



Sporotrichosis in a liver transplant patient: A case report and literature review



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ABSTRACT

The liver transplant patient was admitted to the hospital with hyperemic, granulomatous, ulcerated lesion in the anterior compartment of the right lower limb with report of local trauma. The agent *Sporothrix schenckii* was isolated from biopsy of the lesion and lymph nodes of the right lower limb. In this case, the treatment was difficult because the patient has severe pulmonary hypertension and took the following drugs: warfarin, sildenaflil, and tacrolimus. These medicines interact with the antifungal, which made it difficult.

1. Introduction

Sporotrichosis is an endemic fungal infection caused by the thermally dimorphic fungus *Sporothrix schenckii* (SS) [1]. It is a zoonosis prevalent in tropical and subtropical regions, especially in countries such as Brazil, Ecuador, and Colombia. Transmission may occur mainly after contact with soil, mosses, plants, or organic matter contaminated by the fungus [1,2,9]. It may also be inhaled, causing respiratory symptoms and even pulmonary cavities [3].

The clinical presentation may be from subacute to chronic, especially involving cutaneous or subcutaneous tissue with a single or multiple nodular or ulcerated skin lesion. The occurrence of lymphangitis and lymphadenitis in lymphatic organs is considered a common event. Respiratory symptoms occur separately or concomitantly with the skin lesion. The systemic expression occurs mainly in immunosuppressed patients, being rare in transplant patients [1–4].

We reported a case of sporotrichosis disseminated in a liver transplant patient, which is the first case, once no other study on liver transplant patients was found in the English literature.

2. Case

The patient, a 60-year old female, was submitted to liver transplant on August 21, 2006 due to liver cirrhosis caused by the B virus and alcohol and admitted in April 2016 (15 days) with pain, hyperemia, and

an ulcerated, granulomatous lesion in the anterior compartment of her right leg after local trauma (Fig. 1). She reported that, in the previous month, erythematous and pruritic papules had appeared and evolved to pustules (day 0). She also had two painful nodes in her right thigh. After a leg trauma, she mentioned that one of the pustules broke, and, as there was no improvement, she sought the local health facility and was medicated with cephalexin and, again, showed no improvement. The lesion gradually worsened, with increased dimensions and the presence of a serum-bloody exudate. She was using the following immunosuppressants: tacrolimus and prednisone. Other material comorbidities of the patient: hypothyroidism, former smoker, pulmonary arterial hypertension. In the physical examination, she was generally in good condition, afebrile, but with trouble walking due to the pain in her right lower limb. There were no particularities in the cardiopulmonary clinical examination. In the skin examination, there was a single, hyperemic, granulomatous, ulcerated lesion, with high border, approximately 15 cm wide, in the anterior compartment of the right lower limb, in combination with a painful lymph node enlargement in the medial portion of the right thigh (Fig. 1).

The patient was initially treated with antibiotics (vancomycin and cefepime) and a suspension of immunosuppressive drugs, in addition to the daily use of a local bandage; however, with no success, tacrolimus and prednisone were administered again one month after beginning of the symptoms. Upon hospitalization, the patient was also submitted to biopsy of the skin lesion and lymph node of the anterior compartment

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Fig. 1. ulcerated and granulomatous lesion.



Fig. 2. microscopic observation of *Sporothrix schenckii*.

of her right thigh, and the fragments were sent to laboratory analysis. The diagnostic confirmation came after an analysis through the following methodology: fragments of a biopsy were transported in a sterile

vial immediately after collection and referred to the Microbiology Laboratory of the Medical School. Sections were established, aiming at the microscopic observation (direct mycological), as well as the culture in Sabouraud Dextrose Agar (®DIFCO) (incubation at 25 °C and 35 °C). After 10 days of incubation, colonies typical of a dimorphic fungus, with yeast development at 35 °C and filamentous development at 25 °C, were observed in all culture tubes. The colonies were microcultivated in potato dextrose agar for conidial stimulation. After four days, we found structures typical of SS (Fig. 2).

The culture was positive only in the second biopsy of the lesion. The first anatomopathological analysis showed a result consistent with granulomatous dermatitis. Treatment started (28 days) with itraconazole, associated with the reduced doses of drugs: warfarin, which was introduced about one month after the diagnosis, sildenafil, and immunosuppressants. Progressive improvement of the lesion began (33 days) after beginning of the treatment, and the patient received hospital discharge, keeping the home care, and with a referral for a weekly return at Hospital-Dia for follow-up. However, two months after beginning of the treatment (58 days), she developed arthralgia in her left wrist, and the distal portion of the left radius was submitted to a biopsy, the result of which was positive for fungi. After 150 days of the diagnosis, she developed dyspnea upon minimum effort, cough, and respiratory discomfort. A bronchoscopy was performed and the bronchoalveolar lavage of segment 6D was collected, which result was positive for SS. At this time (300 days), the patient is often hospitalized and uses itraconazole.

3. Discussion

We described the first case of SS disseminated in a liver transplant patient.

Opportunistic diseases are common in transplant patients, such as herpes, candidiasis, tuberculosis, and histoplasmosis, due to the use of immunosuppressive drugs [6,8]. In this case, we address a liver transplant complication not yet reported in the literature. The patient received the liver transplant on August 21, 2006 and received immunosuppressive therapy with tacrolimus 1 mg at every 12 h and prednisone 20 mg once daily in the morning.

The treatment guidelines for cutaneous sporotrichosis recommend oral administration of 200 mg of itraconazole per day for two to four weeks [10]. An alternative is amphotericin B, which was administered in one dose, but there has been deterioration of renal function with increase in the creatinine level, so the drug was immediately suspended and itraconazole was kept for 21 days. The patient took medicines that had drug interactions with itraconazole, increasing the serum levels of tacrolimus, sildenafil, and warfarin. The patient took sildenafil to treat the pulmonary hypertension and warfarin to treat chronic pulmonary thromboembolism. At this point, we chose to reduce the medicine doses, keeping the level of itraconazole. Then, we noticed a progressive improvement in the laboratory parameters and the aspect of the lesion, until full cicatrization.

Gullberg and Quintanilla [4] reported a recurring case of SS disseminated in a kidney transplant patient, involving joints, skin, and the central nervous system. It required three treatment cycles with systemic amphotericin B. In the second cycle, the antifungal was administered intra-articularly and in the third one, intrathecally. For therapeutic success, it was also necessary to reduce the immunosuppressant.

In Brazil, there is only one study reporting two cases of sporotrichosis in kidney transplant patients. Both were treated with itraconazole and amphotericin B [7]. In the literature, there is also a report of sporotrichosis in a lung transplant patient, in which the donated organ is probably the cause of the infection [3]. Other studies, more frequent, address HIV-immunocompromised patients [5,6]. This is the only report in liver transplant patients.

This is the first case of a liver transplant patient with disseminated sporotrichosis, with SS as the etiological fungus, treated with

itraconazole. The ambulatory follow-up on the patient is continued without evidence of remission of the disease. The mycological analysis of the lesion biopsy was essential for diagnosis. The case highlights the importance of the diagnosis of fungal infections in immunocompromised patients, especially those caused by SS.

Conflict of interest

There's no conflict of interest.

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