A CASE OF ONYCHOMYCOSIS CAUSED BY ASPERGILLUS SCLEROTIORUM

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Summary

A case of finger nail infection with *Aspergillus sclerotiorum* has been described and is for the first time implicated in nail infection. Clinically, the infection presented as distal subungual type of dystrophy. The presence of the fungal mycelium and asexual spores in the diseased tissue, repeated isolations in culture and *in vitro* utilization of the nail as the sole source of nutrient are taken as evidence that this fungus is the real etiologic agent in the present case.

KEY WORDS : *A. sclerotiorum*, Onychomycosis.

Onychomycosis is defined as infection of nail by fungus. Universally recognized etiological agents of onychomycosis are species of *Epidermophyton*, *Microsporum* and *Trichophyton*. In addition, there are significant numbers of non-dermatophytic fungi which have been known to cause nail infections[1-4]. Among non-dermatophytes the following *Aspergillus* species viz. *A. flavus*[5], *A. terreus*[6], *A. candidus*[7], *A. strictus*[7], *A. sydowi*[7], *A. unguium*[7], *A. versicolour*[7], and *A. nidulance*[8] have been reported to be causal agents of onychomycosis.

Recently, we had the opportunity to study a patient with *A. sclerotiorum* infection of the finger nail. A brief account of the case is presented.

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The present work is being supported by Indian Council of Medical Research in the form of Junior Research Fellowship to a Junior author.
Received for publication on 7—2—1983

Case Report

A 56 years old male farmer, resident of Balaghat (M.P.), presented with dystrophy and partial separation of the left ring finger nail. The abnormality of nail was noticed about 11 years earlier following a trauma. There was no pain at the affected site. On examination the distal part of the nail appeared soft and buff coloured with irregular margin (Fig. 1). There was no other abnormal finding. Systemic examination of patient revealed no abnormality.

Samples of the nail suspected of fungal infection were examined in 40% KOH squash preparations and cultured on slants containing (a) Sabouraud's dextrose agar incorporating cycloheximide 0.5mg/ml. and chloramphenicol 0.5mg/ml. (b) Sabouraud's dextrose agar incorporating chloramphenicol 0.05mg/ml only. The isolations were periodically repeated for a period of over four months.

Fig. 1
Distal ungual involvement.

Direct smear revealed the presence of broad, septate, branched, fungal hyphae 4–6.5 μm. with hyaline, globose to ovoid spores on conidiophores with sterigmata in two series (Fig. 2).

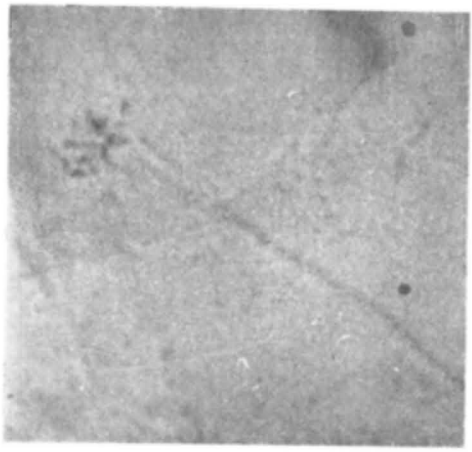

Fig. 2
Direct smear from culure.

Colonies on Sabouraud's dextrose agar at 30°C were smooth, buff to straw coloured reaching 6 mm size in 6 days with smooth margin and abundant aerial mycelium. Reverse was straw, amber to citrin ; conidiophores straw coloured with rough epispore 285–675x 5–6.5 μm. forming vesicles of 10–21.5 μm. diameter. Sterigmata was seen in two series, primary 6.5–10 x 4.5 μm. secondary 6.5–8 x 3.5 μm. ; conidia globose to ovoid, cream coloured 2.5–3.5 μm. in diameter. The fungus readily utilised nail *in vitro*, as a sole source of nutrient.

The culture has been deposited in the Herb. I. M. I. Kew No. 254365.

Discussion

The case presented above gives support to the views of Paldrok & Hollstrom[9], Walshe & English[10], Rosenthal *et al*[11] and Bereston & Waring[12] that Aspergillus species is capable of invading nail tissues.

The most convincing evidence apart from repeated isolations of *A. sclerotiorum* from the same site is that asexual reproductive structures were seen on direct microscopic examination of the diseased samples (Fig. 2). Evidences other than the above which also incriminate this fungus as the pathogenic organism in the present case are 1. colour of both, the infected keratinogenous mass of the nail bed and the secretion by the fungus in culture, was similar. 2. *in vitro* the fungus readily utilized the nail as the only source of nutrient. 3. absence of any of the other established pathogens. Hence it is reasonable to say that the organism which was isolated in culture was identical to that seen on direct microscopy.

Finger nail infection with non dermatophytes in general and the species of *Aspergillus* in particular is rare[5] whereas, toe nail infection with such

is common[6,7]. This may be due to several factors like 1. existence of unfavourable conditions around finger nail 2. inability of the fungus to disseminate *in* vivo 3. less chances of trauma to the finger nails in comparison to toe nails.

Trauma is a prerequisite to infection of the nails with non dermatophytes in healthy individuals[13] with the exceptions of *Hendersonula toruloidea* (Campbell *et al*[14].) and *Scopulariopsis brevicaulis* (Fragner & Belsan[15]). However, once a fungus is able to enter a nail it can persist in it for years[1]. This is illustrated in the present case where the infection was contracted eleven years earlier.

Distal onychomycosis is more common than proximal onychomycosis and candida onychomycosis[16]. The changes of the nail described in our report does not resemble the superficial white onychomycosis caused by *A. terreus*[18]. Our patient had no involvement of the surrounding skin. This is in agreement with the findings of others[18,19].

It is of interest to note that *A. sclerotiorum* has been found as a soil saprophyte[11]. It is probable that our patient who is a farmer acquired the infection from the soil.

To our knowledge, the present case of onychomycosis caused by *A. sclerotiorum* is the first to be reported.

Acknowledgement

The authors are grateful to Dr. G. P. Agarwal, Head, Department of Post-graduate Studies and Research in Biological Sciences, University of Jabalpur (M.P.) for guidance and encouragement and to the Principal, Govt. P. G. College, Balaghat (M.P.) for providing laboratory facilities. One of us (A. K. B.) is thankful to I.C.M.R. for awarding the junior Research fellowship.

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