Idiopathic/Simple Onycholysis: Response to Combination Topical Therapy

Onycholysis or distal separation of nail plate from nail bed is a common nail complaint; however, its etiology is widely varied. It can be quite symptomatic and remains underdiagnosed and underreported. The causes include dermatologic, infective, systemic, or drugs [Table 1]. However, in a substantial number of cases, no underlying cause can be found; hence, it is labelled as primary onycholysis. This distolateral separation with proximal extension, appears white due to entrapment of air and keratinous debris; however, secondary invasion by microorganisms (Candida spp, Pseudomonas, etc.) can cause discoloration.

Primary onycholysis, also known as simple/idiopathic onycholysis (IO) is a diagnosis of exclusion, occurring mostly in females, with onset in adulthood, though any age group can be affected. Histopathology is non-specific and management is poorly defined [Table 2]. We report two cases with response to topical combination therapy combined with irritant avoidance.

Case 1

A 35-year-old lady, working as a domestic help, presented with painless onycholysis involving five fingernails for 7–8 months [Figure 1a–c]. Reported symptoms were discomfort and difficulty in performing daily household activities. On examination, onycholysis had a regular border with minimal subungual debris. Greenish discoloration involving two nails with mild lateral nail fold swelling, suggesting chloronychia and paronychia, was seen. There was no pitting, subungual hyperkeratosis, or cutaneous disease. There was no history of drug intake, systemic illness, or Raynaud’s phenomenon. Onychoscopy revealed distal onycholysis with regular edge without proximal erythema or hemorrhages [Figure 2].

Direct microscopy and fungal cultures were negative. Nail biopsy showed an unremarkable nail plate without any evidence of fungal invasion, mild hypergranulosis, and acanthosis of nail bed epithelium. Thus, a diagnosis of IO was considered and patient was explained precautions [Table 2]. She was started on triple combination cream (topical antibiotic gentamicin, mid-potency steroid mometasone, and antifungal clotrimazole) twice-a-day application, after trimming the onycholyzed nail plate. Marked improvement in a month was followed by reduction in frequency of application. Almost complete resolution was seen over 6 months [Figure 3a–c].

Case 2

A 12-year-old school girl presented with painful distal onycholysis involving multiple fingernails and bilateral great toenails for 2–3 months. There was thickening, brownish discoloration, and distal splitting of nail plate with Beau’s lines. Shortened nail plate was associated with keratinization of nail bed in great toes [Figure 4a–d]. Other than occasional coarse pits, there was no history of any medical, cutaneous, systemic condition, or drug intake. Patient wore closed shoes to school daily. Onychoscopy showed distal onycholysis with a regular edge, and a faint erythema, without dilated capillaries or splinter hemorrhages [Figure 5].

Direct microscopy and fungal culture were negative. Nail biopsy again showed a normal nail plate, without fungal elements or inflammation. With a diagnosis of IO, patient was asked to adhere to precautions [Table 2] and use open footwear. Use of triple combination therapy avoided relapse.

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Table 1: Etiological classification of onycholysis

| Type of onycholysis | Possible causes | Clinical types |
|---------------------|----------------|----------------|
| Secondary onycholysis | Systemic causes | Thyroid diseases |
|                     |                 | Yellow nail syndrome |
|                     |                 | Shell nail syndrome |
|                     |                 | Bronchogenic carcinoma |
|                     |                 | Multiple myeloma |
|                     |                 | Scleroderma |
|                     |                 | Anemia |
|                     |                 | Peripheral vascular diseases |
|                     |                 | Diabetes mellitus |
| Dermatological causes | Psoriasis and Psoriatic arthritis | Fungal infection |
|                     |                 | Reiter’s syndrome |
|                     |                 | Hyperhidrosis |
|                     |                 | Pemphigus vulgaris |
|                     |                 | Pellagra |
|                     |                 | Leprosy |
|                     |                 | Syphilis |
|                     |                 | Onychomycosis |
| Local causes | Traumatic onycholysis | Infective (mycotic, pyogenic, viral) |
|                 | Chemicals (nail base paint, nail hardeners, artificial nails) |
| Photo-onycholysis | Porphyria | Pseudo-porphyria |
|                   | Drug induced | Possibly a combination of traumatic factors and irritant exposure |

Figure 1: (a) Distal and lateral onycholysis involving third and fourth fingernail of right hand; note the greenish discoloration of nail plate as well; (b) Distolateral onycholysis of left third fingernail with no evidence of proximal erythema; (c) Both thumbs showing onycholysis. Slight longitudinal ridging and henna staining of skin and nail plate was also seen.

cream after clipping onycholyzed plate led to marked improvement over a month and substantial resolution over a year [Figure 6a–d].

Onycholysis is mostly a mechanical event, followed by secondary microbial invasion of dead space. It can happen with physical trauma (over-manipulation of nails, cleaning under the plate, catching the digit in a door, occupational activities, tics), or exposure to irritants (soaps, nail cosmetics, citrus fruits). Majority of cases of toenail onycholysis result from stubbing the toes, wearing ill-fitted footwear, long nails, and engagement in sports. It starts with a minimal separation of nail plate, which progresses proximally, involving larger areas, due to over-manipulation and aggressive treatment. This provides a favourable niche for microbial invasion including
perianal and perineal skin commensals. Recently, the role of yeasts in initiating IO had been proposed; however, there is paucity of data to substantiate it, and treatment with systemic antifungals has not been effective.\(^7\) If onycholysis is allowed to persist for long, nail bed may epithelialize, developing dermatoglyphics, known as “disappearing nail bed.”\(^8\) This was seen in our second case and was responsible for incomplete improvement in the patient’s toenails. This highlights the importance of ensuring nail plate reattachment at the earliest to prevent irreversible onycholysis.

Despite reports, it is not clear whether IO is truly idiopathic or a manifestation of irritant contact dermatitis with parallels being drawn with chronic paronychia. Though neither of the cases showed evidence of spongiosis on histopathology, it could be due to the long-standing nature of the condition.

### Table 2: Treatment options for IO\(^{3-6}\)

| General measures | Specific measures | Topical treatment | Systemic treatment | Surgical treatment (recalcitrant cases) |
|------------------|------------------|-------------------|-------------------|----------------------------------------|
| Minimize trauma to nails | Nail specific | Topical antiseptic solution (2%-4% thymol in chloroform twice a day) to exposed nail bed – to prevent infections | Oral fluconazole once or twice weekly for at least 2 months – in recalcitrant IO cases | Partial avulsion of onycholytic nail plate\(^5\) |
| Avoid excessive exposure to water, contact irritants or allergens | Keep nails short, clip away the onycholytic nail plate; repeat this every 2 weeks until nail plate grows attached | Sodium hypochlorite solution or 2% acetic acid solution, 1 drop twice daily around the nail – to inhibit *Pseudomonas* colonization | Partial avulsion of nail plate along with mucosal graft\(^6\) |
| Avoid aggressive self-cleaning under nails | Avoid nail cosmetics/artificial nails until 3 months after onycholysis has been resolved | Topical treatment with ciclopirox lotion for *Candida*\(^4\) | | |
| Wear heavy cotton gloves when preparing food | Wear light weight cotton gloves under vinyl gloves while doing wet work | Topical retinoids | | |
| Avoid powdered latex gloves | Avoid powdered latex gloves | Oral fluconazole once or twice weekly for at least 2 months – in recalcitrant IO cases | | |
| Ensure proper drying of exposed nail bed after every hand washing | Use of finger cots/balloons to protect digital tips\(^3\) | Partial avulsion of onycholytic nail plate\(^5\) | | |

\(\text{Figure 2: Onychoscopic examination of the first patient showing distal opaque nail plate (onycholysis) with a regular proximal edge and normal nail bed (Dinolite AM7115MZTx65 polarized)}\)

\(\text{Figure 3: (a–c) Showing response to topical triple combination treatment in first case)}\)
Nevertheless, a good response to triple combination in our patients, as also seen in chronic paronychia, supports this hypothesis.

Our cases suggest that strict irritant avoidance with topical combination therapy, if initiated early, can potentially normalize onycholysis and prevent secondary colonization or invasion. A controlled comparative evaluation in a larger number of cases may help draw more definitive conclusions.

Author contributions

Chander Grover and Ankita Chauhan have equally contributed to the design of the manuscript, writing of the manuscript and are accountable for all aspects of the work. Chander Grover collected the clinical data. Both authors are responsible for ensuring accuracy and integrity of the manuscript.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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