There are several commonly-encountered skin problems in clinical practice. Below are some of the important differential diagnoses for each of these presentations.

Clinical exposure is the key to achieve competence in diagnosing, investigating and managing these skin problems.

**Common Important Problems**

**Learning objectives:**

Ability to formulate a differential diagnosis, describe the investigation and discuss the management in patients with:

- chronic leg ulcers
- itchy eruption
- a changing pigmented lesion
- purpuric eruption
- a red swollen leg
Chronic leg ulcers

- Leg ulcers are classified according to aetiology. In general, there are three main types: venous, arterial and neuropathic ulcers. Other causes include vasculitic ulcers (purpuric, punched out lesions), infected ulcers (purulent discharge, may have systemic signs) and malignancy (e.g. squamous cell carcinoma in long-standing non-healing ulcers).
- In clinical practice, there can be mixture of arterial, venous and/or neuropathic components in an ulcer.

[Images of different types of ulcers: Venous ulcer, Arterial ulcer, Neuropathic ulcer]
## Chronic Leg Ulcers

<table>
<thead>
<tr>
<th></th>
<th>Venous Ulcer</th>
<th>Arterial Ulcer</th>
<th>Neuropathic Ulcer</th>
</tr>
</thead>
</table>
| **History** | Often painful, worse on standing  
- History of venous disease e.g. varicose veins, deep vein thrombosis | Painful especially at night, worse when legs are elevated  
- History of arterial disease e.g. atherosclerosis | Often painless  
- Abnormal sensation  
- History of diabetes or neurological disease |
| **Common sites** | Malleolar area (more common over medial than lateral malleolus) | Pressure and trauma sites e.g. pretibial, supramalleolar (usually lateral), and at distal points e.g. toes | Pressure sites e.g. soles, heel, toes, metatarsal heads |
| **Lesion** | Large, shallow irregular ulcer  
- Exudative and granulating base | Small, sharply defined deep ulcer  
- Necrotic base | Variable size and depth  
- Granulating base  
- May be surrounded by or underneath a hyperkeratotic lesion (e.g. callus) |
| **Associated features** | Warm skin  
- Normal peripheral pulses  
- Leg oedema, haemosiderin and melanin deposition (brown pigment), lipodermatosclerosis, and atrophie blanche (white scarring with dilated capillaries) | Cold skin  
- Weak or absent peripheral pulses  
- Shiny pale skin  
- Loss of hair | Warm skin  
- Normal peripheral pulses*  
*Cold, weak or absent pulses if it is a neuroischaemic ulcer  
- Peripheral neuropathy |
| **Possible investigations** | Normal ankle/brachial pressure index (i.e. ABPI 0.8-1) | ABPI < 0.8 - presence of arterial insufficiency  
- Doppler studies and angiography | ABPI < 0.8 implies a neuroischaemic ulcer  
- X-ray to exclude osteomyelitis |
| **Management** | Compression bandaging (after excluding arterial insufficiency) | Vascular reconstruction  
- Compression bandaging is contraindicated | Wound debridement  
- Regular repositioning, appropriate footwear and good nutrition |
Itchy eruption

- An itchy (pruritic) eruption can be caused by an inflammatory condition (e.g. eczema), infection (e.g. varicella), infestation (e.g. scabies), allergic reaction (e.g. some cases of urticaria) or an unknown cause, possibly autoimmune (e.g. lichen planus).
## Itchy eruption

<table>
<thead>
<tr>
<th>History</th>
<th>Scabies</th>
<th>Urticaria</th>
<th>Lichen planus</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Personal or family history of atopy - Exacerbating factors (e.g. allergens, irritants)</td>
<td>- May have history of contact with symptomatic individuals - Pruritus worse at night</td>
<td>- Precipitating factors (e.g. food, contact, drugs)</td>
<td>- Family history in 10% of cases - May be drug-induced</td>
</tr>
<tr>
<td>Common sites</td>
<td>- Variable (e.g. flexor aspects in children and adults with atopic eczema)</td>
<td>- Sides of fingers, finger webs, wrists, elbows, ankles, feet, nipples and genitals</td>
<td>- No specific tendency</td>
</tr>
<tr>
<td>Lesion</td>
<td>- Dry, erythematous patches - Acute eczema is erythematous, vesicular and exudative</td>
<td>- Linear burrows (may be tortuous) or rubbery nodules</td>
<td>- Pink wheals (transient) - May be round, annular, or polycyclic</td>
</tr>
<tr>
<td>Associated features</td>
<td>- Secondary bacterial or viral infections</td>
<td>- Secondary eczema and impetigo</td>
<td>- May be associated with angioedema or anaphylaxis</td>
</tr>
<tr>
<td>Possible investigations</td>
<td>- Patch testing - Serum IgE levels - Skin swab</td>
<td>- Skin scrape, extraction of mite and view under microscope</td>
<td>- Bloods and urinalysis to exclude a systemic cause</td>
</tr>
<tr>
<td>Management</td>
<td>- Emollients - Corticosteroids - Immunomodulators - Antihistamines</td>
<td>- Scabicide (e.g. permethrin or malathion) - Antihistamines</td>
<td>- Antihistamines - Corticosteroids</td>
</tr>
</tbody>
</table>
A changing pigmented lesion

- A changing pigmented lesion can be benign (e.g. melanocytic naevi, seborrhoeic wart) or malignant (e.g. malignant melanoma).
## A changing pigmented lesion

<table>
<thead>
<tr>
<th></th>
<th>Benign</th>
<th>Seborrhoeic wart</th>
<th>Malignant</th>
<th>Malignant melanoma</th>
</tr>
</thead>
</table>
| **History**          | - Not usually present at birth but develop during infancy, childhood or adolescence  
                        - Asymptomatic | - Tend to arise in the middle-aged or elderly  
                        - Often multiple and asymptomatic | - Tend to occur in adults or the middle-aged  
                        - History of evolution of lesion  
                        - May be symptomatic (e.g. itchy, bleeding)  
                        - Presence of risk factors | |
| **Common sites**     | - Variable | - Face and trunk | - More common on the legs in women and trunk in men | |
| **Lesion**           | - Congenital naevi may be large, pigmented, protuberant and hairy  
                        - Junctional naevi are small, flat and dark  
                        - Intradermal naevi are usually dome-shape papules or nodules  
                        - Compound naevi are usually raised, warty, hyperkeratotic, and/or hairy | - Warty greasy papules or nodules  
                        - ‘Stuck on’ appearance, with well-defined edges | - Features of ABCDE:  
                        Asymmetrical shape  
                        Border irregularity  
                        Colour irregularity  
                        Diameter > 6mm  
                        Evolution of lesion | |
| **Management**       | - Rarely needed | - Rarely needed | - Excision | |
Purpuric eruption

- A purpuric eruption can be thrombocytopenic (e.g. meningococcal septicaemia, disseminated intravascular coagulation, idiopathic thrombocytopenic purpura) or non-thrombocytopenic e.g. trauma, drugs (e.g. steroids), aged skin, vasculitis (e.g. Henoch-Schönlein purpura).
- Platelet counts and a clotting screen are important to exclude coagulation disorders.
### Purpuric eruption

<table>
<thead>
<tr>
<th></th>
<th>Meningococcal septicaemia</th>
<th>Disseminated intravascular coagulation</th>
<th>Vasculitis</th>
<th>Senile purpura</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History</strong></td>
<td>- Acute onset</td>
<td>- History of trauma, malignancy, sepsis, obstetric complications, transfusions, or liver failure</td>
<td>- Painful lesions</td>
<td>- Arise in the elderly population with sun-damaged skin</td>
</tr>
<tr>
<td><strong>Common sites</strong></td>
<td>- Extremities</td>
<td>- Spontaneous bleeding from ear, nose and throat, gastrointestinal tract, respiratory tract or wound site</td>
<td>- Dependent areas (e.g. legs, buttocks, flanks)</td>
<td>- Extensor surfaces of hands and forearms - Such skin is easily traumatised</td>
</tr>
<tr>
<td><strong>Lesion</strong></td>
<td>- Petechiae, ecchymoses, haemorrhagic bullae and/or tissue necrosis</td>
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<td>- Palpable purpura (often painful)</td>
<td>- Non-palpable purpura - Surrounding skin is atrophic and thin</td>
</tr>
<tr>
<td><strong>Associated features</strong></td>
<td>- Systemically unwell</td>
<td>- Systemically unwell</td>
<td>- Systemically unwell</td>
<td>- Systemically well</td>
</tr>
<tr>
<td><strong>Possible investigations</strong></td>
<td>- Bloods</td>
<td>- Bloods (a clotting screen is important)</td>
<td>- Bloods and urinalysis - Skin biopsy</td>
<td>- No investigation is needed</td>
</tr>
<tr>
<td></td>
<td>- Lumbar puncture</td>
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<tr>
<td><strong>Management</strong></td>
<td>- Antibiotics</td>
<td>- Treat the underlying cause</td>
<td>- Treat the underlying cause - Steroids and immunosuppressants if there is systemic involvement</td>
<td>- No treatment is needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Transfuse for coagulation deficiencies</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Anticoagulants for thrombosis</td>
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Common Important Problems – Purpuric eruption
The main differential diagnoses for a red swollen leg are cellulitis, erysipelas, venous thrombosis and chronic venous insufficiency.

### Cellulitis/Erysipelas
- Painful spreading rash
- History of abrasion or ulcer

### Venous thrombosis
- Pain with swelling and redness
- History of prolonged bed rest, long haul flights or clotting tendency
- Heaviness or aching of leg, which is worse on standing and relieved by walking
- History of venous thrombosis

### Chronic venous insufficiency
- Complete venous occlusion may lead to cyanotic discolouration
- Discoloured (blue-purple)
- Oedema (improved in the morning)
- Venous congestion and varicose veins

### History
- Systemically unwell with fever and malaise
- May have lymphangitis
- Usually systemically well
- May present with pulmonary embolism
- Lipodermatosclerosis (erythematous induration, creating ‘champagne bottle’ appearance)
- Stasis dermatitis (eczema with inflammatory papules, scaly and crusted erosions)
- Venous ulcer

### Lesion
- Erysipelas (well-defined edge)
- Cellulitis (diffuse edge)
- Complete venous occlusion may lead to cyanotic discolouration
- Discoloured (blue-purple)
- Oedema (improved in the morning)
- Venous congestion and varicose veins

### Associated features
- Systemically unwell with fever and malaise
- May have lymphangitis
- Usually systemically well
- May present with pulmonary embolism
- Lipodermatosclerosis (erythematous induration, creating ‘champagne bottle’ appearance)
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- Venous ulcer

### Possible investigations
- Anti-streptococcal O titre (ASOT)
- Skin swab
- D-dimer
- Doppler ultrasound and/or venography
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- Doppler ultrasound and/or venography

### Management
- Antibiotics
- Anticoagulants
- Leg elevation and compression stockings
- Sclerotherapy or surgery for varicose veins