

Attachment B: Methods for Identifying Scabies Mites

Whenever possible, scabies should be confirmed by isolating the mites, eggs or feces in a skin scraping. Samples are best obtained from a non-excoriated papule or burrow. Burrows are often detected in the web spaces of the fingers, flexor aspects of the wrists, antecubital fossa, underarm, umbilicus, buttocks, and feet. In women, the nipples and areola of the breasts often are affected. In men, red papules or nodules on the glans of the penis, shaft, and scrotum are almost pathognomonic of scabies.

'Classic' scabies mite burrows appear as thin (approximately the width of a human hair), short (perhaps 2-3 mm in length), gray-brown, wavy channels on the skin. Nodular scabies may erupt on covered parts of the body as a few or many lesions characterized by a firm red nodule 0.5 cm or larger in appearance.

'Norwegian' scabies presents with extensive crusting (psoriasiform-like lesions) of the skin with thick, hyperkeratotic scales overlying the elbows, knees, palms, and soles. Bullous lesions may be observed in immunocompromised patients.

Occasionally, the mite is visible to the naked eye as a small white dot, or can be seen with a magnifying glass. However, in general, additional techniques may be needed to identify and isolate the organism for examination. These following procedures are described for information purposes, and should only be performed by a healthcare provider experienced in diagnosing scabies (e.g., a dermatologist).

Burrow Identification

- Mineral oil, applied to the skin surface, improves the visibility of burrows, especially over dry, scaly areas.
- Applying topical tetracycline to the skin and washing off the excess may reveal burrows. The burrows retain the tetracycline, which fluoresces under a Woods lamp, allowing easy identification. [500 mg tetracycline in 20 ml of glycerine with absolute ethanol added to make 100 ml of solution is effective – store in a light-protected bottle]
- Rubbing a washable felt-tip marker (blue or green works best) across the suspected site and removing the ink with an alcohol wipe also may localize a burrow more precisely (the ink penetrates the stratum corneum and delineates the site).

Mite Demonstration

- After applying mineral oil to the lesion, superficially shave or scrape the lesion with a No. 15 scalpel blade. Try to avoid inducing bleeding. Apply scrapings to a glass slide, cover with a coverslip and examine with 10-40X microscopic magnification to identify the mite, its eggs or feces.
- Although mites may be extracted from a burrow by gently pricking open the burrow with a needle and working it toward the end where the mite is living, this is not generally practical.
- Cellophane tape or methacrylate glue stripping of the lesion will remove layers of skin over the lesion. Repeated applications may eventually capture the mite, its eggs or feces for viewing under the microscope.
- Skin biopsy is the most traumatic approach. Staining of skin lesions may show a mite or eggs.

Note: Scrapings from cases of Norwegian scabies may require the addition of 10% potassium hydroxide to improve visualization by reducing the amount of keratinic debris.