



Innovations

Chemical sealing of chronic post-traumatic onycholytic toenail space for preventing infection

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PROBLEM

Trauma, chemicals, and water are the common causes of onychocorneal (hyponychial) band disruption, which results in onycholysis of the toenail and is commonly infected with commensal bacterial and fungal microbes.^[1,2] The condition often resolves in 4–6 months. Hence, the long-term protection of the onycholytic nail and its bed from infections is a therapeutic challenge. The space between an onycholytic toenail and its bed is a dead space for the accumulation of irritants, allergens, moisture, and microbes. To keep the nail and its bed dry, infection free, and healthy, we have to trim the onycholytic nail at regular intervals, keep the space dry, and apply topical medicines and antiseptics 2–3 times a day until the replacement of a healthy nail.^[3] As a result, this long-term therapy and care for onycholytic nails is cumbersome and unappealing. For prolonged onycholysis, there is an increased incidence of disappearing nail beds, especially in advanced age.^[4,5] Here, we propose a simple treatment to keep the nail and its bed free from becoming infected, moist, and further traumatized.

SOLUTION

To combat the above-mentioned issue of onycholysis, the post-traumatic nail and its bed are treated with lotions containing povidone-iodine, hydrogen peroxide, and mupirocin to take care of the infections for next 4 weeks. Following that, KOH preparation is done to rule out fungal infection of the nail plate. Then, under aseptic conditions, the onycholytic space between the nail plate and its bed is sealed with cyanoacrylate glue (which is US-FDA approved least allergic glue,^[6] has dehydrating, exothermic, anti-infective, and sealing properties) to obliterate the space for keeping the nail plate and nail bed dry and infection free, and glue cast provides cushion or support and protects the nail plate from further trauma. The glue is applied in the both nail gutters and then to the nail bed to seal the space in the upright position of the toe [Figure 1a-d]. The procedure is then repeated every 2 weeks until a healthy nail is regrown [Figure 2a-f]. Throughout the follow-up, patients take general nail care measures of the toe and the nail. There is no need to use topical medicine during the follow-up. The onycholytic nail is replaced with a healthy toenail after around 6 months [Figure 3a and b]. There was no problem of sensitization or irritation over the toe. There were no clinical signs and symptoms of infection, inflammation, eczematization, or degeneration of the nail or its bed. Thus, cyanoacrylate glue may be a simple and cost-effective option for preventing infection of the nail plate and its bed. However, this is

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Figure 1: (a-d) Chemical sealing of onycholytic nail space is being performed under asepsis.

a preliminary report. To evaluate the efficacy and outcomes of this treatment, a large case-control study should be done.

Declaration of patient consent

Patient’s consent not required as patients identity is not disclosed or compromised.

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Zaias N, Escovar SX, Zaiac MN. Finger and toenail onycholysis. *J Eur Acad Dermatol Venereol* 2015;29:848-53.
2. Baran R, Badillet G. Primary onycholysis of the big toenails: A review of 113 cases. *Br J Dermatol* 1982;106:529-34.
3. Iorizzo M. Tips to treat the 5 most common nail disorders: Brittle nails, onycholysis, paronychia, psoriasis, and onychomycosis. *Dermatol Clin* 2015;33:175-83.
4. Filius F, Busch S, Wickramage DJ, Hill R, Kabaddi S, Van



Figure 2: (a-f) The different stages of clinically infection-free onycholytic nail during follow-up.



Figure 3: (a and b) The onycholytic nail plate is replaced by a healthy nail after 6 months of sealing treatment.

- Pelt CL, *et al.* Disappearing nail bed: Review of aetiology, grading system, and treatment options. *Clin Podiatry Med Surg* 2021;38:521-7.
5. Daniel R, Meir B, Anver S. An update on the disappearing nail bed. *Skin Appendage Discord* 2017;3:15-7.
6. Symanzik C, Weinert P, Babic Z, Hallmann S, Havemose MS, Johansen JD, *et al.* Allergic contact dermatitis caused by 2-hydroxyethyl methacrylate and ethyl cyanoacrylate contained in cosmetic glues among hairdressers and beauticians who perform nail treatments and eyelash extension applications: A systematic review. *Contact Dermatitis* 2022;86:480-92.

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