Refractory sporotrichosis lesion: An effective and pioneering approach in a patient living with human immunodeficiency virus/acquired immunodeficiency syndrome

Rodrigo do Carmo Silva, MD,a Dayvison Francis Saraiva Freitas, MD, PhD,b João Pedro Cabrera Pereira, MD,a Antonio Carlos Francesconi do Valle, MD, PhD,b Maria Clara Gutierrez-Galhardo, MD, PhD,b Fernando Almeida-Silva, PhD,b and Felipe Mauricio Soeiro Sampaio, MD, MSca

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INTRODUCTION

Sporotrichosis is a subcutaneous mycosis caused by fungi of the genus Sporothrix.1 Since 1998, in the metropolitan region of Rio de Janeiro, there has been an increase in the number of human cases, in a zoonotic transmission pattern, from domestic and stray cats, involving Sporothrix brasiliensis as the causative species.1

The primary treatment for this infection includes oral itraconazole, potassium iodide, terbinafine, and intravenous amphotericin B.1 Refractory cases and the cases in which the patients have contraindications to pharmaceutical treatment may benefit from adjuvant methods such as cryosurgery, thermotherapy, and electrosurgery.2

Here, we report a case of lymphocutaneous sporotrichosis refractory to itraconazole treatment that achieved clinical cure after electrosurgery with curettage.

CASE REPORT

A 52-year-old male patient reported the development of skin lesions on the dorsum of his left foot after a cutting trauma with a piece of glass. The lesions showed an ascending progression to the medial surface of the left leg (Fig 1). He was diagnosed with human immunodeficiency virus infection 1 year before and was receiving regular antiretroviral treatment with tenofovir, lamivudine, and efavirenz. The T-CD4+ lymphocyte count was 809 cells/mm³, and the viral load was below 40 copies/mL. No other comorbidities were noted.

Dermatological examination revealed 3 similar erythematous, oval, and well-delimited plaques (1–3 cm in diameter) on the dorsum of his left foot and erythematous nodules on the left leg. The plaques were centered by ulcerations covered by black crusts.

A biopsy was performed; however, the results were inconclusive, showing pseudoepitheliomatous squamous hyperplasia and a nonspecific acute and chronic inflammatory process. The culture of the fragment of a skin lesion isolated Sporothrix spp.; therefore, treatment was initiated with itraconazole 200 mg/day. During month 7 of treatment, the leg lesions healed; however, there were still active lesions on the foot. Therefore, daily thermotherapy (about 40–45 °C, three times a day for 20 minutes) was combined for 3 months to cure the remaining active lesions unsuccessfully. This was followed by 10 monthly sessions of cryosurgery using liquid...
nitrogen spray (each session included two 15- to 30-second cycles, 1 minute apart, using an open tip B - CryAc Brymill). However, there was only partial improvement in the condition of the patient. As the patient had discomfort with the pain caused by cryosurgery sessions and nausea caused by itraconazole, an electrosurgery with curettage was indicated after 25 months of pharmacological treatment.

Antisepsis was performed using digluconate and alcoholic chlorhexidine; local anesthesia was administered using 2% lidocaine, 1:1000 epinephrine, and 0.9% saline solution. The lesion curettage was performed using a curette number 02, and the electrosurgery was performed using an electrocoagulation knife tip (biterminal electric scalpel, with monopolar pen WEN HF 120) (Figs 2 and 3). A dressing was applied daily, after cleaning the wound using 0.9% saline, followed by application of 1% silver sulfadiazine cream, and covering it with gauze.

The wound was healed by secondary intention in less than 2 months after the electrosurgery, and then itraconazole was discontinued. After 2 months, the procedure left a scar that was initially hyperpigmented on the periphery with a slightly erythematous central area (Fig 4, A). After three years of the electrosurgery session, the scar became mildly dyschromic, showing alternate hypochromic and hyperchromic features (Fig 4, B).

Retrospectively the agent was identified as S. brasiliensis by a species-specific polymerase chain reaction method. The minimal inhibitory concentrations in the antifungal susceptibility test performed according to the Clinical & Laboratory Standards Institute M38-A2 document were as follows: itraconazole, 8 μg/ml; terbinafine, 0.5 μg/ml; posaconazole, 8 μg/ml; and amphotericin B, 4 μg/ml.

DISCUSSION

Sporotrichosis is considered as refractory to systemic treatment when there is no clinical improvement in the patient’s condition even after 4 months of pharmacological treatment or in cases with stagnant
therapeutic response. Microbial culture performed in the laboratory is a fundamental requirement to confirm the diagnosis of sporotrichosis.

Itraconazole is the main drug used for the treatment of sporotrichosis because of its efficacy, safety, and dosage convenience. However, some strains of *Sporothrix brasiliensis* show a greater tolerance to this drug.1,5-7

The causative species in this patient, *S. brasiliensis*, corroborates the molecular epidemiological studies conducted in this region, although it was not caused by zoonotic transmission. Anatomical and clinical-functional conditions, such as the location of lesions on the lower limb, human immunodeficiency virus infection, fibrotic process during treatment, drug interactions, and low intestinal absorption, may have contributed to the ineffectiveness of the treatment.

Terbinafine is a safe and effective alternative in cases where itraconazole is contraindicated.8,9 Potassium iodide can be used in some special cases,5 whereas amphotericin B is used to treat systemic sporotrichosis.1,8 This patient responded slowly to itraconazole treatment, except for one lesion. Based on our experience and the patient’s response, it was decided to modify the treatment by using local adjuvant therapy (such as cryosurgery, thermotherapy, and electrotherapy). Interestingly, the patient isolate showed an antifungal resistance profile in vitro, with high minimal inhibitory concentrations for the tested antifungals. However, these tests were performed to analyze the resistance profile, after the outcome, and did not guide our conduct.

Cryosurgery and thermotherapy are used as adjuvant therapies because *Sporothrix* sp. is sensitive to extreme temperatures. Cryosurgery provides excellent results; however, it often requires multiple sessions and the patient may experience localized pain, swelling, blisters, and dyschromia.5 Thermotherapy is less invasive and well tolerated but time and patient dependent.

Electrosurgery is based on the transmission of high-frequency electrical current through the tissues followed by their thermal denaturation.7 It is a simple, low-cost, and safe technique indicated for plaques and crusted lesions.1,6 It was proven to be effective in maintaining the function and aesthetics of the operated site.

We emphasize that adjuvant therapies that are used for the treatment of infectious diseases aim to reduce the amount, time, cost, and adverse effects of pharmacological treatment, therefore aiding in clinical cure.

Conflicts of interest
None disclosed.

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