First case of subcutaneous dematophytosis in a Tunisian renal transplant patient

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Premier cas de dermatophytose sous cutanée chez un transplanté rénal tunisien

LA TUNISIE MEDICALE - 2012 ; Vol 90 (n°02) : 196-199

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RÉSUMÉ

Prérequis : Les dermatophytes sont kératinophiles et n'infectent habituellement que la couche cornée de l'épiderme et les phanères. A l'occasion d'une immunodépression, telle qu'une transplantation rénale, ils peuvent envahir les tissus profonds, voire provoquer une infection cutanée et sous-cutanée disséminée.
But : Rapporter un cas d'infection sous-cutanée à Micosporum canis chez un patient transplanté rénal.
Observation : Il s'agit d'un homme de 29 ans présentait une lésion érythémateuse de 2cm au niveau de la face antérieure de la jambe gauche. Il était traité par prednisone et tacrolimus, apyrétique et en bon état général. La lésion cutanée a été a été négligée. L'évolution a été l'apparition d'un suintement dont l'examen mycologique a montré de nombreux filaments mycéliens et la culture était positive à Microsporum canis. Le traitement initial a été le voriconazole, mais une interaction avec le tacrolimus a écourté la durée du traitement à 1mois. Devant l'extension en profondeur de la lésion 2 mois plus tard, une biopsie est réalisée. L'examen mycologique a montré le même aspect, précédemment décrit. Le patient a été mis sous fluconazole en ajustant les doses de tacrolimus puis a subi une excision chirurgicale des lésions. L'évolution après 4 mois de traitement anti fongique était favorable.
Conclusion: L'incidence croissante des thérapeutiques immunosuppressives a fait émerger des formes cliniques invasives inhabituelles et parfois graves d'agents fongiques dont la pathogénicité est habituellement limitée. Les cliniciens doivent être attentifs aux infections fongiques superficielles de la peau chez un patient transplanté rénal

Mots-clés
Dermatophytose sous-cutanée, transplantation rénale, Microsporum canis, traitement

SUMMARY

Background: Dermatophytes are keratinophilic and usually infect the corneal layer of the epidermis and appendages On the occasion of immunosuppression, such as solid organ transplant, they can invade deeper tissues or cause an infection of the skin and subcutaneous disseminated.
Aim: To report the first observation of subcutaneous dematophytosis in a Tunisian renal transplant patient.
Case report: A 29-year-old man had an erythematous lesion of 2 cm at the front of the left leg. He was treated with prednisone and tacrolimus. The skin lesion was has been neglected. The outcome was the occurrence of oozing whose mycological examination showed numerous hyphae and culture was positive for Microsporum canis. Initial treatment was voriconazole, but an interaction with tacrolimus has shortened the duration of treatment to 1 month. Three months later, the lesion became deeper, and then a biopsy was performed. The mycological examination showed the same appearance, previously described. The patient was put on fluconazole by adjusting the doses of tacrolimus and then underwent surgical excision of the lesions. The evolution after 4 months of antifungal treatment was favorable.
Conclusion: The increasing incidence of immunosuppressive therapy has given rise to unusual clinical forms of invasive and sometimes serious fungal agents whose pathogenicity is usually limited. Clinicians should be mindful of superficial fungal infections of the skin in a renal transplant patient

Key-words
Dermatophytosis subcutaneous, renal transplantation, Microsporum canis, treatment

Despite the decline in the incidence of fatal infection in renal transplant recipient, infection continues to be an important cause of morbidity and mortality (1). Renal transplant recipients are predisposed to superficial fungal infections that result from their immunological status. The very wide spectrum of fungi causing cutaneous disease produces equally varied clinical aspects. Lesions may be typical, but are very often aspecific or ambiguous (2).

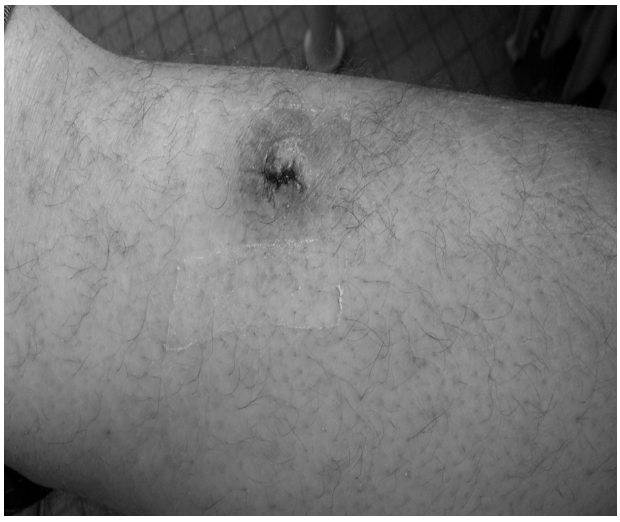
AIM

To report the first observation of subcutaneous dematophytosis in a Tunisian renal transplant patient.

CASE

We describe the case of a 29-year-old male renal transplant recipient who was under chronic treatment with immunosuppressant (tacrolimus) and corticotherapy. He presented 18 months berfore a nodule without inflammation on the anterior surface of the left leg. After that, an erythematous squamous lesion was observed. There was no history of trauma. The patient had no systemic signs or symptoms. The fungal skin disease was neglected causing soft tissue damage. The lesion becomes progressively deep and draining. Microscopic examination of the skin swab of the lesion in 10% KOH preparation showed multiple septate hyphae. Culture in Sabouraud revealed growth of colonies identified as Microsporum canis. Initial treatment with voriconazole was instaured. but an interaction with tacrolimus has shortened the duration of treatment to 1 month.
Three months later, worsening of the skin lesion was noticed, the lesion became deeper (figure 1).

Figure 1 : Nodule at the front of the leg



A left leg x ray and ultrasound showed a paraosteal lesion without bone lesion. A skin biopsy showed a fungal infection with septate hyphae (figure 2) and the culture isolated Microsporum canis (figure 3). Histological examination of the biopsy of the nodule found an intense inflammation of the dermis and hypodermis with many spores and hyphae (figure 4). The patient was put on fluconazole by adjusting the doses of tacrolimus. Two weeks later, the patient underwent surgical excision of the lesions and continued with antifongical treatment ten weeks. A follow up skin examination after 3 months was negative for dermatophytosis.

Figure 2 : Hyphae in skin smears stained with MGG

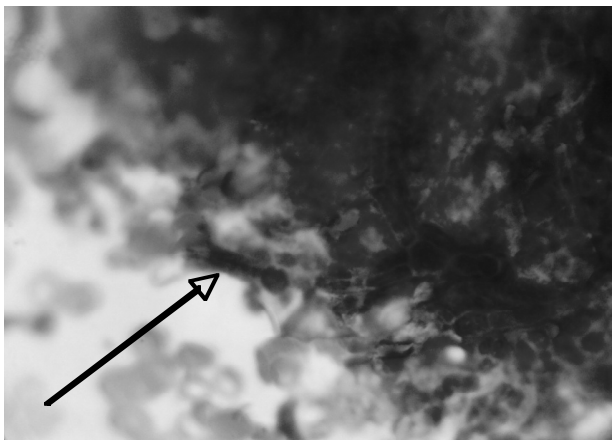


Figure 3: Microsporum canis isolated in culture

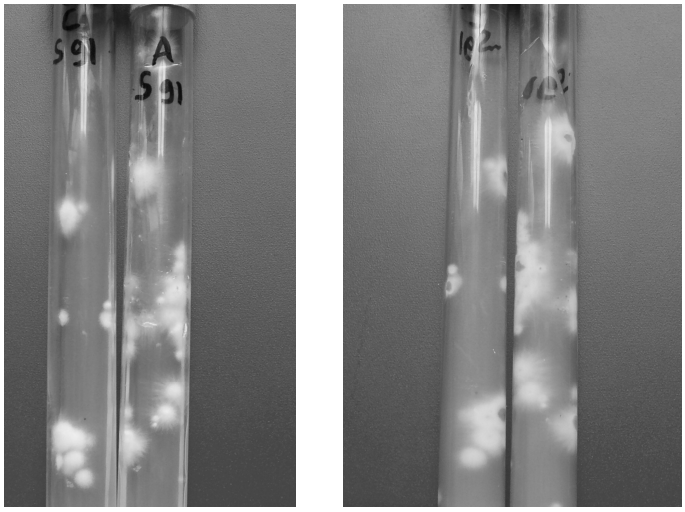
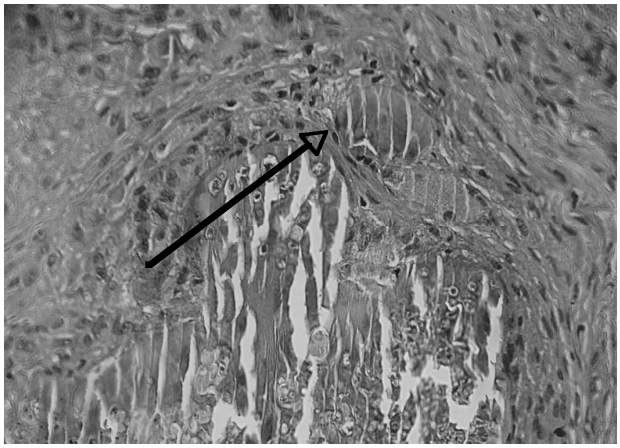


Figure 4 : Macroconidia in histopathological examination of biopsy



DISCUSSION

Renal transplant recipients are predisposed to superficial fungal infections. In fact, in a Turkish study, 102 consecutively registered renal transplant recipients and 88 healthy age- and sex-matched persons acting as controls underwent screening for the presence of superficial fungal infection. 63.7% of patients studied had oral candidiasis, cutaneous dermatophytosis, or pityriasis versicolor, whereas only 30.7% of controls had fungal infection. Pityriasis versicolor was the most common fungal infection in the patient group (36.3%), followed by cutaneous-oral candidiasis (25.5%), onychomycosis (12.7%), and fungal toe-web infection (11.8%).

Pityriasis versicolor and oral candidiasis were significantly more common among the renal transplant recipients, whereas the frequency of dermatophytosis in patients and controls was similar. Candida albicans was the main agent responsible for oral candidiasis, and Trichophyton rubrum was the most common dermatophyte isolated (3). The screening for the presence of superficial fungal infection should be made systematically in renal transplant recipients. In other Turkish study which studied skin infections in 401 renal transplant recipients in southern Turkey. 180 (64.3%) were fungal. Pityriasis versicolor was present in 95 patients (23.7%), onychomycosis in 23 (5.7%), and fungal toe-web infection in 20 (5%) (4). In an Indian study, Dermatophytosis was detected in 42% of 100 renal transplant recipients screened, of whom 17% had the infection for more than 1 year.

Tinea cruris and tinea corporis were the common clinical types observed. Tinea unguium presented as proximal subungual white onychomycosis (PSWO) in 3% of patients. The lesions in the majority were non-inflammatory, scaly and without central clearance. The commonest isolate wasTrichophyton rubrum (5). In a case report, deep dermatophytosis caused by Trichophyton rubrum with concomitant disseminated nocardiosis occurred 16 years after the patient underwent renal transplantation, and may have been related to tacrolimus therapy (6). Mycetoma or pseudomycetoma can be caused by Microsporum canis in immunosuppressed patients (7,8). In our case, the culture isolated Microsporum canis, the lesion can be assimilated as a pseudomycetoma. In Tunisia, there was no case reported of subcutaneous dermatophytosis in renal transplant recipients.

Initially, the patient presented a nodule without inflammation. The occurrence and the atypical clinical course of this ringworm in a renal transplant recipient are described (9). In our case, the fungal skin disease was neglected and not initially well treated. As immunosuppression enhances the risk of antifungal therapy failure, more prolonged treatment and careful follow-up are necessary to obtain complete recovery from any dermatophytosis in renal transplant recipients (9).

Voriconazole, a new therapeutic agent with an extended spectrum of antifungal activity, was administered orally (10). It was initially well tolerated but an interaction between voriconazole and tacrolimus was observed. Voriconazole inhibits the metabolism (CYP 3A4) and consequently increase the plasma concentration of Tacrolimus. Increased tacrolimus levels have been associated with nephrotoxicity (11).The treatment was stopped.

Microsporum canis is sensitive to griseofulvin and azole as fluconazole or itraconazole (12).

When worsening of the skin lesion was noticed, fluconazole was prescribed by adjusting the doses of tacrolimus. Two weeks later, the patient underwent surgical excision of the lesions and continued with antifongical treatment ten weeks. A follow up skin examination after 3 months was negative for dermatophytosis.

CONCLUSION

Infection continues to be an important cause of morbidity and mortality in renal transplant recipients. The number of patients who receive immunosuppressive agents for kidney transplantation is increasing as well as the potential for local or disseminated fungal infections. A neglected fungal skin disease dermatophytosis in a renal transplant patient may have fatal consequences. The present case demonstrates therapeutic difficulties in a renal transplant patient that led to the surgical excision of the lesions. Clinicians should be alert to the fungal skin infections in a renal transplant patient.

References

1. Peterson PK, Andersen RC. Infection in renal transplant recipients: Current approaches to diagnosis, therapy, and prevention. Am J Med 1986;81:2-10.
2. Virgili A, Zampino MR, Mantovani L. Fungal Skin Infections in Organ Transplant Recipients. Am J Clin Dermatol 2002;3:19-35.
3. Güleç AT, Demirbilek M, Seçkin D et al. Superficial fungal infections in 102 renal transplant recipients: a case-control study. J Am Acad Dermatol 2003;49: 187-92.
4. Dicle O, Parmaksizoglu B, Gurkan A et al. Skin infections in 401 renal transplant recipients in southern Turkey. Exp Clin Transplant 2009;7:133-6
5. Sentamil Selvi G, Kamalam A, Ajithados K, Janaki C, Thambiah AS. Clinical and mycological features of dermatophytosis in renal transplant recipients Mycoses. 1999;42:75-8.
6. Deniz Seçkin, Sevtap Ar›kan, Mehmet Haberal. Deep dermatophytosis caused by Trichophyton rubrum with concomitant disseminated nocardiosis in a renal transplant recipient. J Am Acad Dermatol 2004;51:S173-S176
7. Berg JC, Hamacher KL, Roberts GD. Pseudomycetoma caused by Microsporum canis in a immunosuppressed patient: a case report and review of the literature. J Cutan Pathol 2007;34:431-4.
8. Chiapello LS, Dib MD, Nuncira CT, et al. Mycetoma of the scalp due to Microsporum canis: hystopathologi, mycologic and immunogenetic features in a 6-year-old girl. Diagn Microbiol Infect Dis 2011;70:145-9.
9. Virgili A, Zampino MR. Relapsing tinea capitis by Microsporum canis in an adult female renal transplant recipient. Nephron 1998;80:61–2.
10. Donnelly JP, De Pauw BE. Voriconazole-a new therapeutic agent with an extended spectrum of antifungal activity. Clin Microbiol Infect 2004;10:107-17.
11. Delaunay P, Fissore C. Interactions médicamenteuses des antifongiques systémiques. J Mycol Med 2006;16:152-8.
12. Arabatzis M, Kyprianou M, Velegraki A, Makri A, Voyatzi A. Microsporum canis antifungal susceptibilities: concerns regarding their clinical predictability. Int J Antimicrob Agents 2010;36:385-6.