

In vivo reflectance confocal microscopy for the diagnosis of scabies

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DESCRIPTION

Scabies is a common, contagious skin parasitosis typified by generalised pruritus and determined by *Sarcoptes scabiei hominis*. Standard diagnostic techniques for scabies consist of identification of the mite or its eggs by direct microscopic examination of skin scrapings and, in the past few years, of dermoscopy.¹⁻³

In vivo reflectance confocal microscopy (RCM) is an emerging non-invasive imaging technique which produces horizontal greyscale images of the skin at various depths, allowing the visualisation of epidermis and superficial dermis at cellular resolution facilitating the diagnosis of several cutaneous disorders including skin cancers⁴⁻⁷ and

inflammatory skin diseases.⁸ RCM has previously been employed in the diagnosis of scabies, proving its ability to demonstrate the mite within the epidermis, where the adult women dig burrows and spawn.^{3,9-11}

We report the case of a 36-year-old man with a 2-week history of diffuse, intense pruritus, and a generalised rash consisting of pink to red papules (figure 1A), in which skin scrapings performed by his primary care physician were negative. We performed dermoscopy and RCM of several lesions. Dermoscopy showed the classic 'delta-wing' sign in a lesion located in the right elbow area (figure 1B,C). On confocal images, at a depth of 23 µm, the *S. scabiei* mite appeared as having an ovoid body (length 0.38 mm; width 0.2 mm) with an anterior pole presenting refractive structures corresponding to the two pairs of legs, a polygonal area, corresponding to the mite's head and a highly refractive ovoid structure (23.8×14.2 µm) inside the body contour, suggestive of faeces (figure 1D,E). The patient was started on topical treatment (25% benzyl benzoate cream) and was doing well at 2 weeks' follow-up with full remission of the skin lesions and only slight, residual pruritus remaining.

The commercially available in vivo RCM VivaScope 1500 (Caliber I.D., New York, USA) was used for confocal imaging. The handheld version of this device (VivaScope 3000 Caliber I.D., New York, USA) has been shown to provide an even faster diagnosis, in similar cases.¹²

Although not indispensable, in our case RCM enabled the in vivo visualisation of the *S. scabiei* mite, thus enhancing the diagnosis. As already proposed by others,^{3,9} the combined examination by dermoscopy and RCM could represent an efficient and quick method to explore numerous lesions for

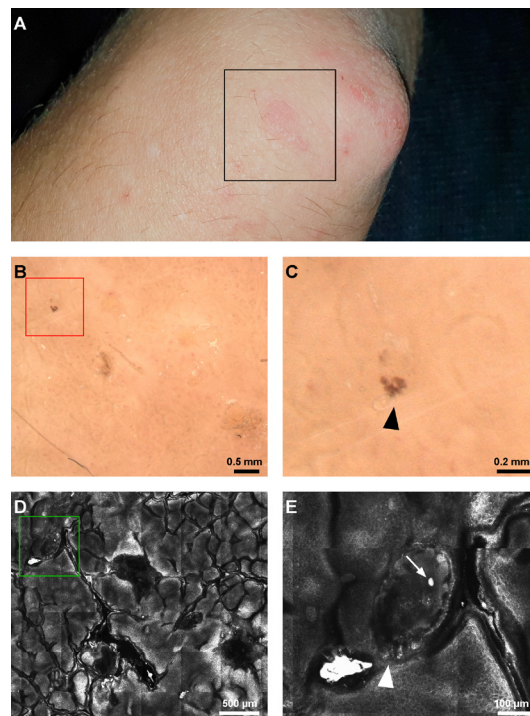


Figure 1 (A) Clinical photograph of the papules in the right elbow area. (B) Dermoscopy image of the lesion in the black square in (A), revealing the mite (red square). (C) Dermoscopy image enlarged from (B), showing the 'delta-wing' sign (black arrowhead). (D) Reflectance confocal microscopy (RCM) mosaic (3.2×2.8 mm) revealing parts of the burrow and the mite in the upper-left corner (green square). (E) RCM image (780×680 µm) showing the *Sarcoptes scabiei* mite with its inhomogeneously refractive ovoid body and its anterior pole with the rostrum (white arrowhead); highly refractive structure inside the mite, suggestive of faecal matter (white thin arrow).

Patient's perspective

I came to the doctor's office seeking help for an itch that wouldn't go away. I was first seen by my primary care physician who, among other things, told me I might have scabies and ordered a test. The test came back negative and I was given some creams which I applied for about 2 weeks and the itch got better and then a lot worse. I couldn't sleep at night because I was scratching all the time, so I scheduled an appointment with a dermatologist, who, after a consult did a test, like an ultrasound and confirmed that I indeed have scabies. He started me on a treatment and in about a week I was already getting better.



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Learning points

- ▶ A combined examination by dermoscopy and reflectance confocal microscopy could represent an efficient, quick and non-invasive method to explore numerous lesions for diagnostic confirmation of a clinically suspected scabies infestation.
- ▶ Reflectance confocal microscopy is currently available only in a limited number of centres, but may represent an alternative non-invasive tool for the diagnosis of scabies.

diagnostic confirmation of a clinically suspected scabies infestation. The identification of the parasite by RCM has been recently added among diagnostic criteria for scabies in the international guidelines.¹³

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