ABC’s of Wound Care

- Basic or Elementary Approach
- No time to discuss “Advanced Wound Healing” products or techniques
- No time to discuss recent research into increased inflammatory cytokines, or matrix metalloproteinases (MMPs)
- No time to discuss tissue inhibitors of MMPs (TIMPs) or growth factors

Marcus Stanbro, DO, RPVI, FSVM
Center for Venous & Lymphatic Medicine
Greenville Health System
Greenville, SC
ABC’s of Wound Care

A = Approach or Assessment

B = Buttons or Battery of tests

C = Care or Clues

Non-healing wound status: etiology

- Most common: Vascular
  - 95% of all leg ulcers are
  - Ischemic (arterial)
  - Stasis (venous)
  - Neurotrophic (diabetic)


Normal Wound Healing-phases (simplified)

- Hemostasis
- Inflammation
- *Proliferation*
- Remodeling
Ulcer Assessment

• Exam
  • Location of the ulcer
  • Condition of surrounding skin/tissue
  • Evidence of systemic diseases
  • Color of the base; color of surrounding skin
  • Presence of pulses
  • Overall hygiene, history of compliance
  • More than 1 ulcer? Different stages of healing?
  • Presence of swelling

Features of non-healing wounds/ulcers

• What you may see:
  • Necrotic & unhealthy tissue
  • Lack of adequate blood supply
  • The presence of swelling or edema
  • Lack of healthy granulation tissue
  • Lack of re-epithelialization
  • Recurrent wound breakdown due to “superficial bridging”

Ulcer Approach

• History, History, History!
  • First appearance. What did it 1st look like?
  • Inciting event. What started it?
  • Family history
  • Painful?
  • Drugs?
  • Any systemic illnesses
  • Location
  • Speed of onset/progression (pyoderma)
  • Duration/recurrence
  • Prior therapy: What is the dressings, wash, etc.
Wound diagnostic—Buttons to push

CBC, CMET, UA
Bacterial culture? Where?
Serologic testing for syphilis
CXR
Rheumatologic W/U including ANA, anti-DNA, etc.
Serum complement levels
X-rays of affected area (SQ gas, osteo, f.b.)
3-phase bone scans, WBC labeled
ESR, RA, sickle cell, hypercoagulable profile
Biopsy

Ischemic – Useful clues

• Usually start as small & distal or over pressure points
• Base commonly gray, yellow, or black
• May have secondary infection, esp. in DM
• Edema may be present!
• Decreased or absent pulses.
• Dependent rubor and/or pallor with elevation

Vascular Testing

• ABI’s with arterial duplex or PVR’s
• Venous duplex- standing or plethysmography
• Invasive: Angiography or MRA or CTA
**Ischemic – Useful clues**

- Small painful ulcer with intact pulses
- Absent pulses

**Venous – Useful clues**

- Gaiter region – medial mid to lower calf
- Usually present:
  - Hyperpigmentation
  - Surrounding induration or lipodermatosclerosis
  - “Stasis” dermatitis
  - May or may not be painful
  - Varicose veins or spider veins

**Wound Management - Venous**

Control of the venous hypertension (including swelling) paramount!!

Elastic compression - GCS
- NOT TED HOSE
- Start with 20-30mmHg
- Knee high are most common

Non-elastic compression
- Velcro leggings, short-stretch bandaging, UNNA boots, etc.

Debridement
- Evaluate/treat deep & superficial sources of reflux or obstruction

**Wound Care - Ischemic**

- Increase inflow! Consult.
- Watch for pressure (heels, other bony prominences)
- Elevate head of bed
- Stop smoking
- Anti-thrombotic or anti-platelet agents may be helpful
- Avoid skin trauma including adhesive tape
- Extreme caution with nail care and wound debridement
**Wound Management - Neuropathic**

**Clues to trouble**

- Increasing pain, swelling, erythema, drainage
- Lymphangitis or lymphadenopathy
- Foul odor with increased drainage suggests “wet” gangrene
- Rising WBC level, BS out of control, rising ESR
- Beware of plantar ulcer that shows dorsal erythema & swelling!
- If you choose oral antibiotics in a “hot foot”, recheck every 2-3 days.

**Wound Management - Venous**

**Venous Ulcers:**

Early ablation *may* recommended to improve healing¹ and does decrease recurrence.¹,²


**Wound Management - Neuropathic**

**Non-weight bearing status—OFF LOAD! Prosthetics & Orthotics**

- Check circulation
- +/- Bacterial cultures & choice of antibiotics
- Do not soak feet, no whirlpools
- Decrease the edema
- Address non-compliance

**Neuropathic - Useful Clues**

- History of DM
- Loss of sensation, monofilament test
- Surrounding callus (often start as a callus!)
- Usually painless or less pain than expected
- Base often pale pink, necrotic or purulent
- Extension to bone or tendon common
- Always suspect osteomyelitis
Wound clues

Pain:
- Ischemia
- Infection
- Inflammation
- Tissue damage (repeated trauma, etc.)
- Neuropathy

Pay attention to the characteristics of the pain

Case of clues

- 45 y.o. WM presented with RT leg pain, swelling & erythema.
- History of pelvic XRT for osteosarcoma as teenager
- > 20 year history of RLE lymphedema
- Had not worn any compression for > 2 years—made pain worse
- Afebrile. Nml WBC’s. Nml ESR.