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Letter to the editor

Diagnosis of a case of scabies infestation with line-field confocal optical coherence tomography

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Abstract

We present a case of scabies diagnosed with LC-OCT with a video of the live scan across the volume of the scabietic burrow.

Key words: General dermatology, diagnosis, confocal microscopy, scabies, line-field optical coherence tomography

Dear Editor,

Diagnosis of infestation by *Sarcoptes scabiei* can fox even the experienced dermatologist, particularly in those patients lacking the more classical signs. Our diagnostic armamentarium can often be found lacking with many modalities having poor sensitivity (microscopy of skin scrapings = 56.3% and dermoscopy = 43.5%) [1]. Recent studies have demonstrated the use of line-field confocal optical coherence tomography (LC-OCT) as a non-invasive diagnostic alternative [2–5]. Here we present a case of recurrent scabies diagnosed with the assistance of LC-OCT and confirmed with microscopy to add to the body of literature supporting this modality for diagnosis.

Full skin examination of a 42-year-old female revealed a widespread, erythematous, papular eruption without specific features in the interdigital web spaces or on the volar aspects of the wrists. Dermatoscopic examination demonstrated a lesion suspicious for a scabietic burrow [Figure 1A], which was further interrogated using LC-OCT imaging [Figure 2] with the Damae Medical produced deepLive™ device. Scrapings from the lesion were examined under light microscopy [Figure 1B]. The diagnosis of scabies was confirmed, and the patient was treated with a course of ivermectin and instructed on the use of permethrin 5% cream and household measures to ensure clearance of the infestation.

Figure 1 depicts the dermatoscopic image of the burrow [Figure 1A] and the microscopic confirmation of the mite [Figure 1B]. Figure 2 depicts frame from a live video scan through the horizontal and vertical axes of the LC-OCT imagery,

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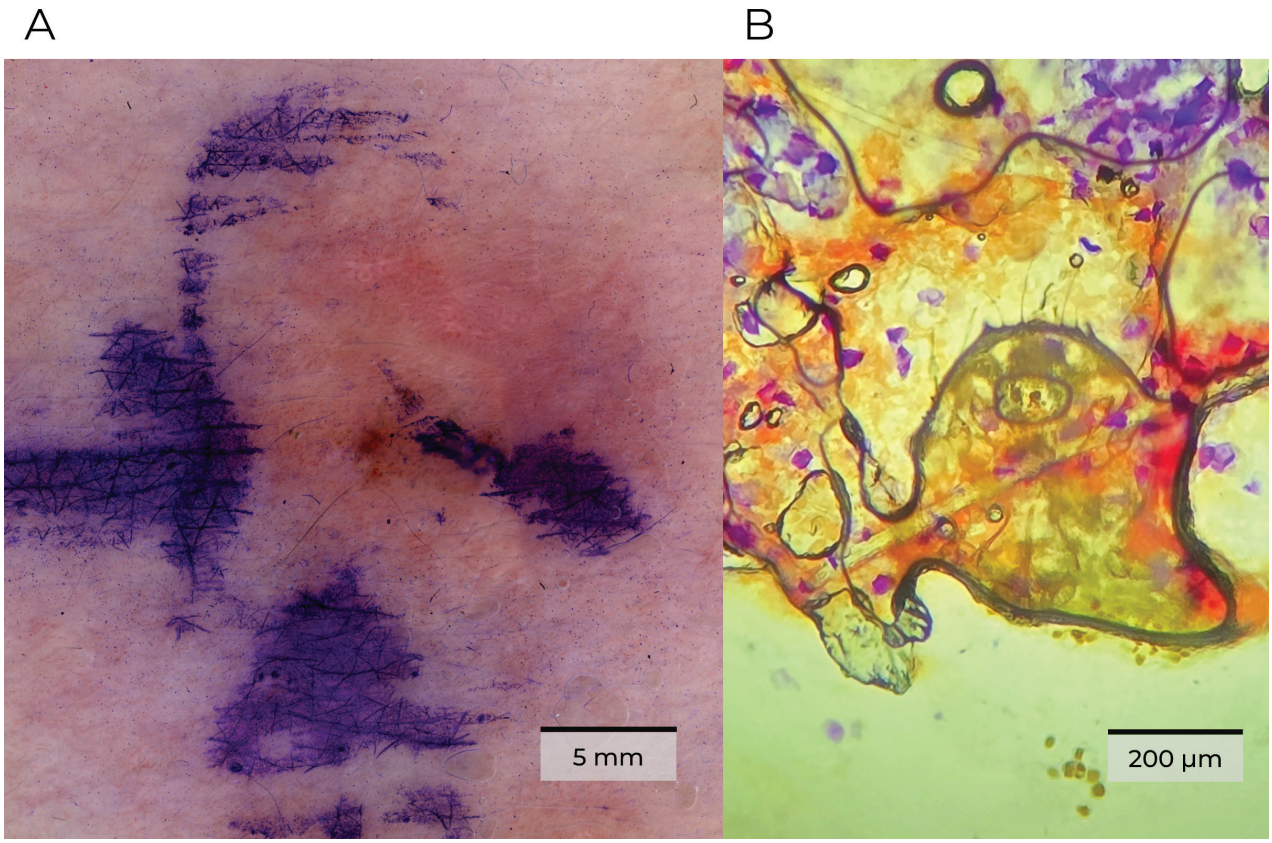

Figure 1. Dermatoscopic image (**A**) of scabies burrow and microscopic image (**B**) of scabies mite scraped from the lesion.

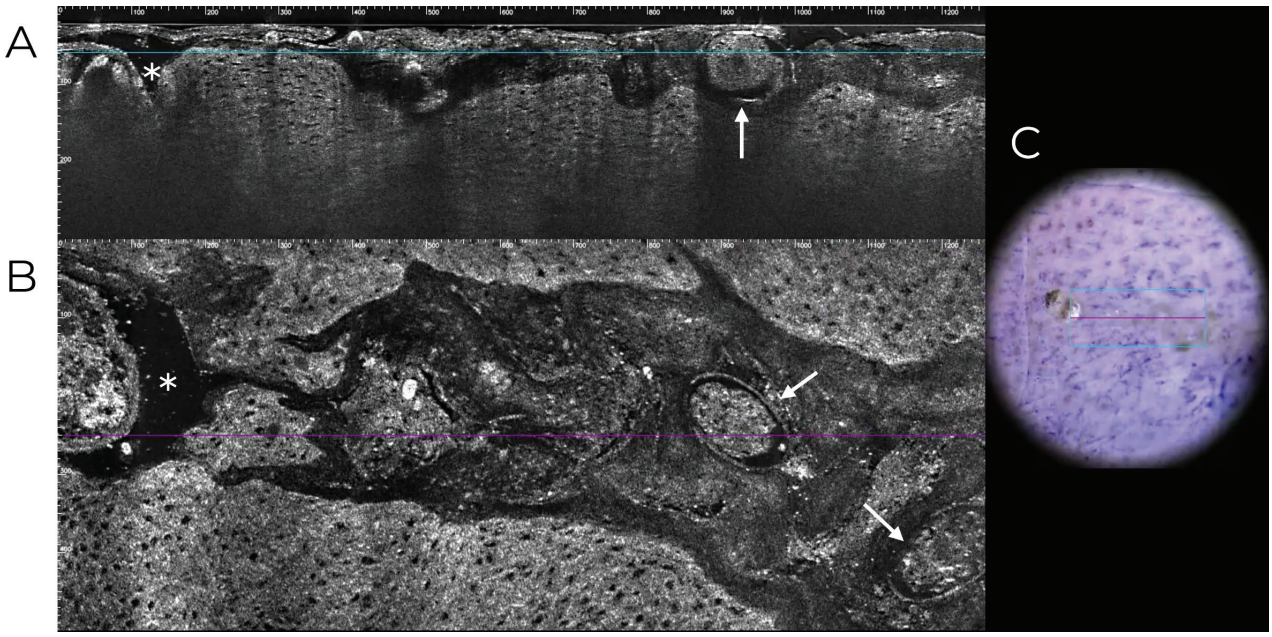

Figure 2. Line-field confocal optical coherence tomography images of scabies mite (*), burrow and eggs (white arrows) as vertical (**A**) and horizontal views (**B**) with corresponding dermatoscopic image (**C**).

matched with the position within the dermatoscopic image. We see the tortuous burrow through the epidermis containing an adult mite on the far left (300 µm wide and 150 µm from the side of the frame where the rest of the mite has been cut off). Two eggs are seen mid right and far right, measuring around 100 µm in diameter.

Additional information

Conflict of interest

HPS is a shareholder of MoleMap NZ LTD and e-Derm Consult GmbH and undertakes regular teledermatological reporting for both companies, he is a Medical Consultant for Canfield Scientific Inc. and a Medical Advisor for First Derm. The remaining authors declare that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical statements

The authors declared that no clinical trials were used in the present study.

Informed consent from the humans, donors or donors' representatives: Princess Alexandra Hospital, Brisbane, Australia.

The authors declared that no experiments on animals were performed for the present study.

The authors declared that no commercially available immortalised human and animal cell lines were used in the present study.

Use of AI

AI was used for correcting spelling and grammar errors.

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Author contributions

Nicholas M. Muller and Samuel X. Tan contributed equally and are co-lead authors. Conceptualization: JW, MM, NMM, KK. Data curation: NMM, KN. Formal analysis: KD. Funding acquisition: KK. Methodology: KN, SXT. Project administration: KK, JW. Resources: JW, KK. Software: KK. Supervision: HPS, KK, KD, MM, NR, JW. Validation: JW. Visualization: SXT, NMM. Writing – original draft: SXT, NMM. Writing – review and editing: NR, HPS.

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Data availability

All of the data that support the findings of this study are available in the main text or Supplementary Information.

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Supplementary material 1

Supplementary figure S1

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Data type: mp4

Explanation note: Live line-field confocal optical coherence tomography scan through a scabies burrow, from Figure 2. Available at https://doi.org/10.6084/m9.figshare.31066333.

Link: https://doi.org/10.1553/skindeep.2026.183007.suppl1