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*Research Article*

## **A Case of Tinea Pedis Caused by Trichophyton Tonsurans**

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## **Abstract**

Tinea infections are very common skin disorders caused by dermatophytes that have the unique ability to invade tissue containing keratin. The specific aetiological agents vary geographically related to environmental and cultural factors. The commonest causes of tinea infections in Europe include *Trichophyton rubrum*, *mentagrophytes et verrucosum* and *Epidermophyton floccosum*. The typical dermatophytes responsible for tinea pedis are *Trichophyton rubrum et mentagrophytes* and *Epidermophyton floccosum*. We here present a case of tinea pedis with an unusual aetiological pathogen: *Trichophyton tonsurans*.

**Keywords:** Tinea pedis, Trichophyton tonsurans, dermatophytosis, fungal infection.

## **Introduction**

### **Case**

A 46 year old Danish Caucasian man was referred to a hospital dermatology department under the diagnosis of recurrent vesicular hand eczema. He had suffered from vesicular outbreaks located to the hands for three years prior to referral and had been treated with topical corticosteroids without any effect. He presented with bilateral severe hand eczema primarily dominated with vesicular changes located in the palmar region of the hands. No skin changes were present on the dorsal part of the hands or fingers. Similar vesicular changes were present on the soles and heels of the feet bilaterally along with hyperkeratosis, erythema and scaling.

The patient worked as a watchmaker and wore his own selfmade watches without developing any rash around the wrists. He was patch tested for type IV allergies including the metals chromate, nickel, palladium and cobalt. The patch test was negative. No sports activity or travel history was noted for this patient.

A conventional mycological examination of the feet was performed and myceliums were present in the microscopy. In the culture *Trichophyton tonsurans* was identified based on morphological features.

## Discussion

This is a case of *Trichophyton tonsurans* causing tinea pedis: an unusual aetiological pathogen for both the bodily and geographical region. Typically, *T. tonsurans* causes tinea capitis ranging from tinea capitis carriage status to clinical infection (Havlickova B et al 2008). Besides tinea capitis, *Trichophyton tonsurans* causes tinea corporis and a case of Majocchi granuloma and folliculitis decalvans due to *Trichophyton tonsurans* has also been described (Liao YH et al 1999, Hryniewicz-Gwozdz A et al 2011). *Trichophyton tonsurans* has not been described as an aetiological factor for tinea pedis in Northern Europe before. Furthermore, *T. tonsurans* in itself is an atypical aetiological fungal pathogen in Northern Europe. Even though, *T. tonsurans* is the commonest cause of tinea capitis in

the US, in most part of Europe it is a rare cause of tinea infections. Increases in *T. tonsurans* tinea capitis is, however, recently observed in both France and the United Kingdom primarily caused by immigration from Africa (Fuller LC et al 2009). The patient described in this case report also presented with an atypical combination of clinical symptoms related to both the moccasin and vesicular type of tinea pedis e.g. low grade inflammation on the feet but with accompanying dermatophytid reaction. The moccasin type of tinea pedis is characterized by low grade inflammation with diffuse hyperkeratosis, erythema, scaling and fissures on the plantar surfaces. Vesicular changes are not typical for this subtype. The vesicular type of tinea pedis presents with more severe inflammation with vesicles and bullae on the medial foot and is associated with the dermatophytid reaction. Antrophophilic fungi are the commonest cause of the

moccasin type, whereas zoophilic fungi are the major cause of the vesicular type of tinea pedis. *Trichophyton tonsurans* is an antropophilic fungus. The atypical presentation of tinea pedis matches the atypical finding of *Trichophyton tonsurans* as an aetiological agent and may well explain why this patient was misdiagnosed for three years. It also highlights the importance of considering a fungal infection and dermatophytid reactions in patients who at first glance seem to suffer from hand eczema.

Atypical fungal pathogens may become more common in the Western part of the World with the increasing tourism and migration of people. Atypical fungal pathogens should be considered for atypical presentations of tinea pedis as well as be considered as a differential diagnosis when treating dermatoses that can mimick a tinea infection.

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