg ulcer (C4) and incompetent superficial veins that have axial reflux directed to the bed of the ulcer, we recommend ablation of the incompetent veins in addition to standard compressive therapy to prevent recurrence. [GRADE -1; LEVEL OF EVIDENCE -C]