

Use of Non-contact Dermatoscopy in the Diagnosis of Scabies

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CASE REPORT

A 15-year-old girl came to our outpatient clinic due to many itchy vesicles and papules on her bilateral palms for several years. She visited other hospital and was treated as hand eczema prior to this visit. Physical examination showed multiple, 0.3 to 0.5 cm, mild scaly, erythematous papules and deep-seated vesicles on her bilateral palms (Fig. 1). There was also one serpiginous, whitish to grayish, threadlike elevated line (burrow) 2.5 cm in length on her left palm. Under handheld dermatoscope (Dermlite® II PRO HR) (Fig. 2), there was one grayish triangular shaped lesion with a black dot in the apex (resembling circumflex accent, *eg.* in French letter “Ô”) seen at the top of the whitish, threadlike elevation (Fig. 3). Skin scraping was then obtained over the triangular area with a sterile surgical blade and examined in potassium hydroxide solution at 100X magnification, in order to confirm the diagnosis of scabies. Mite and eggs were noted (Fig. 4).

DISCUSSION

Scabies is a highly contagious skin infestation caused by the mite *Sarcoptes scabiei var hominis*, which is known to burrow between the spinous and corneal layers, feeding on intercellular fluids, well sheltered below the horny material.¹ Typical nocturnal exacerbation is the main symptom.² The standard method for definite diagnosis is *ex vivo* identification of the mites, eggs, and feces with microscopic

examination of skin scrapings. However, this method may cause pain, physical or psychological discomfort, and even results in bleeding. In addition, repeated tests are sometimes necessary for a conclusive diagnosis.³

Dermatoscopy (epiluminescence microscopy, Dermoscopy, skin surface microscopy) is a noninvasive technique that uses a handheld dermatoscope equipped with a transilluminating light source and standard magnifying optics. Dermatoscopy can be performed using a contact or noncontact technique. After the application of a liquid interface (usually oil, water, or alcohol) to the surface of the skin, the dermatoscope lens is immersed into the fluid covering the lesion. The liquid interface decreases light reflection, refraction, and diffraction, thus, making the epidermis essentially translucent and allowing for the noninvasive, *in vivo* visualization of the sub-surface structures not seen with the unaided eye. Dermatoscopy can also be performed using a noncontact technique (*eg.* without fluid immersion) by using a polarized light dermatoscope which has a cross-polarized lens that absorbs all the scattered light waves (*eg.* surface reflection) while allowing transmission of the light waves oscillating in one plane. The absence of contact between lens and skin may avoid a potential source of nosocomial infections.⁴ Previous studies have successfully using dermatoscopy (in high-magnification, low-magnification, or videodermatoscopy) for the *in vivo* diagnosis of scabies and monitor the antiscabetic

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Fig. 1

Multiple, 0.3 to 0.5 cm in diameter, mild scaly, erythematous papules and deep-seated vesicles are noted on the left palm.

treatment.¹⁻⁵ Under the 40x magnification, a “jet with contrail” -like mite image can be seen. Under the 10x magnification, the characteristic triangular shape (eg. French letter “Ô”) represents the head and the two pairs of front leg. of the mites.² Dupuy *et al.* have compared diagnostic accuracy of *in vivo* dermatoscopic mite identification using a contact, pocket handheld low-magnification dermatoscopy with the microscopic examination of skin scrapings. In that prospective study, dermatoscopy was less time-consuming and was better accepted by the patients. Besides, the sensitivity of dermatoscopy was the same with the reference method even in inexperienced hands.² However, the close contact of the dermatoscope to the patient may cause the nosocomial infections and the disinfection of the dermatoscope is important after each patient.

In contrast to that contact technique, we use the noncontact, polarized light dermatoscope (Dermlite® II PRO HR) for the diagnosis of scabies. It is not only a noncontact tool but also a noninvasive, less time consuming with high accuracy method comparing to the traditional skin scrapings. This method can greatly enhance the clinical skills for the diag-



Fig. 2

We used the noncontact, polarized light dermatoscope (Dermlite® II PRO HR) for the diagnosis of scabies.

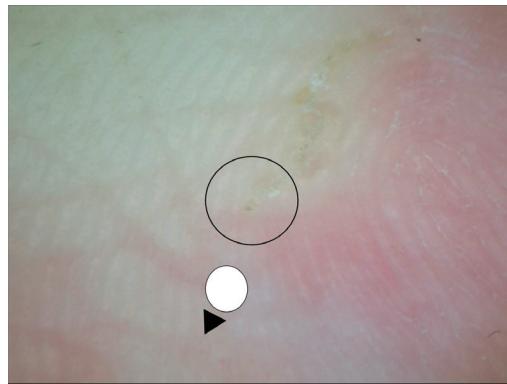


Fig. 3

Under the dermatoscopy (Dermlite® II PRO HR), *Sarcoptes scabiei* appeared as characteristic triangular shape resembling circumflex accent (eg. In French letter “Ô”).



Fig. 4

Skin scraping obtained over the triangular area shows a mite. (x100, KOH examination).

nosis of scabies, especially in the field where no microscope is available. Besides, dermatoscopy can also be used in screening patients as a way of preselecting patients' body areas for performing oriented skin scrapings.

In conclusion, dermatoscopy is a non-invasive, rapid, and highly diagnostic accurate method in the diagnosis of scabies.

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