

CASE REPORT

## Toenail fungal infection: a case report

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### HOW TO CITE THIS

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**Abstract:** Fungal infection of the nails (onychomycosis) is a common condition that is hard to cure. The fungus hidden in the nail is difficult to treat with antifungal medications, and infected nails take months to heal. Antifungal nail polish can occasionally be used to treat mild cases, but blood-stream-permeable medications are required to treat more serious infections. We need something better because even these are not always successful and can have negative side effects like skin rash or liver issues. Additionally, onycholysis (the separation of the nail plate) creates a moist environment that can encourage the growth of fungi. Moreover, immunosuppressive medication use may worsen onychomycosis. In this example, the diseased entity's clinical presentation in an adult patient was described.

### Introduction

Dermatophytes, yeasts, and non-dermatophyte molds (NDMs) can infect the nail and cause onychomycosis [1]. It is the most prevalent nail disease and is responsible for over 50.0% of all nail abnormalities [2]. Aging, gender, genetics, smoking, occlusive footwear, certain professional and recreational group activities (swimming pools, saunas, tennis, running, walking barefoot, athletes, coaches, clean workers, housewives), and nail trauma are all documented risk factors known to increase susceptibility to onychomycosis (nail infection) [3]. Subungual hyperkeratosis, onycholysis, and color changes are the most prevalent clinical signs of onychomycosis. Therefore, onychomycosis can resemble nail psoriasis, and it can be challenging to distinguish between the two on a clinical basis. In addition, since both of these entities are extremely prevalent in the general population, cohabitation of these two entities is also possible [4, 5]. To confirm or rule out onychomycosis in psoriatic patients with nail abnormalities, physicians are urged to use diagnostic procedures such as direct microscopy, culture, and polymerase chain reactions [6]. A severe case of nail fungus can be uncomfortable and potentially harm the nails permanently. If an immune system is reduced as a result of medicine, diabetes, or another condition, it could result in other severe infections that travel beyond the feet [7].

**Observation:** A 39-year-old man (MU), with a medical history, consulted for his history, and how he got his infection. When it occurs? What is the medication he has taken before? How many times he felt severe pain? According to the deposes of the victim, the infection he got about a decade ago, as he used to do heavy work in the field in mud water for a long time. He took medication including antibiotics and antifungal medicine

but failed to cure completely his nail infection. When he stopped taking medicine the infection reversed and took the previous condition with pain. Surprisingly, he had applied his urine to the infected site several times to cure the illness. Although there is no evidence that urine is effective against fungus, he did it from his psychological faith. He got an infection at the edge of the nail, so it was easy to get an infection due to water deposition at a side portion of the nail and he got severe pain ten to twelve times throughout the period. The clinical examination was normal and his infection site was observed clearly. His nail was newly grown after falling out the previous time with minor deformation of the nail structure. There is a swelling inflammation area with visible redness and enlarged finger size. The infected finger is easily differentiable from the uninfected one to predict the level of treatment for that inflammation, the infected finger is shown in **Figure 1**.



**Figure 1:** Inflamed toenail of the patient

Infectious diseases are the biggest concern and cause of human disability [8]. There are so many cases of toenail fungal infection, especially in those, who work in wet areas, fishing, or cultivation. According to several studies, the reported incidence of onychomycosis in people with nail psoriasis can be equal to, lower than, or higher than that in healthy people. Depending on the study, this group may experience onychomycosis at a frequency of anywhere between 4.0% and 60.0% [9-11]. Gupta et al. [12] reported that 10.2% of psoriatic individuals had dermatophyte toenail onychomycosis, had written a systematic review. Furthermore, Romasziewicz and others [13] found that psoriatic patients had a significant prevalence of onychomycosis. The psoriatic group with clinically affected nails had a 23.5% onychomycosis rate, according to the study that was presented. Between the two groups (psoriatic and non-psoriatic control group), there were substantial differences in the features of the isolated fungus. Thus, it was proposed that fungal invasion and morphological anomalies in psoriatic nails may be positively correlated [13].

*Conclusion:* A common infection of the nail is nail fungus. Under your fingernail or toenail tip, it first appears as a white or yellow-brown patch. The edge of the nail may shatter, thicken, and change color as the fungus spreads further. The fungus can spread to other nails. Nail fungus is caused by various fungal organisms (fungi). The most common is a type called dermatophyte. Yeast, bacteria and molds also can cause nail infections. On a clinical basis, it can be advised that psoriatic patients with nail lesions that are difficult to cure or show signs of onychomycosis undergo a direct microscopy and culture examination by the physician.



**Conflict of interest:** The author declares the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

**Ethical issues:** Including plagiarism, informed consent, data fabrication or falsification, and double publication or submission were completely observed by the author.

**Data availability statement:** The raw data that support the findings of this article are available from the corresponding author upon reasonable request.

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