Wound Classification
Name That Wound
Sheridan, WY   June 8th 2013

Initial Wound Care Consult
History & Physical

- **History**
  - **Etiology**, Onset, Healing/Deterioration
  - Current and Previous Wound Care Strategies
  - PMH, Chronic Medical Problems
  - Medications
  - Surgical History, Debridement, STSG
  - Vascular Evaluation & Intervention
  - Nutritional History

- **Physical Examination**
  - Complete Head to Toe Exam
  - Skin Turgor, Muscle Mass
  - Distal Extremity Sensation, Hair Loss…
  - Vascular Examination
    - Pulses, Dependent/Elevation
    - Venous Reflux, Edema
  - Wound Evaluation

- **Photographs**
- **Cultures**
- **Procedures**
  - TCOM
  - ABI
  - Debridement
  - Management Decisions

A Detailed History and Physical (wound) Exam allows CLASSIFICATION of the wound based on Appearance and Etiology.
WOUND CLASSIFICATION

Guides Treatment and Management

Wound Classification

Guides Treatment & Management

- Etiology
  - Provides an algorithm or strategy for the global management of the patient, with the ultimate goal of achieving wound healing

- Appearance
  - Generally guides the wound care management regarding the use of topicals and dressings

Wound Classification

Based on Etiology

- Venous
- Diabetic
- Pressure
- Arterial
- Surgical
- Atypical

Venous Ulcers

- The valves in the veins of the leg do not function properly and venous blood does not completely leave the veins, resulting in venous hypertension. Fluid leaks from the vessels and forms edema in the tissue.
- The swelling and tissue pressure that results causes ulceration, usually located on the ankle or calf.

Venous Disease

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Venous Ulcer
➢ Treatment
  ➢ Compression Therapy
  ➢ Vascular Diagnostics
    ➢ Venous Ablation (EVLT)
    ➢ Subfascial Endoscopic Perforating Vein Surgery (SEPS)

Diabetic (Neuropathic) Ulcers
➢ Neuropathy
  ➢ Results from damage to peripheral nerves (glycosylation) causing decreased sensation which allows for undetected and inappropriate pressure to the plantar surface of the foot.
  ➢ Trauma undetected
  ➢ The ulcers occur on the plantar surface of the foot and often present with callus formation.

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Diabetic Ulcer

- Treatment
  - Offloading
  - Glycemic Control
  - Bioburden Reduction
  - Arterial Vascular Assessment

Pressure Ulcer

- Definition
  - A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction.
  - A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated.

Pressure Ulcer

- Soft tissue is compressed.
- Circulation becomes impaired, depriving the tissue of oxygen and nutrients which results in tissue death.
- Injury begins in deep tissues…
Pressure Ulcer Staging

- The National Pressure Ulcer Advisory Panel has redefined the stages of pressure ulcers, including the original 4 stages and adding 2 stages on deep tissue injury and unstageable pressure ulcers.
- Work continues to understand the pathophysiology and optimal treatment of pressure ulcers.

Pressure Ulcer Staging

Stage I
Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area.

Stage II
Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, with or without slough. May also present as an intact or open/ruptured serum-filled blister.

Stage III
Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling.

Stage IV
Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling.
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Pressure Ulcer Staging
Suspected Deep Tissue Injury
- Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear.
- The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.


Pressure Ulcer Staging
Unstageable
Full thickness tissue loss in which the base of the ulcer and wound bed is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black).


Pressure Ulcer
- Treatment
  - Pressure Relief – Redistribution
  - Minimize Sheer and Friction
  - Nutritional Support
  - Management of Incontinence

Arterial Ulcers
- Arterial insufficiency ulcers are due to a disease process caused by hardening of the arteries (arteriosclerosis) or by the occlusion of the artery by plaques or fats (atherosclerosis).
- These ulcers are frequently located on the lower leg, the foot or the toes.

Arteriosclerosis / Atherosclerosis

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Arterial Ulcer
- Treatment
  - Vascular Diagnostics
  - Revascularization
    - Surgical
    - Endovascular
  - Adjunctive Management
    - Hyperbaric Oxygen Therapy
    - Arterial Assist Devices
    - Pharmacotherapeutics

Surgical Wounds
- Surgical wounds that have been closed through primary intention (staples, sutures) are usually quick to heal and form a minimal scar.
- Surgical wounds that have been left open due to contamination or infection, heal by secondary intention. Connective tissue must fill in the defect.

Surgical Wounds
- Treatment
  - Moist Wound Healing
  - Control Bioburden
  - Management of Chronic & Acute Disease Processes
  - Nutritional Support
  - Management of Fluid and Electrolytes

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Atypical Wounds

- Wounds that are not classified as venous, diabetic, pressure, arterial or surgical
- Unusual in appearance or location
- Do not respond to standard care
- Approximately 5-10% of chronic wounds

Atypical Wounds

- Treatment
  - Tissue Biopsy
  - Standard Care

Wound Classification

Guides Treatment & Management

- Etiology
  - Provides an algorithm or strategy for the global management of the patient, with the ultimate goal of achieving wound healing
- Appearance
  - Generally guides the wound care management regarding the use of topicals and dressings
  - Débridement decisions

Wound Classification

Based on Wound Appearance

- Granular
- Necrotic
- Infected
- Draining
Granular Wounds

- Red wounds with a “beefy” appearance
- Angiogenesis
- Granulation Tissue
- Demonstrates progression to the proliferative phase of wound healing
- Extracellular matrix and formation of connective tissue
- New growth of small blood vessels

Granular Wounds

- Treatment
  - Provide moist wound environment
  - Prevent hemagglutination
  - Control bioburden
  - Prevent biofilm formation

Necrotic Wounds

- Present of dead or avascular tissue.
- Appear black, gray, yellow, or tan in color.
- Nidus for bacteria.
- Staging often cannot be accomplished until the wound is débrided.
  - Pressure Ulcers

Necrotic Wounds

- Treatment
  - Debridement
  - Determine depth and extent of tissue loss
  - Control bioburden
  - Prevent or treat infection
Infected Wounds

- Overgrowth of microorganisms capable of tissue destruction with bacterial invasion of wound and surrounding tissues, with secondary host response
  - Local symptoms
    - Induration, Edema, Erythema, Pain
  - Systemic symptoms
    - Fever, Sepsis

Infected Wounds

- All wounds are contaminated… But not all wounds are necessarily infected.
- Studies show that wounds with more than 100,000 organisms/gram of tissue will not heal.
- Infection prolongs the inflammatory process, causes additional tissue damage, and prevents healing.

Infected Wounds

- Treatment
  - Treat infection
    - AHRQ: “Institute appropriate systemic antibiotic therapy for patients with bacteremia, sepsis, advancing cellulitis, or osteomyelitis. Systemic antibiotics are not required for [wounds] with only clinical signs of local infection.”
  - Wound cleansing
  - Debridement
  - Limit bioburden/biofilm

Draining Wounds

- Wounds with excessive exudate and drainage
  - Tissue edema
  - Lymphatic drainage
Wound Classification
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Draining Wounds

- Treatment
- Prevent the drainage
- Control and absorb
- Prevent maceration
- Protect the periwound
- Consider the possibility of colonization

Wound Management
Based on Wound Etiology

- Pressure
  - Pressure Redistribution
- Venous
  - Compression
- Diabetic
  - Offload
- Surgical
  - Moist Wound Healing
- Arterial
  - Revascularization
- Atypical
  - Tissue Biopsy

Wound Management
Based on Wound Appearance

- Necrotic
- Debridement
- Infected
- Treat Infection
- Draining
- Control Drainage
- Granular
- Moist Healing

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? Etiology Pressure Necrotic
? Appearance

? Etiology Venous Necrotic or Infected
? Appearance

? Etiology Surgical Granular
? Appearance

? Etiology Atypical Necrotic or Draining
? Appearance

? Etiology Arterial Infected
? Appearance

? Etiology Pressure Granular and Necrotic
? Appearance

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? Etiology
? Appearance
Atypical
Necrotic

? Etiology
? Appearance
Venous
Draining

Etiology
Appearance
Treatment

Venous
Compression

Bonus Round

? Appearance
? Treatment
Granular
Moist Wound Healing

? Stage
? Treatment
Unstageable
Debridement

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? Etiology
Atypical
Biopsy

? Etiology
Surgical
Fournier's Gangrene

? Treatment
Diagnosis
Biopsy
Squamous Cell

Thank You…