



Venous Insufficiency (STASIS)

Arterial Insufficiency

Peripheral Neuropathy

History

- ◆ Advanced Age
- ◆ CHF
- ◆ Lymphedema
- ◆ Obesity
- ◆ Orthopedic Procedures
- ◆ Pain reduced by elevation
- ◆ Pregnancy
- ◆ Previous DVT with Phlebitis
- ◆ Pulmonary Embolus
- ◆ Reduced mobility
- ◆ Sedentary Lifestyle
- ◆ Traumatic Injury
- ◆ Vascular Ulcers
- ◆ Work History

- ◆ Arterial Disease
- ◆ Cardiovascular Disease
- ◆ Diabetes
- ◆ Dyslipidemia
- ◆ Hypertension
- ◆ Increased pain with activity and/or elevation
- ◆ Intermittent Claudication
- ◆ Obesity
- ◆ Painful Ulcer
- ◆ Sickle Cell Anemia
- ◆ Smoking
- ◆ Vascular procedures/surgeries

- ◆ Advanced age
- ◆ Alcoholism
- ◆ Chemotherapy
- ◆ Diabetes
- ◆ Hansen's Disease
- ◆ Heredity
- ◆ HIV, AIDS and related drug therapies
- ◆ Hypertension
- ◆ Impaired glucose tolerance
- ◆ Obesity
- ◆ Raynaud's Disease, Scleroderma
- ◆ Smoking
- ◆ Spinal Cord Injury and neuromuscular diseases

Location

- ◆ Malleolus
- ◆ Medial aspect of leg superior to medial malleolus

- ◆ Areas exposed to pressure or repetitive trauma, or rubbing of footwear
- ◆ Lateral malleolus
- ◆ Mid tibial
- ◆ Phalangeal heads
- ◆ Toe tips or web spaces

- ◆ Altered pressure points/sites of painless trauma/repetitive stress
- ◆ Dorsal and distal toes
- ◆ Heels
- ◆ Inter-digital
- ◆ Metatarsal heads
- ◆ Mid-foot (dorsal and plantar)
- ◆ Toe interphalangeal joints

Assessment

WOUND

- ◆ Base: ruddy red; yellow adherent or loose slough; granulation tissue present, undermining or tunneling are uncommon
- ◆ Depth: usually shallow
- ◆ Margins: irregular
- ◆ Exudate: moderate to heavy
- ◆ Infection: less common

SURROUNDING SKIN

- ◆ Venous dermatitis (erythematic, weeping, scaling, crusting)
- ◆ Hemosiderosis (brown staining)
- ◆ Lipodermatosclerosis; Atrophy Blanche
- ◆ Temperature: normal; warm to touch
- ◆ Edema: pitting or non-pitting; possible induration and cellulitis
- ◆ Scarring from previous ulcers, ankle flare, tinea pedis
- ◆ Infection: Induration, cellulitis, inflamed, tender bulla

WOUND

- ◆ Base: Pale; granulation rarely present; necrosis, eschar, gangrene (wet or dry) may be present
- ◆ Depth: may be deep
- ◆ Margins: edges rolled; punched out, smooth and undermining
- ◆ Exudate: minimal
- ◆ Infection: frequent (signs may be subtle)

SURROUNDING SKIN

- ◆ Pallor on elevation
- ◆ Dependant rubor
- ◆ Shiny, taut, thin, dry,
- ◆ Hair loss over lower extremities
- ◆ Atrophy of subcutaneous tissue
- ◆ Edema: variable; atypical
- ◆ Temperature: decreased/cold
- ◆ Infection: Cellulitis
- ◆ Necrosis, eschar, gangrene may be present

NAILS

- ◆ Dystrophic

WOUND

- ◆ Base: pink/pale; necrotic tissue variable;
- ◆ Depth: variable
- ◆ Edges well defined
- ◆ Exudate: usually small to moderate
- ◆ Wound shape: usually rounded or oblong and found over bony prominence

SURROUNDING SKIN

- ◆ Normal skin tones
- ◆ Trophic changes
- ◆ Fissuring or callus formation
- ◆ Edema: with erythema may indicate high pressure
- ◆ Temperature: warm

NAILS

- ◆ Onychomycosis; dystrophic nails; paronychia, hypertrophy



Venous Insufficiency (STASIS)

Arterial Insufficiency

Peripheral Neuropathy

Perfusion

PAIN

- ◆ Minimal unless infected or desiccated
- ◆ Described as throbbing, sharp, itchy, sore, tender, heaviness
- ◆ Worsens with prolonged dependency

PERIPHERAL PULSES

- ◆ Present/palpable

NON-INVASIVE VASCULAR TESTING

- ◆ Capillary Refill: normal (less than 3 seconds)
- ◆ ABI to rule out arterial component

MEASURES TO IMPROVE VENOUS RETURN

- ◆ (Provided vascular studies have ruled out significant arterial disease)

- ◆ Surgical obliteration of damaged veins
- ◆ Elevation of legs
- ◆ Medications
- ◆ Exercise
- ◆ Education
- ◆ Compression therapy to provide at least

30mm Hg compression at ankle'

- ◆ **See WOCN Clinical Practice Guideline for Compression Therapy

PAIN

- ◆ Intermittent claudication
- ◆ Resting; positional; nocturnal
- ◆ Painful Ulcer
- ◆ Paresthesias

PERIPHERAL PULSES

- ◆ Absent or diminished

NON-INVASIVE VASCULAR TESTING

- ◆ Capillary refill: Delayed (more than 3 seconds)
- ◆ ABI <0.9
- ◆ TCPO2 <40mmHG
- ◆ TP >30mm HG

MEASURES TO IMPROVE TISSUE PERFUSION

- ◆ Revascularization if possible
- ◆ Medications to improve RBC transit through narrowed vessels
- ◆ Lifestyle changes (avoid tobacco, caffeine, restrictive garments, cold temperatures)
- ◆ Hydration
- ◆ Measures to prevent trauma to tissues (appropriate foot wear)
- ◆ Maintain legs in neutral or dependent position
- ◆ Pressure reduction for heels and toes

PAIN

- ◆ Decreased sensitivity to touch; if present, pain may be superficial, deep, aching, stabbing, dull, sharp, burning or cool; altered sensation not described as "pain" (numbness, warmth, prickling, tingling)

PERIPHERAL PULSES

- ◆ Palpable/present

NON-INVASIVE VASCULAR TESTING

- ◆ Capillary refill: Normal

NOTE: LEAD may co-exist with neuropathic disease

MEASURES TO ELIMINATE TRAUMA

- ◆ Reduction of shear stress and offloading of neuropathic wounds (bedrest, contact casting, orthopedic shoes)
- ◆ Use of assistive devices to provide support, balance and additional offloading
- ◆ Appropriate footwear
- ◆ Tight glucose/glycemic control
- ◆ Aggressive prevention/treatment of infection (debridement of callus and necrotic tissue; pharmacologic treatment when appropriate)
- ◆ Revascularization if ischemic
- ◆ Complications: Cellulitis, osteomyelitis, gangrene, Charcot fracture

Topical Therapy

- ◆ Goals: absorb exudates, maintain moist wound surface

DRY, NON-INFECTED, NECROTIC WOUND

- ◆ Keep dry

INFECTED WOUND/DRY OR MOIST NECROSIS

- ◆ Referral for potential surgical debridement/antibiotic therapy

OPEN WOUND/NON-NECROTIC

- ◆ Moist wound healing;
- ◆ Non-occlusive dressings
- ◆ Aggressive treatment of any infection

- ◆ Use dressings that maintain a moist surface, absorb exudates and allow easy visualization

- ◆ Cautious use of occlusive dressings