Scholars Journal of Medical Case Reports **ISSN 2347-6559 (Online)**
Sch J Med Case Rep 2017; 5(3):136-137 **ISSN 2347-9507 (Print)**
©Scholars Academic and Scientific Publishers (SAS Publishers)
(An International Publisher for Academic and Scientific Resources) DOI: 10.36347/sjmcr.2017.v05i03.001

Onychomycosis due to *Microsporum gypseum*- a case report and review of literature

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Abstract: *Microsporum gypseum* is a geophilic dermatophyte spread throughout the world and is sometimes the pathogenic agent of epidermomycosis such as tinea corporis, tinea pedis, tinea cruris, and kerion in persons who have contact with soil. *Microsporum gypseum* is seldom the agent of onychomycosis. Here we present a case of onychomycosis of multiple finger nails in a 65 year old male caused by *Microsporum gypseum*.
Keywords: Diabetes, *Microsporum gypseum*, Onychomycosis.

INTRODUCTION

Onychomycosis, a fungal infection of the nail unit is the commonest nail disorder in adults. In clinical practice it constitutes about 20-40% of all nail abnormalities and 30% of superficial mycotic infections [1]. *Trichophyton* is the most common dermatophyte causing nail infections, with *Trichophyton rubrum* and *Trichophyton mentagrophyte* being the predominant species responsible for 90% of toenail onychomycosis [2]. Finger nail onychomycosis is commonly associated with yeast infections, particularly candida [3]. Human nail infections due to genus *Microsporum* are not often encountered [4]. We report a rare case of onychomycosis of multiple finger nails caused by *M. gypseum*.

CASE REPORT

A 65 year old male, agriculturist by occupation, came to skin OPD with yellowish white discolouration of distal and lateral ends of nails of all fingers of both the hands for the last one year. There was history of repeated trauma to hands, fingers and finger nails. There was no history of intake of antifungal agents. On examination, skin surrounding the infected nails was found to be painful and erythematous. Clinical diagnosis of onychomycosis was made and clippings of the affected nails were collected for mycological examination. Wet mount preparation using 40% KOH showed numerous thin septate fungal hyphae. Culture on Sabouraud's dextrose agar with chloramphenicol and cycloheximide showed white powdery colonies after 19 days of incubation at 25^0C. Lactophenol cotton blue preparation from the growth showed many boat shaped, rough walled macroconidia with four to six septa having rounded tips and few pear shaped microconidia. Patient's blood sample was found to be negative for HIV antibodies. Oral terbinafine therapy was administered for four weeks and the patient responded well to the treatment.

Fig-1: Photograph showing affected nails with yellowish white discolouration of distal and lateral ends of nails of all fingers

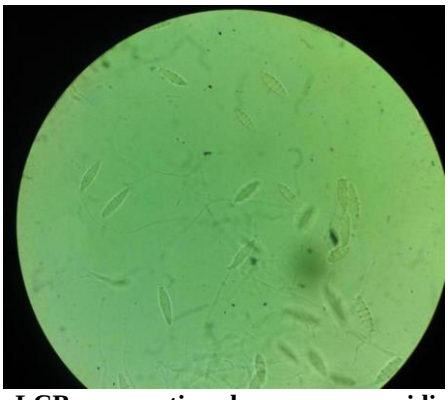

Fig-2: LCB preparation shows macroconidia with four to six septa

DISCUSSION

Microsporum gypseum is a geophilic dermatophyte spread throughout the world, and has been reported to cause infections in the keratinous tissues of humans as well as domestic and wild animals [5]. It is sometimes the pathogenic agent of epidermomycosis such as tinea corporis, tinea pedis, tinea cruris, and kerion in persons who have contact with soil [4]. *M. gypseum* is seldom the agent of onychomycosis. However, review of literature showed some reports which demonstrated that *M. gypseum* infection had resulted in producing onychomycosis too, though infrequently. In a latest study of 4220 cases of onychomycosis from Mexico, Martinez *et al.* reported 0.17% prevalence of *M. gypseum* [6]. In an another study of onychomycosis in rural farmers from Nigeria revealed 11.6% prevalence of M. *gypseum*[5].

The present case of onychomycosis caused by *M. gypseum* could be considered as an occupational disease in this patient who is a farmer. Source of human infection with *M. gypseum* has been traced to soil, dogs and cats [6]. However, our patient did not give history of any current or prior contact with domestic cats or dogs and also had no other tinea infection. Onychomycosis in our patient could be because of his abnormal susceptibility to nail infection due to diabetes mellitus from which he was suffering from last five years. Diabetics are atleast twice as likely to suffer from onychomycosis as compared to normal individuals [7]. Mutairi *et al.* reported the prevalence of cinical onychomycosis in 18.7% diabetics in comparison to 5.7% in control group [2]. This could be because the diabetic patients often experience impaired sensation leading to loss of awareness of trauma and injuries. This makes them more susceptible to both fungal and bacterial infections.

Various studies have reported that onychomycosis is more frequently observed in toenails as compared to finger nails [2, 6]. Six of the seven patients of *M. gypseum* onychomycosis in the study of Martinez *et al* had toenails infections [6]. Only one patient had history of finger nail infection affecting a single finger. However, in our case multiple finger nails were involved and there was no involvement of toe nails. This could be because of repeated episodes of trauma to the fingers as revealed by the patient.

The clinical presentation in our case was distal and lateral subungual onychomycosis which is the most common clinical subtype of onychomycosis and also the most common presentation of onychomycosis with *M. gypseum*. The patient was treated successfully with terbinafine which is advocated for treatment of onychomycosis in diabetics [2].

Thus, it can be concluded that nails may be invaded by *M. gypseum* and therefore, microbiologists must be familiar with this organism while diagnosing a case of onychomycosis. Mycological examination of the infected nail is imperative for the correct diagnosis and treatment of such patients and would be helpful to study the epidemiology of fungal nail infections.

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