

# Scabies

Scabies is an itchy rash caused by the parasitic mite *Sarcoptes scabiei*. Scabies has caused pruritic infestation in humans for over 2,500 years.

The female scabies mite is about 0.4 mm long, and the male is 0.2mm. After mating on the skin surface, the male dies and the female mite tunnels into the epidermis, and deposits eggs along the burrow. Development from egg to adult takes about 10-15 days. Adult mites then return to the skin surface to multiply. Mites die after 4-6 weeks. An average host harbours 10-12 mites. This may be greatly increased in immunocompromised patients).

## Contact

Classical scabies requires skin contact of 10-15 minutes for mites to be passed from one host to another. Crusted scabies (a more severe variety, see below) can also be transmitted via bedding, towels, clothes and furniture. Female mites can move at up to 2.5 cm per minute but they do not jump or fly.

## Epidemiology

Scabies is a common public health problem with an estimated 300 million cases prevalent worldwide. It is often difficult to diagnose due to the spectrum of associated signs and symptoms and its clinical mimicry of other conditions.

## Risk factors

Overcrowding.

Poverty, poor nutritional status.

Homelessness.

Poor hygiene.

Institutions. Residential care homes in the UK, refugee camps in some parts of the world.

Dementia.

Sexual contact.

Children, especially in developing countries.

Immune suppression (eg, HIV infection).

## Presentation

Signs and symptoms develop after 3-4 weeks however the infection can be transmitted to others during this asymptomatic phase.

- Infected contacts may be asymptomatic for up to a month which is why treatment of all significant contacts is needed. Symptoms reappear within 1-3 days if the person is re-infested due to prior sensitisation.
- The most common presenting symptom is widespread itching. This develops as an allergic reaction to infection, usually 4-6 weeks after infestation. This is usually worse at night and when the person is warm. A history of several family members all suffering with itch is strongly suggestive of scabies. Scratching predisposes to secondary bacterial infection.
- On examination the skin changes vary. Lesions may be papules, vesicles, pustules, and nodules. Erythematous papular or vesicular lesions are usually seen in the sites of the burrows. The more widespread, symmetrical, itchy, papular eruption is not in the areas of burrows or obvious mite activity. This is most commonly seen around the axillae, the peri-areolar region of the breasts in women, and the abdomen, buttocks, and thighs. Excoriation marks are common and may be more marked than the underlying rash.

### **Scabies of the leg**



- Burrows may be visible as fine, wavy, greyish, dark or silvery lines, 2-15 mm long, sometimes with a minute speck (the mite) at the closed end. They are most often seen in the web spaces between fingers, inside of the wrists and elbows, axilla, ankles, feet, buttock areas, male genitalia and peri-areolar area in women.



### **Scabies - burrows on a finger**

- Nodules may develop. These occur particularly at the elbows, anterior axillary folds, penis, and scrotum. They are firm, dull red or brown, and may be very itchy. They may persist for weeks or months after treatment and do not necessarily indicate active infestation, but rather the result of a chronic allergic reaction to the mite. Inflammatory papules and nodules on the male genitalia, sometimes with visible burrows, are diagnostic of scabies.
- Thick skin is relatively resistant, so sparing is normally seen of the soles of the feet and upper back region in adults.
- Even a single burrow is pathognomonic but burrows are often obliterated by bathing, scratching, crusts, or superinfection.
- Papules and vesicles frequently develop into excoriations, eczema exacerbations, secondary infections and crusts.

### **Differential diagnosis**

Misdiagnosis is common and other skin disorders, particularly those causing itching, should be considered.

### **Investigations**

The diagnosis is largely clinical. A magnifying lens may help in identification of burrows or even occasionally mites.

### **Management**

All members of the household, close contacts, and sexual contacts should be treated simultaneously with the index patient. It is important that all contacts apply treatment on the same day to reduce the risk of re-infestation from an untreated contact. Patients should be advised to avoid close body contact until they and their partner(s) have completed the treatment.

- The primary method of treatment for scabies is by topical application of a parasitocidal preparation overnight to the whole body from head to toe. Apply treatment to the whole body, including the scalp, neck, face, and ears, and especially between the fingers and

toes and under the nails. Treatment should not be applied after a hot bath (as this increases systemic absorption and removes the drug from its treatment site). If the hands are washed, the liquid or cream must be reapplied.

- **First-line:** permethrin 5% dermal cream
  - **Second-line:** malathion 0.5% aqueous liquid.
  - Oral ivermectin (as a single oral dose of 200 micrograms/kg) is available on a named-patient basis as an adjunct to topical treatment for crusted ('Norwegian') scabies. This treatment is usually initiated on specialist advice.
- This should be repeated a week later.
  - Clothes, towels, and bed linen should be machine-washed (at 50°C or above) to prevent re-infestation and transmission. Items that cannot be washed can be kept in plastic bags for at least 72 hours to contain the mites until they die.
  - The risk of transmission of scabies is low in schools and children can return to school after the first application of treatment has been completed.

## Itch

Antihistamines are of little help in treating pruritus. A sedative oral antihistamine at night may help with sleeping and so reduce scratching. Crotamiton cream or lotion has soothing qualities and may help to relieve the itch caused by scabies. Low-dose steroid creams or simple emollients and moisturisers stored in the fridge may also ease discomfort.

Itching can persist for up to 3 weeks after treatment. Warn the patient this does not mean the treatment has failed.

## Treatment failure

Should be considered where:

- Itching persists more than 6 weeks after the first application of an insecticide.
- Treatment was not applied as instructed or not co-ordinated between close contacts.
- New burrows appear.

If incorrectly applied treatment has failed, repeat, ensuring everyone clearly understands the instructions.

Where correctly applied treatment has not worked, give a course of a different parasitocidal preparation. This reduces the development of resistance to the medication.

- Secondary bacterial infections should be treated with antibiotics if significant.
- Offered full STI screening

**Note:**

- Seek specialist advice for children under 2 months old - scabies is rare in this age group.
- Breast-feeding or pregnant women with scabies can be treated with permethrin 5% dermal cream (or malathion if permethrin is contra-indicated), although neither is specifically licensed for such; there is, however, no indication that either product is harmful to the fetus or child. Breast-feeding mothers should remove the liquid or cream from the nipples before breast-feeding, and reapply treatment afterwards.

**Complications**

Scabies can cause flaring or reactivation of eczema or psoriasis.

Secondary bacterial infection. This is a cause of much morbidity and mortality, especially in the developing world. Particularly involved are *Staphylococcus aureus* or *Streptococcus pyogenes*. Cellulitis, impetigo and abscesses may be the result, and bacterial skin infection can further predispose to invasive infection and sepsis. *S. pyogenes* infection secondary to scabies is a risk factor for acute post-streptococcal glomerulonephritis and possibly acute rheumatic fever. Crusted scabies has a high mortality rate due to secondary sepsis in the immunosuppressed.

**Prognosis**

Scabies persists indefinitely unless treated. Treatment, if applied correctly, has a high chance of cure. In endemic areas, re-infestation is likely.

## Crusted ('Norwegian') scabies

- Crusted scabies is a hyper-infestation with thousands of mites present in exfoliating scales, due to the host's insufficient immune response. Those at risk include:
  - The immunosuppressed (eg, HIV infection, leukaemia or lymphoma).
  - Elderly patients.
  - Those with decreased peripheral sensation.
- Hyperkeratotic crusted lesions typically affect the hands, feet, nails, scalp and ears, but all areas of skin, including the scalp and trunk, may be involved.
- Crusted scabies is a hyperkeratotic skin disease resembling psoriasis.
- It may present with generalised lymphadenopathy.
- It often becomes secondarily infected.
- This form of scabies is very contagious and is far more difficult to eradicate than classical scabies.