Lower Limb Oedema

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Oedema

• The accumulation of fluid in extra-vascular tissue
• Occurs as a result of complex interactions involving the permeability of capillary walls and the hydrostatic and oncotic pressure gradients that exist between the blood vessels and surrounding tissue
## Causes of Oedema

<table>
<thead>
<tr>
<th>Physiology</th>
<th>Possible Cause</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ Capillary permeability</td>
<td>Cellulitis, arthritis, hormonal cyclic oedema</td>
<td>Inflammatory oedema,</td>
</tr>
<tr>
<td>↑ Venous (capillary) pressure</td>
<td>Heart failure, venous insufficiency dependency syndrome</td>
<td>Cardiac, venous oedema</td>
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<tr>
<td>↑ Oncotic tissue pressure</td>
<td>Failure of lymph drainage</td>
<td>Lymhoedema</td>
</tr>
<tr>
<td>↓ Oncotic capillary pressure</td>
<td>Hypoalbuminaemia, nephrotic syndrome, hepatic failure</td>
<td>Hypoproteinaemic oedema</td>
</tr>
</tbody>
</table>

Oncotic Pressure = osmotic pressure created by protein colloids in plasma

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

• **Cardiac dysfunction**
  • left ventricular systolic impairment; ischaemic heart disease, valvular disease
  • left ventricular diastolic dysfunction: hypertension
  • right ventricular dysfunction (pericardial effusion, chronic cardiac failure, end-stage chronic airflow limitation)

• **Fluid overload**

• **Renal disease**
  • acute renal failure (eg, acute glomerulopnephritis)
  • chronic renal failure

• **Hypoproteinaemic state**
  • chronic liver disease
  • nephrotic syndrome
  • malnutrition ; malabsorption
  • protein-losing enteropathy
Bilateral – systemic pathology

- **Endocrine**
  - hypothyroidism
  - cushing’s syndrome

- **Drugs**
  - calcium-channel antagonists
  - corticosteroids
  - NSAIDs
  - Oestrogens

- **Anaemia**
  - Generalised vasodilation
  - Retain sodium and fluid

- **Others**
  - Hereditary angioneurotic oedema
  - Pregnancy
  - idopathic
Unilateral – local pathology

- **Venous**
  - acute DVT, post-thrombotic syndrome (valvular reflux and residual thrombus)
  - varicose veins (venous hypertension)
  - obstruction to venous return (e.g., pregnancy, pelvic tumours, inferior vena cava obstruction)

- **Lymphatic**
  - primary / secondary lymphoedema

- **Stasis**
  - paralysis, poor mobility, obesity

- **Inflammation**
  - cellulitis, allergic reactions

- **Trauma**

- **Congenital**
  - arteriovenous malformation
Lower Limb

- Deep veins
- Superficial veins
- Perforators
- Lymphatics + valves
- Venous valves
- Calf Muscle Pump
Chronic Oedema

Family history of varicose veins
Venous disease
Family history of thromboembolic events
Deep vein thrombosis
Trauma / injury / surgery
Pregnancy
Heart Failure
Obesity
Advanced age
Immobility

Irreversible skin changes
Recurrent venous ulceration
Skin irritation/destruction
Cellulitis

Pain
Quality of life issues
Exudate
Oedema
Odour
Infection
Chronic Oedema “Wet Leg”

• Lymphorrhea – beads of fluid
  • Increased skin damage
  • Poor functional ability
  • Increased pain
  • Increased risk cellulitis – unplanned admissions to hospital
  • Unable to wear shoes – limited outings

• Promote lifestyle/behavioural change / risk factor management
• Exercise; Elevate legs
• Cardiac review if heart failure
• Skin care – emollients to lock in moisture
• Potassium Permanganate – Condys Crystals – weak solution

• Absorbent /non stick dressings
• Blue/yellow stockinette
• Wool padding
• Blue/yellow stockinette or short stretch bandage 10cm