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Figure 1. Proximal onycholysis, whitish discoloration, and subungual debris of the left fourth fingernail.



Figure 2. Proximal onycholysis, whitish discoloration, and subungual debris of the right thumbnail.

CASE HISTORY

A 35-year-old HIV-infected woman with a CD4 cell count of $125/\text{mm}^3$ presents to a dermatology clinic for evaluation of fingernail and toenail discoloration and dystrophy that started 6 months prior to presentation. The patient has no previous history of skin or nail problems and no other systemic complaints. She is taking no medications. Physical examination demonstrates proximal onycholysis, whitish discoloration, and subungual debris involving the patient's thumbs, fourth fingers, and great toes bilaterally, as well as the third left finger (**Figures 1 and 2**).

WHAT IS YOUR DIAGNOSIS?

- A) White superficial onychomycosis
- B) Psoriasis
- C) Proximal white subungual onychomycosis
- D) Lichen planus

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WHAT IS THE APPROPRIATE TREATMENT?

- A) Anti-inflammatory agent/immunosuppressant
- B) Surgery
- C) Antifungal agent
- D) Antibiotic

ANSWERS

The correct answers are proximal white subungual onychomycosis (C) and antifungal agent (C).

DISCUSSION

Proximal white subungual onychomycosis (PWSO) is the rarest subtype of onychomycosis.¹ In PWSO, the infection begins with fungal invasion of the stratum corneum of the proximal nail fold, followed by infection of the deeper portions of the nail plate. This presentation of onychomycosis is most commonly caused by *Trichophyton rubrum*. Other common causative agents include *T. megninii*, *T. schoenleinii*, *T. tonsurans*, *T. mentagrophytes*, and *Epidermophyton floccosum*.^{1,2}

Patient Population

The majority of PWSO cases are recorded in patients with AIDS.¹⁻³ Until AIDS became prevalent, PWSO was rarely seen. In one study, 55 of 62 HIV-infected patients with onychomycosis (83.7%) had PWSO.⁴ In more than half of these patients (58%), *T. rubrum* was the etiologic agent. PWSO has also been reported in patients with other immunodeficiencies, including a renal transplant recipient receiving immunosuppressive therapy⁵ and a patient with systemic lupus erythematosus receiving systemic steroids.⁶ In addition, Baran⁷ describes a case of proximal subungual candida onychomycosis as a manifestation of chronic mucocutaneous candidiasis.

Etiology

PWSO infection first presents as a fungal invasion of the stratum corneum of the proximal nail fold. The infection then spreads to the deeper portions of the nail plate. Initial causes of PWSO infection can include trauma and immunosuppression. The explanation for the increased incidence of PWSO in patients with AIDS is unclear; most likely, the immunodeficiency in these patients is a contributing factor. In AIDS-infected patients with PWSO, toenail rather than fingernail involvement has been reported more frequently.¹

Diagnosis

The diagnosis of proximal white subungual onychomycosis in this patient was established by a positive

potassium hydroxide (KOH) preparation and a *T. rubrum* fungal culture. A nail clipping stained with periodic acid-Schiff can also be used to test for the presence of fungus.

Differential Diagnosis

Leukonychia can develop for several reasons (eg, congenital disorder, trauma, systemic disease). Proximal white subungual onychomycosis can be differentiated from other types of leukonychia by a positive KOH preparation and culture for dermatophytes.

Treatment

Antifungal agents are the therapy of choice for proximal white subungual onychomycosis and are effective in most patients with this disorder. Both itraconazole (200 mg/day for 12 weeks or 200 mg twice daily for 1 week once monthly for 2 to 3 months [pulse therapy]) and terbinafine (250 mg/day for 12 weeks) can be prescribed. Patients with HIV may have poorer responses than patients who are immunocompetent.

SUMMARY

Proximal white subungual onychomycosis has a unique presentation that may be indicative of AIDS. KOH preparation and fungal culture are the methods of choice to evaluate for fungal infection. A finding of proximal white subungual onychomycosis should alert clinicians to test patients for HIV infection. Oral antifungal agents are the preferred treatment. HP

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