

## COVID CONCEPT

### COVID-19 Associated Onychomadesis

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To date, various cutaneous manifestations of coronavirus disease 2019 (COVID-19) have been reported,<sup>1</sup> including but not limited to morbilliform, urticarial, pernio-like, livedo-reticularis-like, hair loss, and myriad other presentations. Reported COVID-19 nail changes have included Beau's lines<sup>2</sup> as well as one report of onychomadesis.<sup>3</sup> Here, we report an additional case of onychomadesis suspected to be related to COVID-19.

A 59-year-old African American male patient without history of dermatologic problems developed self-reported fever of up to 104°F at home, chills, diarrhea, and cough. He was evaluated in the emergency room, where his vitals included fever of 100.6°F, respiratory rate of 24/min, and O<sub>2</sub> saturation of 100%. He received nasopharyngeal swab demonstrating real-time reverse transcription polymerase chain reaction (RT-PCR) positive for COVID-19, but no additional bloodwork. He was discharged home and improved without additional treatments while he quarantined. Throughout his course, he denied any rash or skin changes.

Three months after his COVID-19 diagnosis, noted rapid darkening of multiple fingernails. Three weeks later, he noted sudden partial separation of multiple fingernails from their respective nailbeds, and subsequently

presented to dermatology clinic. The initially affected nails included the left second fingernail and right third, fourth, and fifth fingernails. These nail plates remained attached to the distal nailbed or lateral nailfold, with complete detachment on the opposite nailfold or the proximal nailfold. Toenails were not affected. These findings were associated with moderate pain. During the initial visit, nail plate was examined histologically and demonstrated parakeratosis with bacterial colonization. Periodic acid-Schiff (PAS) stain was negative for fungi. At patient's return visit three months later, the patient experienced interval loss of nail plates on all fingernails. He has had partial nail regrowth, with a thin brittle nail plate covering approximately half the nailbed. The patient was recommended to pursue a watchful waiting approach.

To add to the patient's medical history, the patient had a history of HIV, well-controlled on Lamivudine-Zidovudine and Nevirapine for several years, with recent undetectable viral load and CD4-count over 1200. He had a remote history of treated tuberculosis and treated syphilis. He denied any preceding medication changes, illnesses, trauma, or other nail exposures prior to his symptoms. He did not recall any preceding skin lesions that would be suggestive of Hand-Foot-and-Mouth disease (HFMD).



**Figure 1.** Fingernails upon initial presentation.



**Figure 2.** Fingernails on 3-month followup.

We present a case of onychomadesis in an HIV patient with recent COVID-19 infection and no other obvious etiologies of onychomadesis. Onychomadesis has historically been associated with a variety of

causes, including drugs, trauma, inflammatory states such as Stevens-Johnson syndrome or Kawasaki disease, and infections such as HFMD. Speculated mechanisms<sup>4</sup> for HFMD-related

onychomadesis may include matrix arrest due to fever, direct viral replication within the matrix, or inflammation proximal to the nail matrix which results in distal embolisms. These mechanisms may all be possible with COVID-19, which features a microangiopathic pathophysiology.<sup>5</sup> This case report highlights the many manifestations of COVID-19 infection, and the need for a high index of suspicion for COVID-19 related cutaneous complications.

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**References:**

1. Young S, Fernandez AP. Skin manifestations of COVID-19. *Cleve Clin J Med*. 2020 May 14. doi: 10.3949/ccjm.87a.ccc031. Epub ahead of print. PMID: 32409442.
2. Alobaida S, Lam JM. Beau lines associated with COVID-19. *CMAJ*. 2020;192(36):E1040.
3. Senturk N, Ozdemir H. Onychomadesis following COVID-19 infection: Is there a relationship? *Dermatol Ther*. 2020;e14309.
4. Salgado F, Handler MZ, Schwartz RA. Shedding light on onychomadesis. *Cutis*. 2017 Jan;99(1):33-36. PMID: 28207011.
5. Ackermann M, Verleden SE, Kuehnel M, et al. Pulmonary Vascular Endothelialitis, Thrombosis, and Angiogenesis in Covid-19. *N Engl J Med*. 2020 Jul 9;383(2):120-128. doi: 10.1056/NEJMoa2015432. Epub 2020 May 21. PMID: 32437596; PMCID: PMC7412750.