

The Findings of Reflectance Confocal Microscopy in the Diagnosis of Green Nail Syndrome

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A 46-year-old female presented with greenish discoloration on fingernails. The patient had been diagnosed with onychomycosis at a local dermatology clinic. Physical examination revealed onycholysis on all fingernails and dark-greenish discoloration on the Lt 1st, 3rd and Rt 1st fingernail (Fig. 1A). KOH

exam and reflectance confocal microscopy (RCM) images of the nail plate were all negative for fungal spores or hyphae. Multiple round, ring-shaped discs with white periphery and diameters ranging from 5 μ m to 35 μ m were observed in the RCM images (Fig. 1B). The patient was treated with oral



Fig. 1. (A) The Lt 3rd fingernail showing greenish discoloration and onycholysis (B) RCM image (0.5 mm \times 0.5 mm) of the Lt 3rd fingernail

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ciprofloxacin and topical gentamycin and reported clinical improvement. Based on clinical and response of treatment, the diagnosis of green nail syndrome (GNS) was made. The causative agent is not definite without bacterial culture result, however, *Pseudomonas aeruginosa* is a reasonable candidate because it is the most common cause of GNS and susceptible to fluoroquinolones.

GNS is an infectious disorder of nails which presents green discoloration of the nail plate, proximal paronychia and distolateral onycholysis. Treatment options for GNS include oral fluoroquinolones, topical silver sulfadiazine, ciprofloxacin, and gentamicin¹. RCM is a noninvasive method to evaluate fungal infection of nails by identifying bright, filamentous branching hyphae or roundish microspores².

The diagnosis of GNS is mostly clinical but identification of bacterial colony on imaging tools such as RCM can aid in the diagnosis. Bjarnsholt et al. observed that *in vivo* biofilm patches mostly ranged from 5 to 200 μm in diameter³. The size of the discs in the patient's RCM image supports the notion that the discs represent bacterial biofilm formation on the patient's nail. Therefore, RCM images can provide with objective data that strengthen the diagnosis of GNS.

Key Words: Green nail syndrome, Reflectance confocal microscopy

CONFLICT OF INTEREST

In relation to this article, we declare that there is no conflict

of interest.

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PATIENT CONSENT STATEMENT

The patient provided written informed consent for the publication and the use of her images.

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