



Clinical and epidemiological study in an AIDS patient with *Microsporium gypseum* infection

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Summary

A 37 years old homosexual male with AIDS was diagnosed as having Tinea cruris and Tinea corporis. The patient was a garden designer and therefore he used to handle soil very often. *Microsporium gypseum* was identified on cultures from skin-scrappings and biopsy material taken from different cutaneous lesion. The same species was isolated from samples of soil the patient used to work with. The clinical history of the patient and its epidemiological aspects were deeply studied by the authors. We stress the value of identifying possible sources of dermatophytic infections in order to give advice to patients.

Key words

Dermatophytosis, Dermatophytes, AIDS, *Microsporium gypseum*

Estudio clínico y epidemiológico de un paciente con sida infectado con *Microsporium gypseum*

Resumen

Un paciente de 37 años, homosexual, con sida fue diagnosticado de Tinea cruris y Tinea corporis. El paciente era un jardinero que manipulaba frecuentemente la tierra. *Microsporium gypseum* fue identificado en el cultivo de la piel y material de biopsia procedente de varias lesiones cutáneas. La misma especie fue aislada de muestras de tierra con la que el paciente trabajaba. La historia clínica y epidemiología son analizadas por los autores. Se trata de identificar las fuentes posibles de contaminación en las infecciones por dermatofitos.

Palabras clave

Dermatofitosis, Dermatofitos, Sida, *Microsporium gypseum*

The AIDS syndrome has been shown new aspects of infectious diseases that are characteristics of AIDS patients. Fungal infections have a crucial role over the clinical evolution of AIDS cases, as they appear at least once during the clinical course of this syndrome [11]. The opportunistic infections, like candidiasis, cryptococosis, histoplasmosis and others, are frequently reported in the medical literature and the epidemiological data presented by the national health institutions. There have been, however, rare reports concerning superficial and cutaneous mycoses in AIDS patients, and there are only a few studies where the incidence and prevalence rates of these infections in this population are reported [2-4]. Even though, it has not been evidenced differences between the rates observed in HIV patients and other comparable population. Tinea cruris, Tinea corporis, Tinea unguium and Tinea pedis are often observed in AIDS patients and the chronic infections caused by *Trichophyton rubrum* have been showing increased frequency in this group of

patients [8]. The clinical appearance of the lesions (less vesiculated and erythematous, more extensive and without delimitation) and the clinical response to systemic and/or topical antifungal therapy (less evident in immunocompromised individuals, which show a less favorable response) distinguish the clinical course of the infection in normal and immunocompromised hosts [1,8,10,11].

The epidemiological aspects of dermatophytes infections in HIV patients are object of little concern. Some investigators mention the fact that the dermatophytes acquisition in AIDS patients is dependent on the patient exposure frequency to infectious sources, besides their immune status [3,10].

The genus *Microsporium*, as etiological agent of dermatophytosis in AIDS patients, has been reported as a causative agent for Tinea unguium, Tinea corporis and Tinea pedis, either associated or not to other dermatophyte or yeast. *Microsporium canis* and *Microsporium gallinae* are zoophilous species whose etiologic role are documented in medical literature [1,8,10]. *Microsporium gypseum* is a geophilic dermatophyte, being the most common member of this group of fungus that infects humans beings, although rarely. Some microepidemics have already been reported of this kind of fungal infection in several parts of the world (Ivory Coast, England, Brazil and Colombia) [7]. The clinical manifestations caused by this agent are diverse, more frequently over the unprotected body regions (legs, arms, hands, face) or at the scalp region and less frequently over the nails and being the

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causative agent of *Tinea pedis* and *Tinea cruris*. In most cases, the clinical presentation is characterized as a desquamative lesion, similar to a circinate herpetic lesion, lightly erythematous and rarely vesiculated; in *Tinea capitis* cases it can show the presence of kerion [6]. Up to now, *M. gypseum* species have not been reported in the medical literature as a causative agent of dermatophytosis in AIDS patients. The present case report is intended to describe the clinical and epidemiological aspects of an AIDS patient with this infection, besides subsidize with regard the distinct clinical manifestations of fungal infections in immunocompromised patients.

MATERIAL AND METHODS

Patient. C.A.A., 35 years old, homosexual, male, followed at the Centro de Referência e Treinamento - AIDS, São Paulo, Brazil, has been knowing his HIV seropositivity status since October, 1991. From this date thereafter, he has been presenting clinical signs characteristics of AIDS (fever, nocturnal sudoresis, rapid weight loss, chronic diarrhea). Table 1 exhibits the data from the clinical evolution and therapeutic response. Figures 1-4 exhibit the clinical aspects of dermatophytosis.

Etiologic agent isolation

1 *From the patient.* Samples were collected for microscopical examination and cultures from skin fragments obtained from biopsies performed in lesions located in the left calf and sent to the Mycology Laboratory of Adolfo Lutz Institute, where they were processed and cultured onto Sabouraud dextrose agar with chloramphenicol (3mg/100ml). Subsequently, it was performed swabs over the new appearing lesions at the right knee, left and right groin and right thigh and the epidermal fragments were processed for microscopical examination after KOH 30 % and the cultures were incubated at 28°C and were daily observed for 15 days.

2. *From the soil.* Soil samples were obtained from the region where the patient had been working (in triplicate) by the patient himself and were sent to the Mycology Laboratory of Adolfo Lutz Institute inside a glass flask. In order to find the fungus in soil it was performed the "hair bait" procedure (Figure 5).

3. *Fungal identification.* All fungal strains recovered from the diverse biological sites in the patient as well as the strain recovered from the soil were identified by their macromorphological and micromorphological characteristics, as was established by the Ridell technique [5].

RESULTS

The cultivation of the skin biopsies of the left leg lesion grew fungal elements after three days of inoculation, being observed a pulverulent mold with brownish coloration on the obverse and without pigmentation on

Table 1. Data from the clinical evolution and therapeutic response

Date	Clinical symptoms	Treatment	Clinical course
11/92	Emergence of skin lesions at right knee, presenting desquamative and erythematous aspect, with circumscribed edges.	Ketoconazole and fluconazole previously to the emergence of mycotic lesions due to oral candidiasis. Initiation of topic application of ketoconazole cream	-
03/93	New cutaneous lesions at left calf and right thigh. Maintenance of the right knee lesion. All lesions presenting erythematous and desquamative aspect with circumscribed edges	Maintenance of previous drug, except fluconazole. Patient report of an irregular drug usage	Lesions presenting activity, dispersion and no response to treatment, evidenced through the emergence of new lesions and maintenance of the previous ones
08/93	Maintenance of previous lesions, without emergence of new foci	Systemic and topical treatment with ketoconazole.	Stable lesions, without increase in size; erythematous and desquamatives. Refractory to treatment
09/93	Emergence of a new focus at groin, with severe hyperemia and desquamation. Maintenance of previous lesions.	Ketoconazole, topical and systemic and initiation of oral itraconazole therapy.	Mycologic tests remaining positive, being an evidence of lesion activity.
10/93	There were no emergence of new lesions	Maintenance of previous therapy.	Clinical improvement of groin lesions, which become similar to the oldest ones where activity is still evidenced.
11/93	No relevant changes		
12/93	Death in 12/01/93		

the reverse. The same was observed in all epithelial fragments samples.

In microscopical examination it was observed fungal elements with dermatophyte characteristics in all observations.

The histopathological analysis of the first biopsy fragment (04/01/93) gave negative result and the second (05/25/93) showed presence of septate hyphae.

After 15 days of incubation the soil sample began to show on the hair fragments an ectothrix parasitism caused by macroconidia, with equinulation, thin wall and about six to eight cells per element. With subcultivation, it was observed a mold growth similar to that obtained with the cultivation of the biological materials.

The isolates were identified as *Microsporium gypseum*.

DISCUSSION

Fungal infections caused by dermatophytes in HIV infected patients have been reported and exhibit distinctive clinical characteristics. The clinical cases reported often show an association among different dermatophyte species and yeast expressing a polymicrobial fungal infection [8,10], very unusual in immunocompetent individuals.

The clinical expression of this infection evidence large and exuberant lesions, without clear peripheral delimitation, associated with high dissemination capacity; in addition, the lesions are refractory to topical and systemic antifungal therapy.

In the present case *M. gypseum* was isolated alone and after one year of evolution, a progression was obser-



Figure 1. Skin lesion at left calf.



Figure 2. Groin skin lesion.



Figure 3. Right knee skin lesion.



Figure 4. Right thigh skin lesion.

Figure 5. *Microsporium gypseum* isolation from soil by "hair bait" method.

ved from a single isolated lesion in one leg to various *Tinea corporis* and *Tinea cruris* lesions.

There were several attempts of fungal therapy, even previously to clinical cutaneous manifestation (as a consequence of simultaneous therapy for oral candidiasis, when ketoconazole was used for a systemic approach and nistatine as topical treatment). At the first manifestations of the dermatophytosis nistatine (cream formulation) was used as topical treatment and the ketoconazole for oral candidiasis was maintained. Three months before patient death, an association of itraconazole and ketoconazole (systemic therapeutic course) was used.

All therapeutic approaches were associated with poor clinical response, being always observed the persistence of the infection and appearance of new foci of

infection.

The patient, when first diagnosed with the superficial mycoses, was actively laboring, working as a garden decorator in North São Paulo State Coast, at São Sebastião county, São Paulo, Brazil. As part of his work, he had direct soil contact, with exposure of various body regions, mainly the legs, to soil elements.

The soil samples collected had high humidity level, being prevalent the presence of granulous particles constituted by sand grains, calcium carbonate fragments (from molluscan shells and other organisms from the rocky coast), and soil humus particles with a small amount of vegetal debris. The temperature in the region is very oscillating, but in the hottest months of the year it reaches a media of 32.5°C. The warmth and humidity act in conjunction for the maintenance of the fungus either as parasite or as saprophyte member of the soil from that region.

Hay [3] and Del Palacio *et al.* [1] concluded that a frequent exposition to an infectious source could enhance the development of fungal pathogenicity for dermatophytes, mainly in immunocompromised patients, in contrast to immunocompetent individuals. In the case report of disseminated infection by *M. gallinae*, it was not obtained the fungal isolation from animal sources as well as from other persons who lived at the same habitat of the index case and, as a consequence, were regularly exposed to the same etiological agent [1]

In the present case, the patient had soil contact as a consequence of his professional work and therefore was frequently exposed to the fungus which were subsequently isolated from this same soil and from his lesions,

corroborating the conclusions from the above authors.

CONCLUSIONS

The present clinical case is similar to other cases of HIV patients with regard to the following characteristics: presence of extensive lesions, spreading to several body regions and refractoriness to topical and systemic antifungal therapy.

The present clinical case is in contrast with other similar cases with regard to the following characteristics:

the lesions showed clear peripheral delimitation, the etiological agent was a geophylic dermatophyte and it was not observed polymicrobial fungal infection.

The epidemiological characteristics suggest that dermatophytosis acquisition in immunocompromised patients could be a consequence of frequent exposure to the etiological agent.

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