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## Multiple retronychia following COVID-19 infection

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### ARTICLE INFO

#### Keywords:

COVID-19  
Onychomadesis  
Retronychia  
Multiple  
Nail  
Fingernail

### 1. Discussion

Nail abnormalities can provide important information regarding underlying systemic diseases. In the last months, some nail disorders have been reported in patients infected with SARS-CoV-2, such as beau lines and “red half-moon” sign, which consists in distally convex half-moon-shaped red bands surrounding the distal margin of the lunula.<sup>1</sup> Onychomadesis, characterized by proximal separation of the nail plate from the matrix, has been reported on a patient three months following a COVID-19 infection.<sup>2</sup> Some authors defend that complement-mediated microvascular injury associated with an altered nail matrix functionality may be a possible cause of these lesions.<sup>3</sup> This is the first case of multiple retronychia related to SARS-CoV-2 infection described. Retronychia is a nail condition resulting from embedding of the nail plate into the proximal nail fold. New multilayered nail plates beneath the proximal nail fold lead to chronic perionychia and paronychia. Two stages of the disease have been described. Stage 1 is characterized by interrupted nail plate growth, xanthonychia, and mild perionychia. Stage 2 presents intense perionychia and paronychia with elevation of the proximal nail fold. Early diagnosis of retronychia is important to avoid severe complications, prolonged pain and nail plate dysfunction.

### 2. Visual case discussion

A 59-year-old woman presenting anosmia, dry cough and persistent

fever was hospitalized for 7 days due to severe dyspnea and diagnosed with SARS-CoV-2 infection by positive PCR COVID-19 nasal swab test. Twelve weeks after admission, she noticed “white spots” of both the hands and feet, as well as pain, especially on fingernails. During consultation, all chirodactyls showed periungual erythema, yellowish chromonychia (xanthonychia), lateral onycholysis, absence of cuticle and red transversal bands distal to the lunula (suspected red half-moon sign). Proximal thickening, transverse leukonychia and detachment of the nail plate from the proximal nail bed (onychomadesis, yellow arrow) was seen on all fingernails except for both fifth fingers. (Fig. 1. Parts A–D). Nail unit ultrasound of all fingers and toes was performed using a high frequency probe (24 MHz from Aplio 800 - Canon Medical) demonstrating thickening and irregularity of the proximal nail plate (white arrow) and reduced distance between the origin of the nail plate and the base of the distal phalanx. Indeed, decreased echogenicity (white open arrow) and increased blood flow surrounding the origin of the nail plate corresponding to inflammation and edema was observed diagnosing retronychia (Fig. 1. Part E).

### 3. Questions and answers with a brief rationale true & false and / or multiple-choice questions

#### Question 1

Is retronychia a specific complication of COVID-19?

False, it is not specific. Retronychia usually appears as an isolated

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<https://doi.org/10.1016/j.visj.2021.101087>

Received 14 May 2021; Received in revised form 1 June 2021; Accepted 29 June 2021

Available online 14 July 2021

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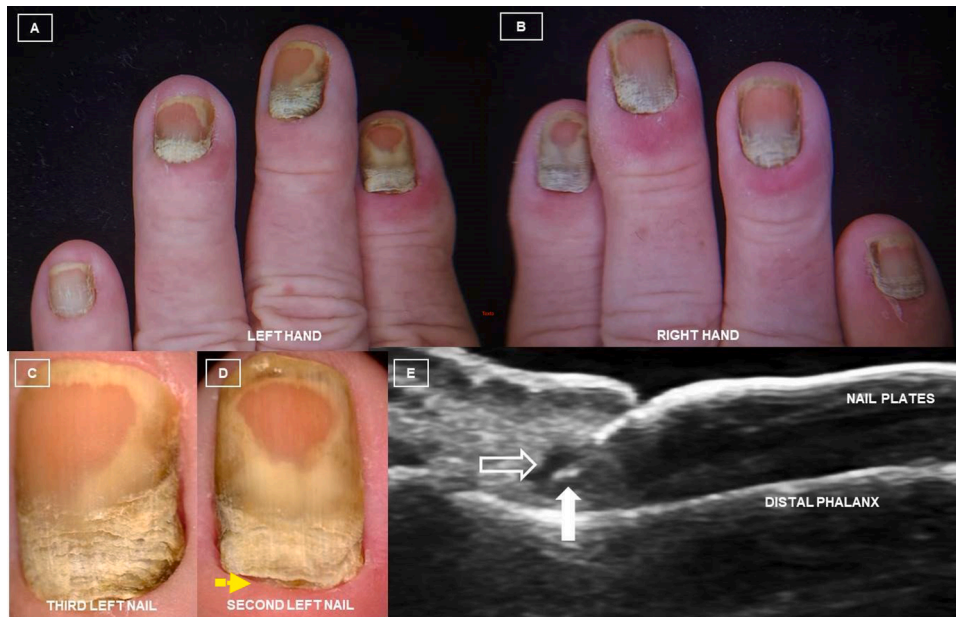


Fig. 1. Parts A-D. Clinical and dermoscopic images. Part E. Nail unit ultrasound picture.

event after repetitive trauma, or as a consequence of other nail conditions such as acute and chronic paronychia or associated ischemic etiologies leading to deformity of the nails (including thrombophlebitis and compartment syndrome).

#### Question 2

Which is the most frequent cause of retronychia?

- a) Trauma
- b) Infectious diseases
- c) COVID-19 infection
- d) Tumors of the nail unit
- e) Onychomycosis

Answer: Only A is correct. Repetitive trauma is the most frequent precipitating factor. This is usually associated to inappropriate or tight-fitting footwear and increased heel height and high intensity activities.

#### Declaration of Competing Interest

Authors declare no conflict of interest.

#### Funding sources

None.

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