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CASE REPORT

Multifocal cutaneous sporotrichosis due to *Sporothrix brasiliensis* in a Patient with systemic lupus erythematosus from Brazil's semi-arid region

Esporotricose cutânea multifocal por Sporothrix brasiliensis *em paciente com lúpus eritematoso sistêmico na região semiárida do Brasil*

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ABSTRACT

Introduction: Sporotrichosis is the most prevalent implantation mycosis worldwide and is particularly frequent in tropical and subtropical regions, including Latin America. The lymphocutaneous manifestation is the predominant clinical form and the occurrence of multifocal cutaneous sporotrichosis has been less reported. **Objectives:** To describe a case of multifocal cutaneous sporotrichosis in a systemic lupus erythematosus patient, resident in Brazil´s semi-arid Northeast region, which is not considered an endemic area for the disease. **Case report:** Female patient, 44 years old, previously diagnosed with systemic lupus erythematosus, sought care at the public dermatology service due to the appearance of various cutaneous lesions on the palms of both hands, fingers, abdomen area and right femoral region. The mycological diagnosis was conducted and identified colonies with characteristics typical to *Sporothrix* sp. The etiological agent was identified by genetic sequencing as *S. brasiliensis* and the treatment was conducted with itraconazole. **Conclusion:** To our knowledge, this is the first case report of multifocal cutaneous sporotrichosis by *S. brasiliensis* in a patient with systemic lupus erythematosus in Brazil's semi-arid region. The role of this underlying immunological condition as a potential predisposing factor remains to be clarified. Itraconazole showed to be safe and effective for the treatment.

Keywords: Sporotrichosis; *Sporothrix brasiliensis*; Mycological diagnosis.

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Supporting sources:

None.

RESUMO

Introdução: A esporotricose é a micose de implantação mais prevalente em todo o mundo e é particularmente frequente em regiões tropicais e subtropicais, incluindo a América Latina. A manifestação linfocutânea constitui a forma clínica predominante, sendo a ocorrência de esporotricose cutânea multifocal menos frequentemente descrita. **Objetivo:** Descrever um caso de esporotricose cutânea multifocal em paciente com lúpus eritematoso sistêmico, residente na região semiárida do Nordeste brasileiro, a qual não é considerada área endêmica para a doença. **Relato de caso:** Paciente do sexo feminino, 44 anos, com diagnóstico prévio de lúpus eritematoso sistêmico, buscou atendimento em serviço público de dermatologia devido ao surgimento de múltiplas lesões cutâneas nas palmas de ambas as mãos, dedos, região abdominal e região femoral direita. Clinicamente, as lesões apresentavam-se elevadas, com centros crostosos e bases eritematosas. O diagnóstico micológico identificou colônias com características compatíveis com *Sporothrix* sp. O agente etiológico foi identificado por sequenciamento genético como *Sporothrix brasiliensis*, e o tratamento foi instituído com itraconazol. **Conclusão:** Até onde se tem conhecimento, este é o primeiro relato de caso de esporotricose cutânea multifocal por *S. brasiliensis* em paciente com lúpus eritematoso sistêmico, na região semiárida do Brasil. O papel da condição imunológica de base como possível fator predisponente ainda necessita ser mais bem esclarecido. O itraconazol mostrou-se seguro e eficaz para o tratamento.

Palavras-chave: Esporotricose; *Sporothrix brasiliensis*; Diagnóstico micológico.

Conflicts of interest:
None.

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INTRODUCTION

Sporotrichosis is an implantation mycosis caused by thermodimorphic fungi of the genus *Sporothrix* and is classified as a subacute or chronic subcutaneous infection. It is the most prevalent implantation mycosis worldwide, with high incidences in tropical and subtropical areas, including Latin America[1]. In Brazil, human sporotrichosis was officially included in the National List of Notifiable Diseases in 2025, reflecting its growing public health impact and the need for systematic surveillance[2].

The genus *Sporothrix* comprises approximately 53 species, including a clinically significant clade represented by *S. brasiliensis, S. schenckii, S. globosa,* and *S. luriei*. Additionally, members of environmental clades, such as *S. chilensis* and *S. mexicana* can also be associated with infection in humans and other mammals[3].

Sporothrix spp. grow in living or decaying vegetation, animal excreta, and soil. Historically, disease transmission occurred through the traumatic inoculation of the etiological agent's propagules during activities such as agriculture, gardening, horticulture, and similar occupations. However, zoonotic transmission through scratches from certain animals, especially felines, has been increasing[4].

In Brazil, cat transmission is the main route for sporotrichosis infection by S. *brasiliensis*; however, recent experimental studies have expanded this view, demonstrating that this species can remain viable on different surfaces (e.g., fabric, wood, stainless steel) for up to 25 days, supporting sapronotic and fomite-mediated transmission in addition to direct cat-to-human transmission[5].

The lymphocutaneous form is the predominant clinical manifestation of sporotrichosis, followed by fixed cutaneous form. Cutaneous disease can also present with multifocal or cutaneous disseminated forms, characterized by three or more non-contiguous lesions, which are uncommon overall but have been increasingly reported in zoonotic outbreaks caused by *S. brasiliensis*. Cutaneous disseminated and extracutaneous forms are more frequently described in immunocompromised hosts, such as patients with HIV/AIDS, diabetes mellitus, chronic alcoholism or those receiving corticosteroids[6,7].

In this context, we report a case of multifocal cutaneous sporotrichosis caused by *S. brasiliensis* in a patient with systemic lupus erythematosus (SLE) residing in the semi-arid region of Northeastern Brazil, a zone where published human cases remain scarce.

Case Report

A 44-year-old woman residing in the semi-arid region of Brazil, specifically in the city of Serra Talhada, state of Pernambuco, sought care at the public dermatology service in her city due to the appearance of various cutaneous lesions that began approximately three months before presentation. Initially, the lesions appeared on the palms of both of her hands, spreading to her fingers and then appeared one lesion on the abdomen area and another on her right femoral region (Figure 1A-D).

Clinically, the lesions were plaques with crusted centers and erythematous bases. They were pruritic, scaly and occasionally drained serous secretion. The patient did not report fever, weight loss or other systemic symptoms suggestive of hematogenous dissemination.

The patient reported the frequent presence of neighbors' domestic cats and stray cats in her backyard and stated that she sometimes had close contact with these animals, but did not recall any scratches or bites. She had the habit of handling plants and soil, but she did not remember if the lesions appeared after any specific traumatic event.

Her medical history included hypertensive disease, systemic lupus erythematosus, osteoarthritis and neuropathic pain as consequences of SLE. To manage these comorbidities, she was on a chronic regimen that included carvedilol, hydroxychloroquine, gabapentin, amitriptyline, calcium, prednisone, paracetamol, and codeine. At the time of presentation, the patient was using prednisone at a dose of 40 mg/day, which had been prescribed approximately one month earlier, however the exact time since the diagnosis of SLE could not be determined from the medical records available at the health service.

Before arriving at the dermatology public service, she sought care at an ambulatory of a Municipal Basic Health Unit, where she was prescribed cephalexin, ciprofloxacin, and benzathine penicillin, all without improving her condition due to a misdiagnosis. After clinical analysis at the dermatology service, biopsies of the right hand and abdomen lesions were performed, and the specimens were sent to the Laboratory of Microbiology and Parasitology at the University of Pernambuco for mycological diagnosis. The clinical samples were cultured on Sabouraud dextrose agar surface and, after seven days, showed the growth of colonies with macroscopic and microscopic characteristics suggestive of *Sporothrix* sp. (Figure 2A-C).

Then, genomic DNA was obtained, and partial sequencing of the calmodulin gene (CAL) was performed based on Marimon et al. (2007)[8] with adaptations. The isolate was identified as *S. brasiliensis* (GenBank accession number PP583620) by searching for nucleotide sequence

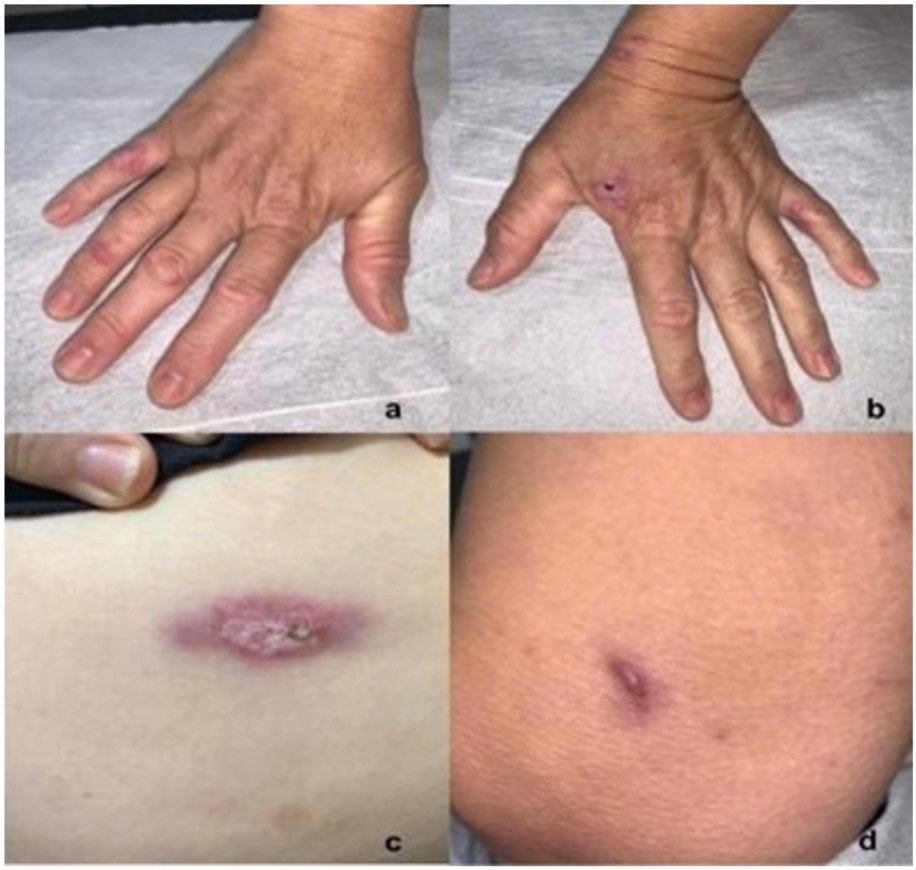


Figure 1. A and B: Cutaneous lesions on right and left hands and fingers; **C.** on abdomen; **D.** right femoral region.

similarity in GenBank using the Basic Local Alignment Search Tool (BLAST). The phylogenetic relatedness of our isolate (HC323) with selected global isolates of *Sporothrix* genus was derived using the maximum likelihood method with the support of 1000 bootstraps in the XSEDE software hosted on Cipress[9] (Figure 3).

Additionally, the antifungal susceptibility test was performed by broth microdilution according to bBrCAST guidelines, and minimum inhibitory concentrations (MICs) were: itraconazole 0.25 µg/mL, ketoconazole 0.5 µg/mL, amphotericin B 1 µg/mL and terbinafine 0.03 µg/mL. The etiological agent was considered sensible for all tested antifungal agents.

Thus, once the diagnosis was confirmed, the patient was treated with Itraconazole 100 mg/day for 60 days, resulting in complete remission of all cutaneous lesions. However, the patient did not return for scheduled follow-up visits after treatment completion and was therefore lost to follow-up, precluding long-term assessment of relapse.

Discussion

This case emphasizes that sporotrichosis in Brazil is spreading to new areas such as the Northeast semi-arid region, underscoring the importance of accurate diagnosis for better treatment and understanding of this disease. Zoonotic sporotrichosis is considered endemic in some areas of South, Southeast, Northen and Northeast of Brazil[10,11]. Although sporotrichosis is recognized as an emerging mycosis in Northeastern Brazil, most reported outbreaks have historically been concentrated in urban and metropolitan areas such as Recife and Natal[12,13].

The case also highlights a multifocal cutaneous presentation of *S. brasiliensis* infection in a patient with SLE. The mycological diagnosis was achieved by growth of the etiological agent in culture, and the species taxonomy by genetic sequencing. Henández-Castro et al. (2022)[1] elucidated that fungal culture remains the gold standard diagnostic methodology for this mycosis.

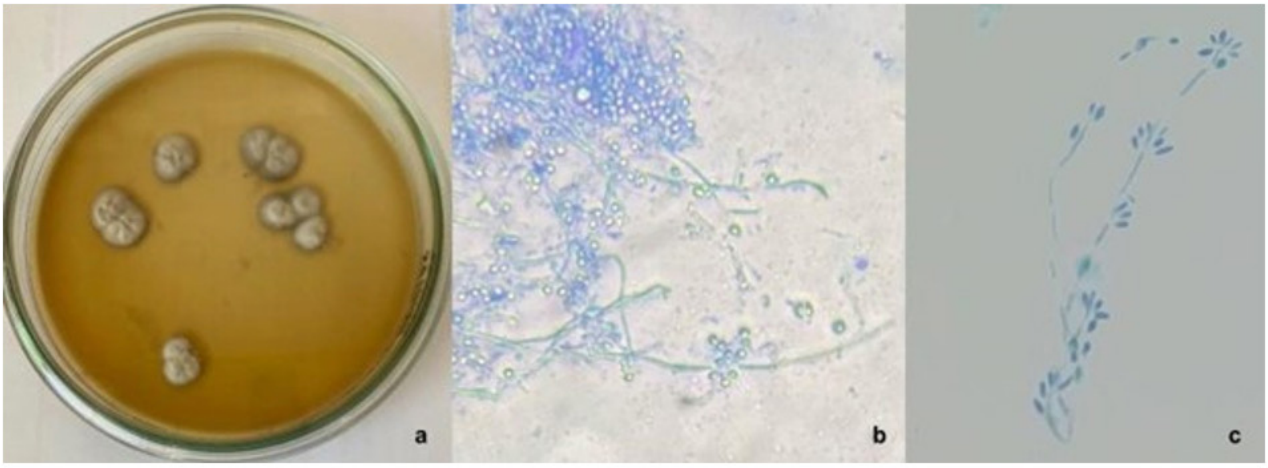


Figure 2. A and B: Macroscopic and microscopic characteristics (× 1000 magnifications); **C.** of *Sporothrix* after 7 days of culture at 28 °C on Sabouraud dextrose agar. Culture microscopy showing conidiophore in flower-like arrangement with ovale, globose, sessile conidia (× 4000 magnifications).

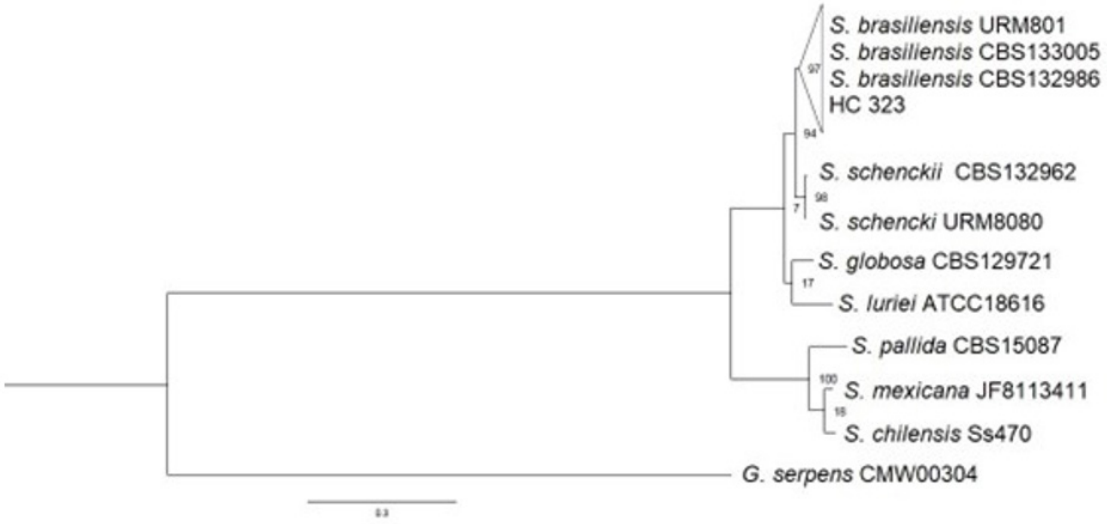


Figure 3. Maximum likelihood phylogenetic tree showing evolutionary relationship between *Sporothrix* pathogenic species and the isolate of the presented case (HC 323).

The present case was defined as a multifocal cutaneous sporotrichosis, since the patient presented lesions on both hands, abdomen and thigh, but there was no clinical or laboratory evidence of extracutaneous involvement or severe systemic illness. Although SLE and chronic corticosteroid therapy may have increased susceptibility to infection, the relatively benign course and good response to itraconazole 100 mg/day resemble multifocal cutaneous disease described in immunocompetent hosts, rather than severe systemic disseminated form. Another case of sporotrichosis in a woman with SLE has been reported in Malaysia, but that patient presented with classical lymphocutaneous disease and the isolated species was *S. schenckii*[14].

Regarding transmission, our patient reported the frequent presence of domestic and stray cats in her backyard, as well as handling plants and soil, but did not recall any scratches, bites or other specific trauma. Previous studies have shown that many patients with sporotrichosis do not remember a clear history of inoculating trauma[15]. In this case, an unrecognized minor traumatic inoculation during contact with cats may have occurred. Moreover, as an experimental study has demonstrated that *S. brasiliensis* can remain viable on different surfaces for prolonged periods[5], it is also plausible that infection resulted from repeated, possibly unnoticed exposure to environmental materials contaminated by secretions from infected cats.

In addition, after taxonomic identification, the isolated species was identified as *S. brasiliensis*, which is frequently associated with zoonotic transmission and is considered an emerging fungal in South America being associated with feline and human sporotrichosis[10]. The first cases were reported in Brazil and the disease has expanded among the three last decades in this country. Expanding on the Brazilian situation, the sporotrichosis due to *S. brasiliensis* is now reported in bordering countries of Brazil, such as Argentina and Paraguay, highlighting that public health measures must be implemented[1]. Dos Santos et al. (2024)[10] state that zoonotic transmission is commonly associated with *S. brasiliensis* and one hypothesis is that this species may be more widespread in the environment than *S. schenckii* and *S. globosa*, making it more likely to be acquired by feral cats, which are abundant in Brazilian streets and are probably the primary drivers of transmission.

Itraconazole is recognized as an effective antifungal agent for all clinical forms of sporotrichosis, including multifocal, with recommended daily doses ranging from 100 to 400 mg depending on severity and host factors[16]. Global guidelines for endemic mycoses recommend maintaining itraconazole therapy for at least 2–4 weeks after complete clinical resolution to reduce the risk of relapse[17]. In the presented case the patient responded positively to treatment with itraconazole at a dosage of 100 mg per day for 60 days, achieving total remission of the lesions at that time, but long-term recurrence could not be assessed. Poester et al. (2020)[16] described the successful treatment of 30 zoonotic sporotrichosis cases in Brazil. Itraconazole was the treatment established for 28 patients and potassium iodide was chosen for 2 cases. Clinical cure required approximately 187 days of treatment.

Conclusion

Multifocal cutaneous sporotrichosis is an uncommon clinical presentation, and to our knowledge, we report the first case of multifocal cutaneous sporotrichosis caused by *S. brasiliensis* in a patient with SLE from Brazil's semi-arid region. Systemic lupus erythematosus and chronic corticosteroid therapy may have contributed to susceptibility to infection; however, the clinical course was favorable and incompatible with severe systemic dissemination. Given the increasing incidence of the disease in new regions, such as Brazil's semi-arid zone, it is essential to maintain a high level of suspicion and conduct appropriate mycological diagnostics to initiate timely and appropriate treatment. In the present case, itraconazole was safe and effective in achieving clinical cure, although the short, low-dose regimen and lack of long-term follow-up highlight the importance of adhering to current treatment guidelines when possible.

Authors' Contributions

We describe contributions to the papers using the taxanomy (CRediT) provide above:

Conceptualization, Investigation, Methodology, Visualization & Writing – review & editing: CMM Gomes; MB da Silva; CMF de Lucena; CCC Leite; CM da Silva . *Project administration, Supervision & Writing – original draft*: ACB Farias; CM da Silva. *Validation & Software*: RG Lima Neto; CM da Silva. *Resources & Funding acquisition*: RG Lima Neto; CM da Silva. *Data curation & Formal Analysis*: CM da Silva.

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