



Scabies or Arachnitis?

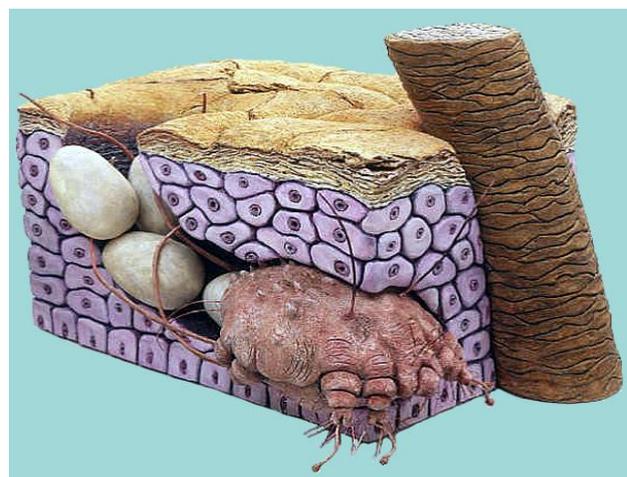
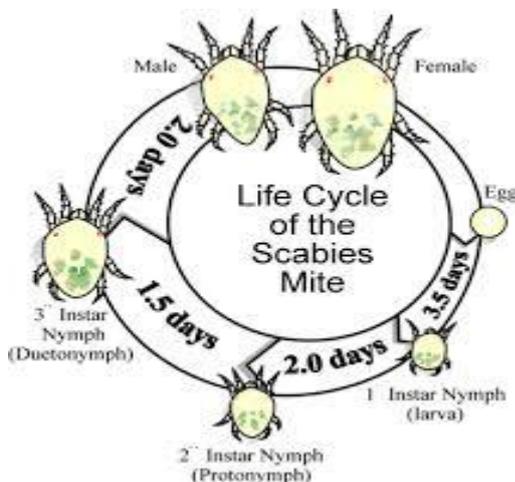
Overview

'The Itchiest I have ever been in my life' can be a common indicator of scabies, but the itch can be absent in the debilitated. The mite (*Sarcoptes scabiei*) is a common, but often and easily overlooked condition because it is difficult to definitively diagnose, it can be challenging to treat and its diagnosis commonly triggers fear, paranoia and denial. Scabies has developed an unfortunate name connotation - 'arachnitis' would elicit much less fear! (c.f. 'ringworm' and tinea). It is commonly erroneously believed to be a result of dirty living conditions. In fact, the more sociable we are with direct skin contact, regardless of cleanliness, the more likely we are to be relatively unlucky and pick up a mite from someone that does have it. **Scabies does not bite and is more akin to hay fever** than a flea bite association. **Scabies causes a delayed, allergic, hypersensitivity skin reaction** to the protein in the mite and/or its faeces (scybala). **Flea bites can be differentiated** by seeing bite welts, characteristically linear sequence, three in a row, often adjacent to hem lines, ankles, belt line and arms. Scabies (human form) cannot live on cats, dogs or other animals, nor in the environment for longer than generally 1-4 days.

Clinical

Scabies can be seen clinically in a wide spectrum of dermatological skin presentations – from relatively typical, **extremely itchy dermatitis**, often with a vesicular rash but also papules, blisters, nodules, and eczematous changes, which may have been noted to have spread to close contacts, **through to a subtle non irritating skin presentation or completely asymptomatic, particularly in the debilitated** – this latter being especially challenging in the long term care facility (LTCF) context, including for unrecognised source and dissemination reasons. **An increased clinical index of suspicion is often required to prevent overlooking scabies.** Visible burrows/tracks **may be seen with experience** and a low magnifier (e.g. x4) especially in the wrist, hands/fingers, outer elbow, abdomen and instep. Sleep deprivation is common, caused by the intense itching which is aggravated by warmer skin in bed. Scratching commonly leads to secondary bacterial skin infection. **The itch and rash can be on a completely different part of the body to where the mite is.** Transmission is primarily by direct skin contact.

Life Cycle



Each mite is tiny, approximately 0.3-0.5mm in size, the male smaller, the egg smaller still. We start by picking up only one mite, usually from direct skin contact. **Healthcare workers hands can act as transient carriers of the mite** from one patient to another when not washing hands between patients. The mite migrates on **the surface of the new host's skin for a few hours only (easily washed off at this stage only), before burrowing into the upper layer (stratum corneum) of the epidermis for 10 days where it cannot be washed off or passed on.** Here the female, who only mates once, lays a few eggs, many infertile. The eggs hatch in 3-4 days, and mature as adults in about 4 days. They emerge to the skin surface, migrate for a few hours before in turn burrowing for 10 days.

Generally numbers slowly increase to less than 12 total, but occasionally they proliferate to large numbers, especially in the elderly, debilitated and immunocompromised where the allergic immune response is lessened and clinical signs greatly muted, if present at all. 'Norwegian' scabies is rare, the same mite, but in large numbers and usually with crusting present also. For unknown reasons the mite usually does not migrate to the head unless in under two year olds or Norwegian scabies type presentations in adults. The mite causes an allergic reaction (only one is required!), and **only after we have had it for typically 1-6 weeks does our immune response first manifest an itchy rash**, unless we have already been pre sensitised by prior exposure, then symptoms may be in 1-4 days. **Note, once diagnosis is established or suggested, itching typically occurs in carers and contacts within minutes!**

Treatment

The treatment of scabies keeps evolving, as does its increasing resistance to treatment. The introduction of the anti ectoparasitic agents **permethrin (e.g. topical 'Lyderm' cream and 'A-Scabies' lotion) and ivermectin (oral 'Stromectol')** has greatly facilitated successful treatment outcomes, but although little good data is available, each agent only has about 98% efficacy, less in some situations and areas. **Two treatments 7-10 days apart are generally required.** Eradication from the elderly and/or the debilitated can often be significantly more difficult to achieve than in others, even with the same mite in a cluster of people. **Multiple treatments may be required, one week apart, and for recalcitrant strains consider concurrent topical and oral treatments.**

Empirical treatment is commonly recommended due to the often very low sensitivity of specific diagnostic testing. It is important to prescribe the appropriate anti parasitic agent, provide good education to patients and/or their carers about the method and **thoroughness required in applying topical treatments** – generally from the jaw line and behind the ears down, wherever water would touch if bathing/showering, including under the fingernails, umbilical area, genital area including the labial lips and under the foreskin, between the buttocks, all of the back, between the toes and soles of the feet – and reapplication to the hands post hand washing e.g. post night toileting. **Treatment failures can occur for various reasons and must be managed appropriately.** Reasons include lack of thorough application, lack of synchronising treatment with known close contacts leading to reinfestation, increasing tolerance of the mite to the agent - increasing debilitation of the patient increases this apparent resistance, often markedly, and the mite is more difficult to eradicate.

Other reasons for failure and apparent treatment failure include ongoing overtreatment after the mite has cleared leading to contact dermatitis to the agent used, not realising that even in a successful treatment where all mites have been killed, they remain under the skin until the skin turns over, regenerates and evicts them so **our hypersensitivity allergy to the protein in the mite (or its faeces) remains for 1-6 weeks even post successful treatment of the mite** until this has occurred. In a small number of cases, even after successful treatment and mite eradication, 'post scabies initiated dermatitis' itch can remain which needs treating just for dermatitis (not the mite). Again, the lack of sensitive diagnostic tests can make differentiation of these latter two categories from ongoing live mite causation especially challenging!

i.e. it only takes one 'sick mite' or egg to remain and maintain the dermatitis – the diagnostic test sensitivity drops significantly if sufficient time (1-4 weeks) is not given for a single mite to regenerate and become more easily detectable.

Conclusion

Scabies can range from a relatively easy clinical diagnosis and treatment scenario to being incredibly challenging and difficult to both diagnose and treat successfully. Missed diagnoses or failed empirical treatments can cause years of hardship and stress to the patient (e.g. eczema of unknown cause which could have been cured), and ongoing shedding causing sporadic cases from an asymptomatic patient or carer within hospitals and LTCF's. Astute clinical skills, appropriate treatment prescription and a fully compliant patient with appropriate follow up are all required – then a cure can almost always be guaranteed unlike for many other causes of dermatitis.

Principles of scabies treatment:

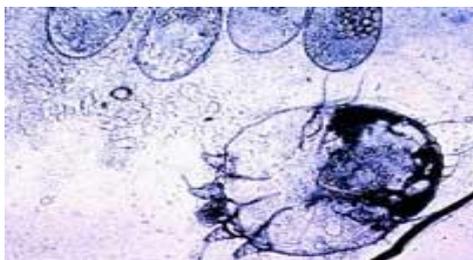
- **Clinical index of suspicion**, establish your diagnosis (usually clinical only)
- **Choose an appropriate anti scabietic** (e.g. topical permethrin) and repeat application in 7 days
- **Treat thoroughly** from jaw line to soles of feet in adults, plus head and face in babies/infants
- **Launder** sheets, towels, flannels and clothes that have been worn in last 4 days, or hot drier or set aside for at least 4 days. Footwear – set aside 4 days or place in bag and use fly spray or freeze overnight
- **Treat those with close skin contact at the same time**
- **Provide verbal and written instructions** to the patient/carer to help compliance, reduce fear
- **Avoid over treatment** – contact dermatitis can occur, change medication may be required
- **Have a follow up at one and four weeks post treatment**, more if dermatitis remains

References

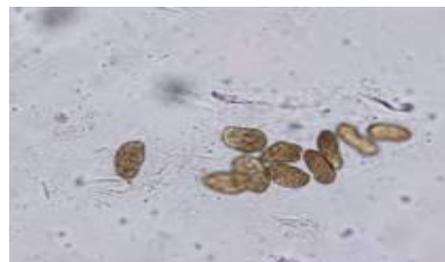
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Tracking/burrows with mite just visible at one end



Sarcoptes scabiei mite + eggs



Mite faeces (scybala)

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