Subcutaneous Phaeohyphomycosis due to *Pyrenochaeta romeroi* in a Patient with Leprosy

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Sir,

Opportunistic subcutaneous fungus infections are currently increasing in incidence, partly due to the growing number of patients receiving immunosuppressive therapies. Accordingly, these infections, formerly mostly encountered in hot and dry areas, are now more widely distributed and may challenge clinical and biological diagnosis when occurring in areas where physicians are not accustomed to them. We report on the first case of non-mycetoma deep cutaneous infection due to *Pyrenochaeta romeroi*, a rarely isolated agent only reported in mycetomas to date, in an immunocompromised patient originating from western Africa.

CASE REPORT

A 45-year-old patient was first referred to our department for evaluation of non-inflammatory, painful and deep lesions of both lower limbs reminiscent of cold abcesses. He originated from Senegal and had been living in France for the previous 10 years. His medical history was remarkable for a multibacillary leprosy treated by sequential antibiotics for more than 20 years, with painful neurological sequelae for which he self-administered intramuscular dexamethasone on a monthly or bi-monthly basis. Clinical examination showed a large subcutaneous, flaccid lesion of the lateral side of the left leg, of at least 4 years' duration, with an occasional purulent white-yellow discharge through superficial sinus tracts, a 2-cm-large nodule of the right tibial crest and two crusted papulo-nodules of the left foot. No discharge of granules was seen from the main lesion. A four-limbs distal hypoaesthesia was otherwise obvious, likely related to the post-leprosy neuropathy. Biological tests revealed an inflammatory syndrome (ESR 86 mm at first hour, C-reactive protein 189 g/l (normal: 0–5 g/l), a rise in WBC (14.10^9/l with 48% of polymorphonuclear cells and 14% of monocytes) without abnormality of renal or liver tests. Flow cytometry analysis showed a decrease in the absolute count of peripheral CD4+ and CD8+ lymphocytes (265.10^6/l and 125.10^6/l, respectively, ratio CD4/CD8 = 2.12). Fasting glycaemia was normal. Serological tests for hepatitis C and HIV-1 and -2 were negative. The stimulating test with tetracosactide displayed a low response consistent with a steroid-induced peripheral adrenal insufficiency.

X-rays showed no bone alteration underlying the cutaneous lesions, while utrasound examination of the left leg displayed a 20-mm-long, 5-mm-large and 6-mm-thick cavity with multiple internal septa, extending to the subcutaneous fat but without obvious involvement of the underlying muscle or bone.

A deep biopsy sample from the larger cutaneous lesion showed a chronic granulomatous dermal infiltrate with giant cells and microabcesses, and the presence of septed filaments scattered within the infiltrate upon PAS staining. Microbiological investigations revealed the persistence of short and fragmented acid-fast bacilli on nasal mucosa, markers of a still evolutive bacillary leprosy. Direct examination of purulent material from leg sinus tract showed no granules but fungal, septed filaments, identified as *P. romeroi* by culture characteristics, a fungus usually responsible for deep fungal infections of the mycetoma group. Accordingly, a diagnosis of non-mycetoma deep phaeohyphomycosis due to *P. romeroi* occurring in an immunocompromised patient was considered and a treatment associating surgical excision, drainage of the largest abscess, oral itraconazole (100 mg daily) and anti-bacillary antibiotics (clofazimine, rifampicine, dapsone) was instituted. All cutaneous lesions slowly resolved within one month of treatment with minimal scarring, while acid-fast bacilli disappeared from nasal smears. Itraconazole was interrupted after 4 months, and subsequent mycological examinations performed on scars were negative at this time. No relapse occurred during a one-year follow-up.

DISCUSSION

Phaeohyphomycosis, a term coined in 1974 by Ajello, describes an heterogeneous group of superficial or deep infections caused by various fungi with black filaments (dematiaceae) which often give rise to opportunistic infections (1–3). The number of identified pathogenic agents steadily increases with the growing number of immunocompromised patients (3–8). Among the various species responsible for phaeohyphomycosis, *P. romeroi*, a fungus from the dematiaceae group first described by Borelli in 1959, has not yet been identified in this subset of fungal infections since it has only been reported in mycetoma cases to date (9–12). This fungus is saprophyte to soil and plants, generally inoculated through direct traumatism by a plant or a soiled object and is usually encountered in tropical and subtropical areas, although sporadically identified in temperate regions like western countries. It is likely that our patient was contaminated in Senegal (12) and the

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progressive development of immune deficiency caused by long-term, uncontrolled and self-administered steroids and relapse of bacillary leprosy may be responsible for the delayed clinical expression.

Clinical lesions of deep phaeohyphomycosis are non-specific, sometimes deceptive and usually present as subcutaneous, indolent nodules at the site of the initial traumatism (2). The outcome is often protracted with evolution toward a cold abscess and/or local necrosis and may fistulize to skin with a chronic purulent discharge in cases of immune deficiency. In other cases, granules may later develop defining the evolution toward an eumycetoma that can invade the muscles and bones bordering the lesion. Lymphatic and/or haematogeneous spreading of the infection is infrequent. It is possible that immune deficiency disclosed by our patient might be partially responsible for the lack of granule formation characteristic of mycetoma, since these latter lesions are usually encountered in immunocompetent patients.

Histological examination usually shows non-specific features with central abscess, suppurative necrosis and septed filaments, sometimes accompanied by plant remains, surrounded by an important inflammatory reaction with epithelioid and giant cells (2). Mycological examination at a reference centre with direct examination and culture on specific media remains absolutely mandatory for an accurate identification of the fungus and, sometimes, to carry out an antifungigram whose practical value is questionable.

Treatment of phaeohyphomycosis usually includes surgical drainage or complete surgical removal of the lesion associated with major antifungal agents such as amphotericin B, ketoconazole, itraconazole or terbinafine (2, 13). Such an association proved efficient in our patient with good clinical and mycological results and no relapse after one year.

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