

Successful Treatment of Proximal White Subungual Onychomycosis with Oral Terbinafine Therapy

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ABSTRACT

Proximal white subungual onychomycosis (PWSO) is a rare form of onychomycosis of both fingernails and toenails. It occurs when the fungus invades the stratum corneum of the proximal nailfold followed by infection of the deeper parts of the nail plate. The surface of the overlying nail is usually normal. A case of PWSO is described with complete cure by the use of oral terbinafine 250 mg/day for 3 months continuously.

Key words: *Subungual. Onychomycosis. Terbinafine.*

INTRODUCTION

Onychomycosis is generally classified into five types, according to the pattern of fungal invasion of the nail unit as: distal subungual, white superficial, proximal white subungual, total dystrophic and *Candida onychomycosis*.^{1,2} Proximal White Subungual Onychomycosis (PWSO) is a rare type of onychomycosis characterized by white patches on the proximal part of the nail.^{1,2} The microorganisms involved are *Trichophyton (T)*. species including, *T. rubrum*, *T. tonsurans*, *T. mentagrophytes*, *T. megninii*, *T. schoenleinii* and *Epidermophyton floccosum*.³ It may also be secondary to *Candida paronychia*.³ It occurs almost exclusively in immunodeficient patients and has already been reported in patients of HIV infections and active Systemic Lupus Erythematosus (SLE), treated with systemic steroid therapy.^{4,5}

Onychomycosis is a disease in evolution.^{1,6} Previously, *tinea capitis* was considered the primary form of dermatophytosis and onychomycosis was rarely seen. Today, fungal nail infections have become one of the commonest dermatophytoses.^{1,6} This report of PWSO treated with the fungicidal terbinafine, emphasizes not only its successful treatment but also draws attention to the importance of recognizing this variety of onychomycosis which, though rare, must be considered clinically as a marker of immunodeficiency.

CASE REPORT

A 35-year-old woman, resident of Shahdra, Lahore, Pakistan, presented in the Outpatient Department of Dermatology, Mayo Hospital, Lahore, with the

complaints of pain and white discoloration in one of her fingernail. The disease began 7 months back as a white spot on the proximal region of the nail of her right ring finger. There was no history of trauma. After a few months, the white spot increased in size and she felt a slight discomfort in it. However, there were no skin lesions on any other part of her body. She had a past history of two missed abortions, curettage for hydatidiform mole and operation for uterine fibroid. There was also a history of joint pains and generalized weakness in this patient for which she had been taking treatment from general practitioners and *Hakims*. She belonged to the poor socioeconomic class and had 3 children, all alive and healthy.

Physical examination revealed a dystrophic nail with irregular white patch in the lunula extending distally upto 0.5 cm (Figure 1). The dorsal surface in the proximal area was slightly rough but intact. The nail dust sample was obtained with the help of a wooden hand drill. Direct microscopy, using 20% potassium hydroxide and 40% dimethyl sulphoxide solution, showed fungal hyphae. The material was cultured on Sabouraud's dextrose agar containing 0.005% chloramphenicol with and without 0.04% cycloheximide. Growth of *Trichophyton rubrum* was isolated.

Significant laboratory studies included an erythrocyte sedimentation rate of 25 mm after 1st hour; red blood cell count 4.5×10^5 /cmm; hemoglobin 13.4 gm/dl; white blood cell count 7.5×10^9 /l; thrombocytes 308×10^9 /l, Rheumatoid factor, ANA, HIV and HTLV-I antibodies were found to be negative. Other laboratory investigations like total proteins, blood urea, blood sugar, serum creatinine, urine and stool examinations were all within normal limits.

The final diagnosis was made as proximal white subungual onychomycosis caused by *Trichophyton rubrum*. The patient was advised to avoid trauma and was treated with terbinafine 250 mg daily for 3 months

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continuously. The lesion showed clinical improvement with this therapy (Figure 2). The microscopy and culture performed at weeks 4, 8 and 12 was found to be negative. The patient was followed up for 36 weeks after completion of 3 months treatment and the mycological examination (microscopy and culture) was still found to be negative. Complete cure was achieved and no adverse event was noted.

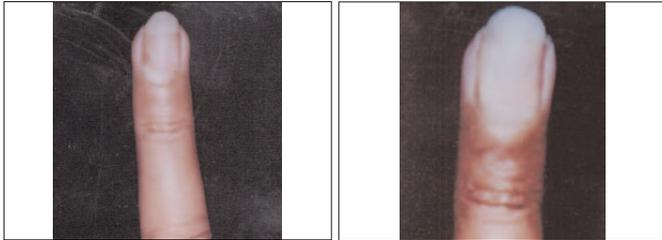


Figure 1: PWSO (before treatment). Figure 2: PWSO (after treatment).

DISCUSSION

PWSO is a rare variety of fungal nail invasion.^{4,5} The fungus penetrates the eponychium of the proximal nail plate.^{3,5,7} It subsequently invades distally to involve the entire plate.^{3,7} As the infection progresses, subungual debris and onychomadesis (separation of the proximal nail plate from the underlying soft tissue) become evident and actual shedding of the plate may occur.¹ The diagnosis of this patient was made on clinical background and mycological examination. The pathogen isolated from the affected area of nail was *T. rubrum*, which is similar to other studies.²⁻⁴ The patient had also been taking immunosuppressive therapy (steroids) for joint pains, which may be considered as the risk factor for this infection in accordance with other reports.^{1,4}

This variety of fungal infection should be differentiated from white superficial onychomycosis and leukonychia caused by trauma or systemic diseases.⁵ Moreover, one should consider the possibility of HIV infection in patients of PWSO as PWSO is unusual in healthy persons.^{3-5,7} Further reports exist in a renal transplant recipient and a systemic lupus erythematosus patient treated with immunosuppressive therapy.^{4,5} The leukonychia observed in patients of SLE may be total, striate, punctate, longitudinal or variegate in nature.⁵

The patient was given terbinafine therapy continuously for 3 months. Terbinafine belongs to the allylamine group, which is highly lipophilic in nature and tends to accumulate in skin, nails and fatty tissue.⁸ It inhibits ergosterol biosynthesis via inhibition of the enzyme squalene epoxidase.^{2,7} Considering the evidence of matrix involvement with reduced cure rate in this variety,⁹ the patient was treated with oral terbinafine continuously for 12 weeks to achieve higher cure rate instead of usual 6 weeks therapy in fingernail onychomycosis as suggested in earlier studies.^{7,9,10} The terbinafine therapy was found to be safe and effective, which is in accordance with previous studies.^{1,8,10}

REFERENCES

1. Kour R, Kashyab B, Bhella P. Onychomycosis: epidemiology, diagnosis and management. *Indian J Med Microbiol* 2008; **26**:108-16.
2. Blumberg M, Kantor GR, Ratz J. Onychomycosis. *eMedicine* 2007 Apr 3. Available from: <http://www.emedicine.com/derm/topic300.htm>
3. Baran R, Tosti A, Degreef H. Onychomycosis. In: Degreef H, Doncker PD, (edi). *Fighting fungal infections around the globe*. London: *Wells Med Holdings*; 2000: 34-55.
4. Gianni C, Cerri A, Capsoni F, Ongari AM, Rossini P, Crosti C. Recurrent PWSO associated with a defect of the polymorphonuclear chemotaxis. *Eur J Dermatol* 1999; **9**:390-2.
5. Rongioletti F, Persi A, Tripodi S, Rebora A. Proximal white subungual onychomycosis: a sign of immunodeficiency. *J Am Acad Dermatol* 1994; **30**:129-30.
6. Sarma S, Capoor MR, Monorama D, Ramesh V, Aggarwal P. Epidemiologic and clinicomycologic profile of onychomycosis from north India. *Int J Dermatol* 2008; **47**: 584-7.
7. Mozena J. A guide to treatment for onychomycosis. Continuing education course No. III, *Podiatry Today* 2003; **16**:61-8.
8. Minati M, Panda P, Satyabrata T, Sujata S. An open randomized comparative study of oral itraconazole pulse and terbinafine pulse in onychomycosis. *Indian J Dermatol Venereol Leprol* 2005; **71**: 262-6.
9. Del Rosso JQ, Gupta AK. The use of intermittent itraconazole therapy for superficial mycotic infections: a review and update on the one-week approach. *Int J Dermatol* 1999; **38** (Suppl 2): 28-39.
10. Darkes MJ, Scott LJ, Goa KL. Terbinafine: a review of its use in onychomycosis in adults. *Am J Clin Dermatol* 2003; **4**:39-65.

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