Lower Leg Ulceration

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Lower Leg Ulceration

• A manifestation of underlying pathology/disease process usually in combination with other co-morbidities and sometimes psychosocial issues
Lower Leg Ulceration

- Venous
- Arterial
- Mixed
- Other
- Malignant
Clinical Assessment

• History
• Examination
• Investigations
• Diagnosis
• Implementation
• Evaluation

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History

Medical
Past / Current / Family history
Risk factors / Chronic co-morbidities / Surgical
Allergies

Pharmacological
Prescribed / Over the counter

Pain
Presence/absence /Description
Rest pain

Psycho-social
Supports /Coping mechanisms
Occupational /Financial

Activities of daily living
Mobility/ gait /aids
Claudication / Hygiene

Nutritional intake
BMI /Vitamins/minerals

The Wound
How it occurred – trauma, spontaneous
Duration - Bigger/smaller/stagnant
Factors that aggravate/alleviate symptoms

Previous treatments/goals
Dressings / Therapies

Sensation
Normal/ Abnormal
Paralysis
Neuropathy

AWMA, NZWCS(2011) Australian & New Zealand Clinical Practice Guideline for Prevention & Management of Venous Leg Ulcers; Cambridge Publishing

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Examination

Skin
Temperature / Hydration / Nutrition
Texture / Scale / Moisture balance
Colour / pigmentation
Signs of pressure / callous / trauma
Hair growth
“Leaky legs” – contamination / maceration

Nails
Capillary refill / nail inspection

Mobility
Range of movement / Gait
Ankle movement / Pressure distribution
Footwear

The Wound
Location / Depth / Shape
Surrounding skin / Undermining
Odour
Other involvements

Tissue
Inflammation / Infection
Moisture
Edge of the wound

AWMA, NZWCS (2011) Australian & New Zealand Clinical Practice Guideline for Prevention & Management of Venous Leg Ulcers; Cambridge Publishing
Examination

Varicose Veins / Varicosities

Venous eczema
Skin irritation / Redness, scaling, pruritus

Ankle flare
Red threads around the ankle
Dilatation of malleolar venules

Lipodermatosclerosis
Hard, woody tissue

Haemosiderin staining
Gaiter region
Haem deposits in the tissue/ Stains skin brown

Atrophy blanche
Smooth, ivory-white patches / Very thin skin
Capillary infarctions / Increased pain

Pain
Aching
Throbbing
Heaviness
Superficial stinging when exposed to air during dressing changes

Quality of life issues

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) 2007
Examination

- Examine bilateral legs
- Buerger’s test
  - pallor on leg elevation followed by persistent dusky redness in dependency
- Palpate all arterial leg pulses –
  - Femoral
  - Popliteal
  - Dorsalis Pedis
  - Posterior Tibial
Examination

- Capillary refill
- Thickened nails
- Temperature - cool
- Colour/Pigmentation
- Mottled skin
- Shiny/atrophic skin
- Erythema/cellulitis
- Hair growth
- Signs of malnutrition
- Dorsi-flexion
- Gait / movement of joints

- Ulcer Location
- Tissue - Ulcer Base
  - depth
  - Tissue type
  - Colour/ pale/ blood supply
- Inflammation/Infection
- Moisture – exudate
- Edge of wound
  - Undermined
  - Rolled
  - inverted
- Ulcer Shape
  - Regular/irregular border
  - Punch out appearance
- Surrounding Skin
- Other Involvements


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Investigations

- Blood Pressure
- Bloods (Fasting lipids, HBA1c, FBC, ESR, nutritional screen, albumin levels)
- Wound swab if signs of clinical infection
- Biopsy
- ABPI
- Toe Pressure
- Monofiliment

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) (2007)
Investigations – ABPI

Ankle Pressure (highest)

\[ \text{ABPI} = \frac{\text{Ankle Pressure (highest)}}{\text{Brachial Pressure}} \]

- 0.9 – 1.2 Normal
- 0.5 – 0.9 Claudication
- < 0.5 Ischaemia

- Calcification of the arterial wall prevents accurate pressure measurements
- ABI may be artificially elevated in people with – Diabetes, Chronic Renal Failure (CRF) or Rheumatoid Arthritis

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) (2007)
Investigations - Toe Pressures

< 30mmHg Unlikely to heal

40 – 60 mmHg Moderate likelihood of healing

> 60 mmHg Should heal

➤ If diabetic < 40mmHg Healing unlikely

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) (2007)
## Investigations – Vascular Tree

<table>
<thead>
<tr>
<th>Modality</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duplex U/S</strong>&lt;br&gt; Venous Arterial</td>
<td>✓ Non-invasive&lt;br&gt; ✓ Inexpensive</td>
<td>× Difficulties with calcium and adipose tissue&lt;br&gt; × Operator dependent</td>
</tr>
<tr>
<td><strong>MRA</strong></td>
<td>✓ Non-invasive&lt;br&gt; ✓ Non-toxic&lt;br&gt; ✓ Moderate cost</td>
<td>× Contraindications&lt;br&gt; × May “overcall” stenosis</td>
</tr>
<tr>
<td><strong>CTA</strong></td>
<td>✓ Non-invasive&lt;br&gt; ✓ Fast&lt;br&gt; ✓ Moderate cost</td>
<td>× Contrast load&lt;br&gt; × Difficulties with calcified vessels</td>
</tr>
<tr>
<td><strong>DSA</strong></td>
<td>✓ Excellent definition</td>
<td>× Invasive&lt;br&gt; × Contrast load&lt;br&gt; × expensive</td>
</tr>
</tbody>
</table>

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) (2007)
Investigations - Angiography

- Local anaesthetic
- Catheter inserted in groin under X-ray guidance
- Dye injected to reveal disease, narrowing of arteries and stenosis

Complications
- Bleeding from the puncture site
- Haematoma of groin
- Migration of closure devise
- False aneurysm

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) (2007)
Diagnosis – Arterial Ulcer

- Direct result of ischaemia of tissues as a result of
  - Stenosis
  - Occlusion
Diagnosis – Arterial Ulcer

- Rarely acute onset
- Progressive disease process
- Acute/on chronic
- More severe in people with diabetes
- Pain
- Decreased ability to walk - claudication
- Change of lifestyle
- Non healing wounds / Gangrene
- Rest pain
- Loss of digits/limbs/life
Implementation –
treatment options – non operative

- Stop smoking
- Regular exercise- walking program
- Control hypertension
- Antiplatelet Agents
- Control high cholesterol (statins)
- Control diabetes - regular HbA1c checks
- Balanced diet/Healthy weight
- Good hygiene/skin care/keep dry
- Foot care/leg care
- Offload pressure
- Treat infection with correct antibiotics
- Leave dry gangrene/eschar intact – body’s barrier to bacteria

Never debride until revascularised

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) (2007)
Standard 4 Best Practice in Wound Healing (4.3 maintain eschar in dry non infected wound) (2002) AWMA Standards for Wound Management
Implementation

• Listen to the patients needs – involve patient in decisions
• Plan in consultation with key stakeholders including family members if possible
• Refer on.....
• Explore the options
• Obtain consent and commitment for planned care
• Discuss pain issues and look at options – pain relief
• Discuss lifestyle, risk factors, nutrition
• Education
• Regular follow up – shared care, Multi-D

Inter-Society Consensus for the Management of Peripheral Artery Disease (TASC II) (2007)
Standard 1 Collaborative Practice & Interdisciplinary Care (2002) AWMA Standards for Wound Management

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Implementation – operative indications

- Unresolved Infection with Antibiotics / systemic sepsis
- Critical Limb Ischaemia
- Progression of claudication that is life limiting
- Rest Pain
- Gangrene
- Non Healing Ulcer
Diagnosis - Venous Ulceration

Chronic venous hypertension
Chronic oedema
Increased capillary permeability
Hemosiderin
Lipodermatosclerosis
Tissue Ischaemia
Chronic Ulcer

Capillaries thrombose
  Reduction in nutrition
  Reduction in transcutaneous oxygen

High levels of Lymph Fibrinogen
  Venous hypertension
  Endothelial permeability
  Plasma leakage
  Skin changes

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Diagnosis - Venous Ulceration

• Deep veins
• Superficial veins
• Perforators
• Lymphatics + valves
• Venous valves
• Calf Muscle Pump

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Diagnosis Venous - Ulceration

- Varicose Veins
- Venous eczema
  - Skin irritation
  - Eczematous changes, redness, scaling, pruritus
- Ankle flair
  - Red threads around the ankle
  - Dilatation of malleolar venules
- Haemosiderin staining
  - Gaiter region
  - Haem deposits in tissue after red blood cell break down
  - Red / brown discoloration
- Varicosities
- Lipodermatosclerosis (hard, woody)
- Atrophe blanche

Standard 4 Best Practice In Wound Care (2002) AWMA Standards for Wound Management

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Implementation

- Skin care
- Local wound care
- Debride
- Skin care
- Treat infection
- Exercise and movement
- Compression bandages/ hosiery
- Lifestyle Management
- Education
- Support

Standard 1 Collaborative Practice and Interdisciplinary Care (2002) AWMA Standards for Wound Management
Standard 4 Best Practice In Wound Care (2002) AWMA Standards for Wound Management
Implementation – Compression Therapy

- Gold standard treatment & prevention of venous ulcers
- Control of leg oedema (water)
- Applies pressure to skin and underlying tissue
- Increases venous flow
- Improves venous pump function

- Tubular (10mmHg)
- Low stretch (short)
- High stretch (elastic)
- Multi layered
- Coban 2 + lite = stiffness
- Multi layered stockings
- Graduated compression maintenance stockings

Standard 4 Best Practice In Wound Care (2002) AWMA Standards for Wound Management