Skin disorders

5.18 Skin disorders

BOX 5.18.1 Minimum standards
- Anti-scabies treatment.
- Antibacterial treatment.
- Antifungal treatment.
- Topical steroids.
- Emollients.
- Antiviral treatment.

Introduction
In resource-limited countries, skin disease is dominated by bacterial infections such as impetigo and parasitic conditions such as scabies and pediculosis. It is often poorly managed, and may incur a significant economic cost to families through use of ineffective remedies. It is important to recognise whether cases reflect individual or community problems; treatment of single cases of scabies will have little impact if there is widespread infection in the community.

Scabies
Scabies is a parasitic infection caused by the mite, *Sarcoptes scabiei*, which spreads from person to person, usually by direct contact. The adult female burrows a tunnel into the stratum corneum or outer skin layer, producing eggs which hatch into larvae within 3–4 days. 'Outbreaks' in communities may follow a cyclical pattern, with peaks of incidence occurring every 4–7 years. Infection in adults usually reflects overcrowding in households and transmission through contact with infected individuals, including infants.

Clinical presentation
The main sites of infection include fingers, wrists, elbows, ankles, genitals and buttocks; the face and head may be affected in babies, but these sites are seldom involved in older children. Important clues include the following:
- itching in several members of the same household
- lesions in characteristic sites, particularly the lateral borders of the fingers
- papules, pustules and sinuous tracks or burrows (5–10 mm).

In onchocerciasis (see Section 6.3.C.g), itching is also common but lesions are seldom found on the fingers.

Diagnosis
Remove mites from their burrows with a sterile needle and examine them under low power of the microscope.

Complications
Secondary bacterial (streptococcal) infection is common (see below). In severely immunocompromised individuals (e.g. those with AIDS) a crusted form of scabies, without severe itching but with large numbers of mites, may occur.

Treatment
The cheapest treatment options are sulphur based. However, they are slow to take effect, and require daily applications for 7–14 days. Permethrin is the most rapidly active but also the most expensive option.

All potentially affected areas are treated, including the soles of the feet and, in babies, the scalp.

Failure of anti-scabetic agents often occurs because there is no place where individuals can apply these treatments in privacy. Treat all members of the household, including those without itching.

Clothes should be cleaned or changed after the first treatment. Resistance to gamma-benzene hexachloride occurs. Ivermectin (oral) is highly effective for crusted scabies, without severe itching but with large numbers of mites, may occur.

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Ivermectin (oral) is highly effective for crusted scabies, but is not suitable for children under 5 years (single dose of 150 micrograms/kg). No food should be taken for 2 hours before or after the dose.

Community-based treatments, although ideal, are seldom practised as they are difficult and, although individually cheap, comparatively costly to apply to large numbers.

Impetigo
The term pyoderma is used to describe a range of superficial bacterial infections that include impetigo, folliculitis, abscesses (furunculosis) or secondary bacterial infection (e.g. of scabies). Impetigo is a form of pyogenic infection that involves the epidermis and is caused by Group A

TABLE 5.18.1 Topical treatment of scabies

<table>
<thead>
<tr>
<th>Anti-scabies preparation</th>
<th>Treatment</th>
<th>Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphur</td>
<td>Given as a 5–10% application in white soft paraffin or as soap. Treat for 1–2 weeks</td>
<td>Local irritation</td>
</tr>
<tr>
<td>25% Benzyl benzoate emulsion</td>
<td>Initial application, followed by a second one 2–3 days later</td>
<td>Local itching, eczema</td>
</tr>
<tr>
<td>5% Permethrin cream</td>
<td>One application (another is often necessary)</td>
<td>Minimal itching</td>
</tr>
<tr>
<td>0.5% Malathion lotion</td>
<td>One or two applications</td>
<td>Itching</td>
</tr>
<tr>
<td>1% Gamma-benzene hexachloride lotion</td>
<td>One to four applications</td>
<td>Use with caution in children; seizures have been recorded</td>
</tr>
<tr>
<td>1% Crotamiton cream</td>
<td>1–2 weeks of treatment</td>
<td>Not very effective, although it can reduce itching</td>
</tr>
</tbody>
</table>
streptococci or *Staphylococcus aureus*. It is not possible to separate the two infections clinically.

Ecthyma occurs when impetigo penetrates deeper, to affect the dermis and cause ulceration.

**Clinical presentation**

Impetigo presents with oozing and yellowish crusted plaques, often on exposed sites such as the face. These plaques may be multiple, and form blisters, in which case *Staphylococcus aureus* is the usual cause. This may be transmitted to other parts of the body and to other children. Secondary infection of scabies may occur; papules become pustular and there may be surrounding impetiginised crusts on acetic acid burns.

Boils (furuncles) are also common, and are always caused by *Staphylococcus aureus*. Lesions are large tender fluctuant masses with surrounding inflammation. They may occur in other members of the same household.

**Complications**

A serious complication of streptococcal impetigo or pyoderma is glomerulonephritis, which follows infection by nephritogenic strains. In tropical environments, post-streptococcal glomerulonephritis more often follows skin infection rather than throat infection.

**Management**

Impetigo is transmissible, and treatment should include other contacts with lesions. Cover both *Staphylococcus aureus* and streptococci, unless laboratory facilities for culture are available. A topical agent may be used, but for widespread lesions oral treatment is usual (see Table 5.18.2). The choice of medication is influenced by cost, extent of disease and type of lesions.

Most *Staphylococcus aureus* strains, even in remote communities, are resistant to both penicillin and tetracycline. Most topical azole antifungal agents (e.g. clotrimazole, miconazole), apart from ketoconazole, have activity against Gram-positive bacteria. Boils are best managed by incision and drainage.

**TABLE 5.18.2 Treatment of impetigo**

<table>
<thead>
<tr>
<th>Agent</th>
<th>Route</th>
<th>Use</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloxacillin, flucloxacin</td>
<td>Oral: 12.5–25 mg/kg four times a day</td>
<td>For widespread and severe impetigo. Rapid effect, with clearance in 3–5 days</td>
<td>Expensive</td>
</tr>
<tr>
<td>Mupirocin</td>
<td>Topical</td>
<td>For localised infections. Rapid effect, with clearance in 3–7 days</td>
<td>Moderate</td>
</tr>
<tr>
<td>Fucidin</td>
<td>Topical</td>
<td>As for mupirocin</td>
<td>Moderate</td>
</tr>
<tr>
<td>Clioquinol</td>
<td>Topical</td>
<td>Slow to take effect (7–14 days). May stain skin; irritant</td>
<td>Cheap</td>
</tr>
<tr>
<td>Potassium permanganate (alternatives are chlorhexidine and povidone iodine)</td>
<td>Topical</td>
<td>Simple to use, stains skin. Slow to take effect (7–14 days)</td>
<td>Cheap</td>
</tr>
</tbody>
</table>

**Tropical ulcer (tropical phagedenic ulcer)**

Tropical ulcer mainly occurs in children and teenagers, but is seldom seen in developed countries. It is patchily distributed in endemic foci throughout Africa, India and the West Pacific. It is associated with humid regions or areas subject to local flooding.

Tropical ulcer is considered to result from synergistic bacterial infection, of which one anaerobic organism is usually *Fusobacterium ulcerans*. Other bacteria present in lesions include spiral bacteria and Gram-negative bacteria. *F. ulcerans* has also been isolated from mud and stagnant water in the vicinity of cases.

The initial lesion is a soft papule with surrounding hyper-pigmentation overlying an area of skin necrosis. This develops over at least 1 week, and when the overlying skin sloughs a regular and deep ulcer, 3–10 cm in diameter, is revealed.

**Complications**

With proper care and regular irrigation or cleansing of lesions the area will heal. About 5–10% of lesions may progress to chronic ulceration, and in some cases secondary squamous carcinoma or more serious infection (e.g. underlying osteomyelitis) may develop.

**Cutaneous leishmaniasis** (see Section 6.3.A.c).

**Management**

The objective of treatment is to allow rapid healing without secondary infection.

**Regimen**

- Dilute antiseptic (e.g. potassium permanganate solution), or 0.9% saline for cleansing the ulcer and surrounding skin.
- Daily dressings.
- A single IM dose of benzyl penicillin (50 mg/kg) or oral metronidazole (7.5 mg/kg every 8 hours for 5 days). The former is particularly important in areas where yaws is also endemic, as it will cover both conditions.
- If healing is delayed, local pinch grafting may be necessary.

**Superficial fungal infections**

Common childhood fungal infections are scalp ringworm or tinea capitis and oropharyngeal candidiasis.

Tinea infections are caused by dermatophyte fungi, which are adapted to survive on the outer layer of the skin, the stratum corneum, or structures such as hair or nails derived from it. Dermatophyte infections are caused by one of three genera of fungi, *Trichophyton, Microsporum*
and **Epidemophyton**, which are acquired by spread from soil, animal or human sources (geophilic, zoophilic or anthropophilic infections, respectively). By convention they are referred to by the term *tinea* followed by the appropriate Latin word for the site affected – for example, *tinea pedis* (feet), *tinea corporis* (body) or *tinea capitis* (scalp).

*Tinea capitis* is often endemic in rural or urban areas of resource-limited countries and inner-city areas of industrialised countries. Prevalence rates may reach over 20% in some communities.

The main signs of infection are as follows:
- scaling
- hair loss: this may be diffuse or in localised patches; scalp hairs in affected areas may break at scalp level or a few millimetres above the skin
- itching: this is variable.

The key to the diagnosis is the presence of broken hairs. Confirmation is by culture of scrapings taken from the scalp surface with a sterilised scalpel or sterile scalp brushes. The presence of infection can also be verified by microscopy of hair samples.

**Complications**
- Kerion is a severe pustular reaction on the scalp, which accompanies a strong immune response to ringworm infection.
- Favus is a widespread crusty form.
- Secondary infection with bacteria may occur, usually where there are crusts overlying the surface of inflamed lesions.

**Management**

Culture of fungus can distinguish whether infection is from a human or animal source, i.e. zoophilic species (*Microsporum canis*, from cats and dogs; *Trichophyton verrucosum*, from cattle) or anthropophilic species (*Trichophyton violaceum*, *T. tonsurans*, *T. soudanense* or *Microsporum audouinii*).

The presence of infections in close contacts (e.g. schoolmates or family) may signal child-to-child spread and alert schools to other infected children. In resource-limited countries, mass treatments have a low priority because cases usually self-heal. In some communities, from cats and dogs;

**Management principles**

- **Treat inflamed inflammatory lesions with topical corticosteroids** (once or twice daily). Weak-strength preparations (1% hydrocortisone) are best, although it may be necessary to use medium to strong topical steroids in some cases (never use the latter on the face). Use corticosteroids only intermittently, relying on emollients for long-term management.

- **Treat complications.** These are secondary bacterial infections, usually *Staphylococcus aureus* and acute herpes simplex (eczema herpeticum): apply aciclovir cream five times a day for 5–10 days (until healed) or aciclovir orally if severe, 20 mg/kg four times a day for 5–7 days, and contact dermatitis which may include allergy to topical medications such as lanolin and corticosteroids. An oral antibiotic (e.g. cloxacinil or flucloxacillin 12.5–25 mg/kg four times a day) in acute flare-up of eczema may produce a good response.

Atopic eczema ranges from a mild skin rash to a severe condition that can dominate family life and may cause major family stress. Food allergy is a rare cause, and skin testing for precipitating factors is usually not helpful. In industrialised countries there are patient organisations (e.g. the National Eczema Society in the UK) which provide support and advice to patients and their families.

**Hypopigmentation and hyperpigmentation disorders**

These are often secondary to other inflammatory processes which should be treated. There are no effective, cheap or easily administered treatments for the pigmented changes themselves. The common fungal disease, pityriasis versicolor, may present with hypopigmented patches on the trunk which coalesce; however, these are scaly. Treatment with topical antifungal azole creams (e.g. clotrimazole) is effective.

**Further reading**

Regular updates on the management of skin disease in resource-limited environments are available in the *Community Dermatology Journal*, which can be accessed without charge on www.ifd.org.