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Case Report

Disseminated Sporotrichosis with Cutaneous and Osteoarticular Involvement in an Immunosuppressed Patient: A Case Report

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Abstract: Sporotrichosis is a fungal infection caused by species of the *Sporothrix genus*, primarily *Sporothrix schenckii* and *Sporothrix brasiliensis*, the latter being more virulent and associated with higher transmission rates in Brazil. Infection generally occurs through traumatic inoculation of contaminated soil, plants, or organic matter and may also be transmitted by cats, particularly in cases involving *S. brasiliensis*. The disease predominantly affects the skin and subcutaneous tissue. We report the case of a young man living with HIV/AIDS who presented with cutaneous lesions and osteoarticular involvement caused by *Sporothrix spp.*, consistent with disseminated sporotrichosis. The patient had a history of contact with cats. The diagnosis was confirmed by skin and bone biopsies, with polymerase chain reaction (PCR) positive for *Sporothrix*. During treatment, which included antiretroviral therapy, the patient developed immune reconstitution inflammatory syndrome (IRIS) and worsening renal function associated with the use of amphotericin B deoxycholate. Treatment was prolonged, with outpatient follow-up and subsequent therapy with itraconazole. Sporotrichosis is an emerging disease in Brazil, and its variable clinical presentation may delay diagnosis. It should be considered in the differential diagnosis of chronic cutaneous lesions, particularly in immunosuppressed individuals, because of the risk of disseminated disease and osteomyelitis.

Keywords: Sporotrichosis; Zoonosis; Mycosis; Immunosuppression.

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1. Introduction

Sporotrichosis is a fungal infection caused by species of the Sporothrix genus, most commonly Sporothrix schenckii and Sporothrix brasiliensis, the latter being more virulent and associated with high transmission rates in Brazil. This mycosis is typically acquired through traumatic inoculation of contaminated soil, plants, or organic matter, or through zoonotic transmission by cats, which is strongly associated with S. brasiliensis. The infection primarily affects the skin and subcutaneous tissues [1,2]. The disease is endemic in tropical and subtropical regions but may also occur elsewhere, particularly among individuals engaged in occupations or activities such as floriculture, agriculture, mining, and veterinary practice [2]. Sporotrichosis has become an important public health concern in some regions, particularly in Brazil, where zoonotic transmission by cats accounts for the majority of cases. In recognition of its increasing burden, sporotrichosis became a nationally notifiable disease in Brazil in 2025 [2].

Clinically, sporotrichosis most commonly presents as fixed cutaneous or lymphocutaneous disease, with lesions typically located on the upper or lower extremities [3]. In immunocompromised individuals, the infection may disseminate, leading to extracutaneous manifestations, including pulmonary, osteoarticular, ocular, central nervous system, and mucosal sporotrichosis [4]. In people living with HIV, diagnosis is often more challenging [5] because of the broad range of differential diagnoses and the potential occurrence of immune reconstitution inflammatory syndrome (IRIS), which may exacerbate symptoms despite appropriate antifungal therapy. The diagnosis is confirmed by mycological examination, with fungal culture remaining the gold standard. Molecular techniques, such as polymerase chain reaction (PCR), can improve diagnostic sensitivity and specificity while also facilitating species identification [6].

Itraconazole is the treatment of choice for cutaneous sporotrichosis and has demonstrated high efficacy in multiple studies [7]. In cases of intolerance or contraindications to itraconazole, saturated solution of potassium iodide (SSKI) may be used, although itraconazole is generally preferred in patients with preexisting hypothyroidism or intolerance to SSKI [3]. For severe or disseminated forms of the disease, particularly those involving the central nervous system, treatment may require amphotericin B, although therapeutic outcomes are often suboptimal [4]. Raising awareness and promoting collaboration among healthcare professionals, veterinarians, and public health authorities are essential to controlling the spread of this disease.

This study aims to describe a case of disseminated sporotrichosis with musculoskeletal involvement in an immunosuppressed patient, contributing to the medical literature and increasing awareness among healthcare professionals about this emerging neglected tropical disease.

2. Case Report

A 30-year-old man from São Paulo, Brazil, who identified as homosexual, had been in a stable serodiscordant marriage for seven years and worked as a caregiver for older adults. His only relevant medical history was HIV/AIDS diagnosed in 2015, with irregular adherence to antiretroviral therapy consisting of tenofovir disoproxil fumarate, lamivudine, and dolutegravir. He had been lost to follow-up between 2015 and 2017. At the time of his initial evaluation, his most recent laboratory tests, performed two months before hospital admission, showed a CD4+ T-cell count of 55 cells/mm^3 and an HIV viral load of 4,450,000 copies/mL. Epidemiologically, he owned three domestic cats that had been diagnosed with sporotrichosis in early 2023, the last of which died in early 2024. He was an active smoker, consuming approximately seven cigarettes daily for the previous five years, and reported an allergy to dipyrone.

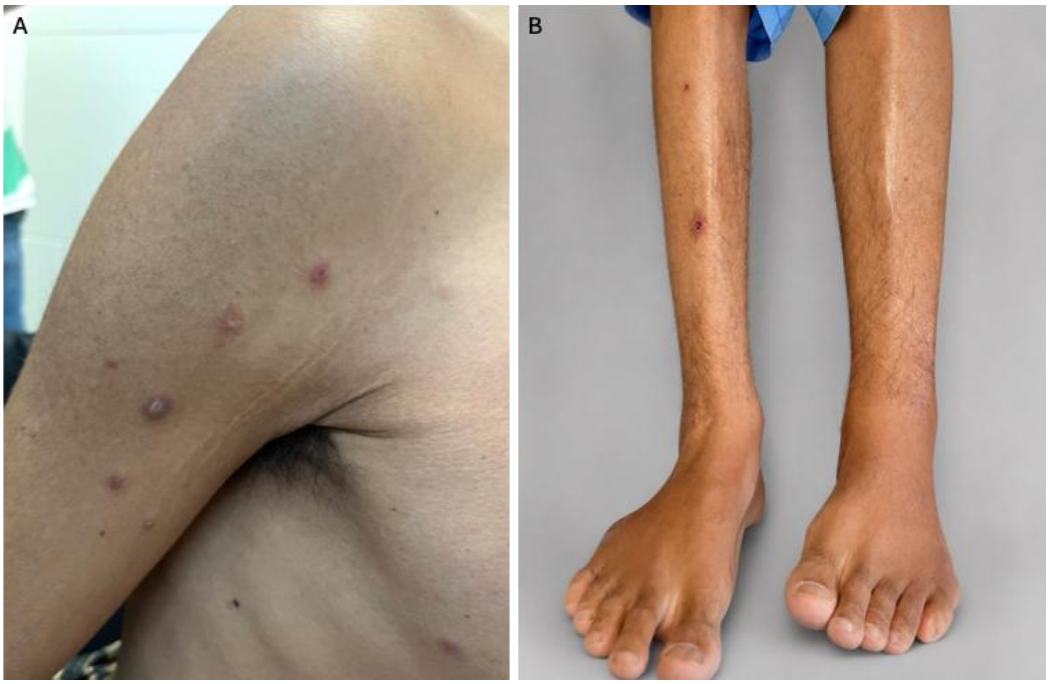
On September 11, 2024, he sought medical care because of pustular skin lesions involving the lower extremities (Figure 1A), upper extremities (Figure 1B), buttocks, and trunk, accompanied by intermittent fever (38–39°C), edema of the left foot and ankle, an unintentional weight loss of 25 kg over eight months, night sweats, asthenia, and diarrhea. He reported that the lesions initially appeared as erythematous papules on the neck, thigh, and foot before progressively spreading to the extremities and trunk, evolving into pustules and subsequently crusted lesions.

Physical examination at admission revealed a patient in fair general condition, pale, with edema of the left lower limb associated with pain during both active and passive movement, mildly restricted range of motion, and an ulcerative-crusted lesion on the medial aspect of the left ankle. Impetiginized lesions were present in the cervical and occipital regions, together with multiple small pustules, several of which were erythematous and nodular, distributed over the upper and lower extremities and trunk (Figures 1A and 1B). A skin biopsy from an upper extremity lesion was performed, with laboratory investigation for sporotrichosis, paracoccidioidomycosis, and histoplasmosis.

At this stage, the patient's clinical presentation and imaging findings suggested cutaneous disease associated with monoarthritis of the left ankle of uncertain etiology. Disseminated sporotrichosis with probable secondary erysipelas was considered the leading diagnosis, with the cutaneous lesions serving as the presumed portal of entry for bacterial superinfection. Histopathological examination of a papular skin lesion (Figure 1) demonstrated acute suppurative inflammation with areas of necrosis containing abundant fungal yeast cells. Immunohistochemical analysis subsequently confirmed *Sporothrix spp*.

Following confirmation of the histopathological diagnosis, intravenous amphotericin B deoxycholate (1 mg/kg/day) was initiated together with oxacillin (12 g/day) to treat the impetiginized lesions and suspected erysipelas. Antiretroviral therapy was resumed, and prophylaxis against opportunistic infections with trimethoprim-sulfamethoxazole (800/160 mg daily) was initiated. Because of the known toxicity profile of amphotericin B, the patient underwent close monitoring for nephrotoxicity, hypokalemia, and hypomagnesemia. Laboratory investigations also demonstrated microcytic hypochromic anemia (hemoglobin 7.9 g/dL) and elevated lactate dehydrogenase (366 U/L). On the third hospital day, worsening renal function prompted temporary discontinuation of amphotericin B until renal recovery.

Figure 1. (A) Erythematous papulopustular lesions on the right upper extremity. The initial skin biopsy was obtained from this site. (B) Lower extremities during hospitalization demonstrating a papuloulcerative lesion on the right lower limb and diffuse edema with marked erythema involving the left ankle.

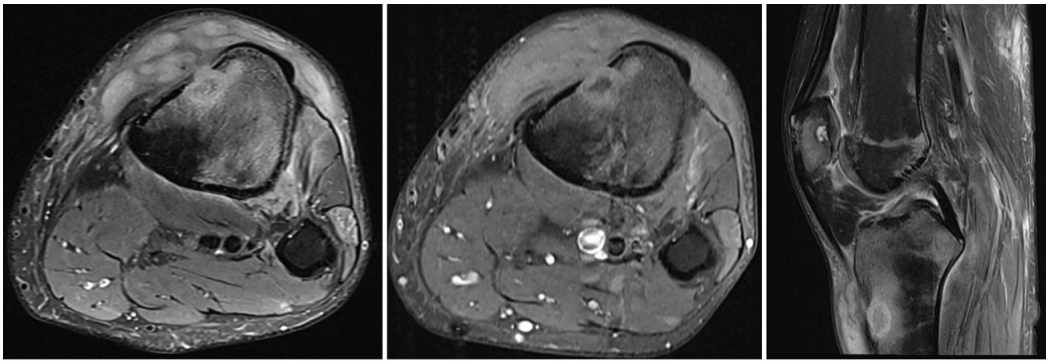


By the eighth day of hospitalization, despite partial improvement in lower-limb edema, computed tomography performed on admission (September 11, 2024) was reviewed and demonstrated circumferential subcutaneous edema together with multiple well-defined osteolytic lesions measuring up to 0.9 cm in the distal tibia, talus, calcaneus, navicular bone, and base of the first metatarsal. The patient continued to experience persistent ankle pain, newly developed bilateral knee pain, and difficulty walking. A left knee ultrasound was requested, and the orthopedic team was consulted.

On the ninth hospital day, the patient developed fever associated with pain, swelling, warmth, and erythema of the left knee and was transferred to the Orthopedic and Trauma Institute of the University of São Paulo for further evaluation. Magnetic resonance imaging (Figure 2 and 3) and arthrocentesis were performed. Synovial fluid analysis

showed a pH of 7.18 and lactate dehydrogenase of 445 U/L, with rare leukocytes. Bacterial cultures, acid-fast bacilli staining, and crystal analysis were all negative. The orthopedic team recommended continuation of the current treatment regimen with outpatient follow-up after hospital discharge. On the same day, after improvement in renal function and availability of the lipid formulation of amphotericin B, antifungal therapy was restarted using liposomal amphotericin B at 5 mg/kg/day.

Figure 2. Magnetic resonance imaging of the left knee demonstrating focal osseous lesions with abnormal marrow signal intensity and post-contrast enhancement. Adjacent soft tissue edema is present, suggesting an inflammatory/infectious process. Findings are consistent with osteoarticular involvement in the setting of disseminated sporotrichosis.



By the twentieth hospital day, serological tests and PCR assays for histoplasmosis and paracoccidioidomycosis were negative. During this period, the patient remained clinically stable but continued to experience intermittent low-grade fever while undergoing physical rehabilitation to improve arthralgia. The treatment plan included completing at least two weeks of intravenous antifungal therapy before considering transition to oral treatment. Repeat CD4+ T-cell count increased to 209 cells/mm^3 (previously 55 cells/mm^3). The worsening arthralgia together with persistent low-grade fever despite significant immune recovery over approximately one month raised the possibility of immune reconstitution inflammatory syndrome (IRIS).

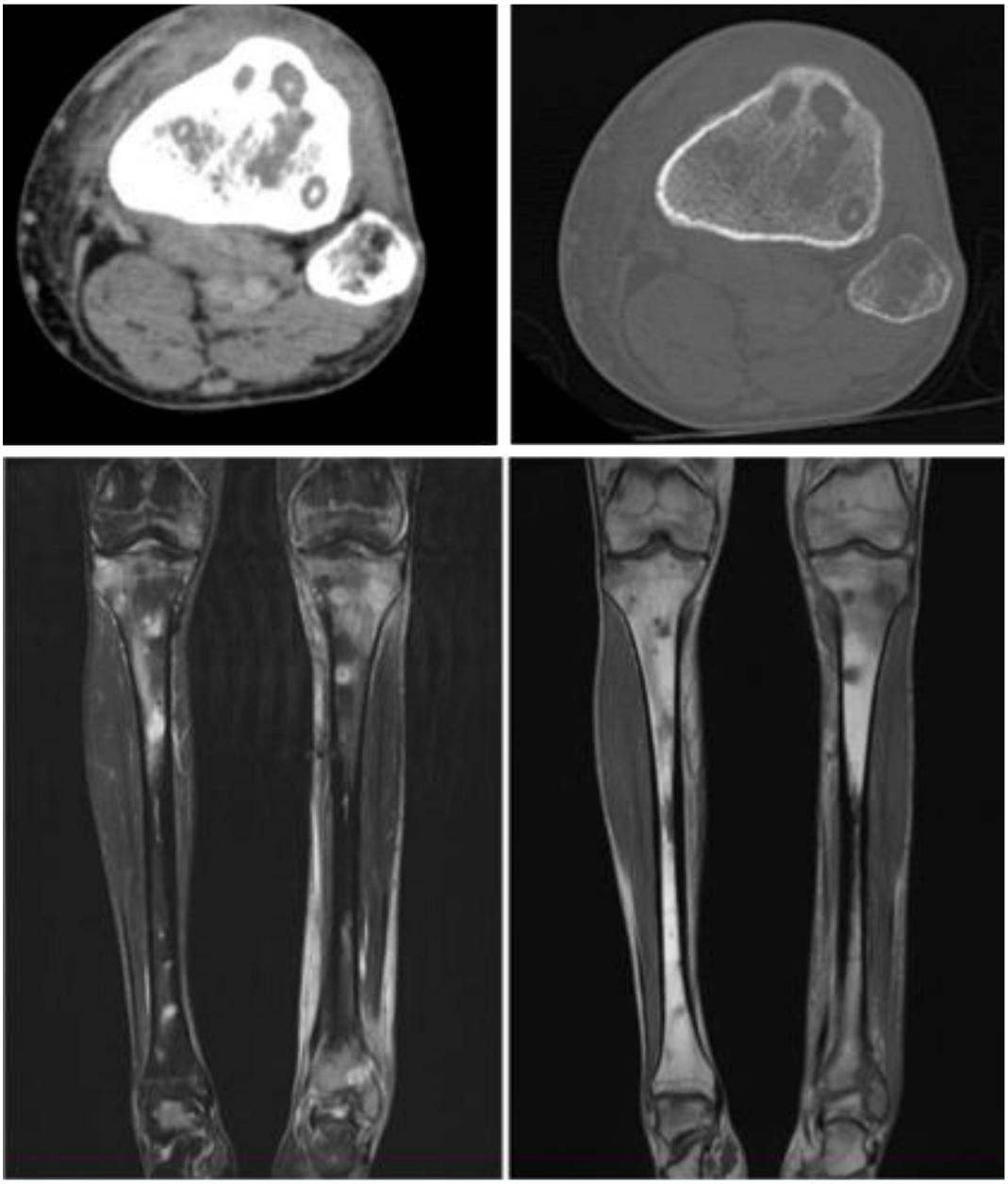
On the twenty-eighth hospital day, a new painful nodular lesion developed on the lateral aspect of the right foot. Ultrasonography was performed to investigate the possibility of a deep abscess requiring surgical drainage. The examination demonstrated a poorly defined heterogeneous fluid collection containing internal echoes and debris, consistent with localized inflammatory edema. Given the possibility of secondary bacterial infection by an organism not previously covered, particularly methicillin-resistant Staphylococcus aureus (MRSA), antimicrobial therapy was expanded to include doxycycline (100 mg every 12 hours) and clindamycin (300 mg every 8 hours) for 10 days.

Considering the severity and extent of disease, the multidisciplinary team elected to continue intravenous amphotericin B for a total of 30 days. On the forty-eighth hospital day, treatment was transitioned to oral itraconazole, allowing hospital discharge with outpatient orthopedic follow-up for further evaluation of the osseous lesions. During hospitalization, the patient's anemia gradually improved without the need for specific intervention. Because osteomyelitis remained strongly suspected, additional outpatient imaging studies were performed, followed by image-guided biopsy of the proximal left tibia at the Hospital das Clínicas, University of São Paulo. Histopathological examination demonstrated chronic nonspecific osteomyelitis, while polymerase chain reaction (PCR) testing of the bone specimen was positive for *Sporothrix spp.*, confirming fungal osteomyelitis.

Following hospital discharge, the patient remained under outpatient infectious diseases follow-up for four months while receiving itraconazole. Progressive improvement in arthralgia, pain, and lower-limb edema was observed, with complete resolution of the

cutaneous lesions. Subsequently, the patient relocated to another municipality and was instructed to continue follow-up with a local infectious diseases service.

Figure 3. Magnetic resonance imaging of both legs demonstrating multiple bilateral osseous lesions with hyperintense T2/STIR and hypointense T1 marrow signal throughout the tibiae. These findings are consistent with multifocal infiltrative/infectious bone marrow involvement and, in the appropriate clinical context, support the diagnosis of disseminated *Sporothrix brasiliensis* osteomyelitis.



3. Discussion

The fact that sporotrichosis remains a neglected tropical disease with limited epidemiological data available in the literature contributes to delays in both diagnosis and the timely initiation of treatment. Sporotrichosis can present in different clinical forms, including cutaneous, extracutaneous, and disseminated disease. Cutaneous sporotrichosis encompasses the fixed cutaneous, lymphocutaneous, and cutaneous disseminated forms, with the lymphocutaneous presentation accounting for the majority of reported cases

[1,2]. In this form, approximately two weeks after inoculation, a papule or pustule develops at the site of infection, gradually progressing to a nodule accompanied by regional lymphatic involvement characterized by nodular lymphangitis [2,3].

Extracutaneous and disseminated sporotrichosis may involve either a single focus or multiple sites, with multifocal involvement being characteristic of disseminated disease. After the skin, the osteoarticular system is the second most frequently affected site, usually as a consequence of contiguous spread from adjacent lesions or hematogenous dissemination following fungal inoculation. The most common manifestations include arthritis, tenosynovitis, and osteomyelitis [3–5]. Although cutaneous involvement represents the most frequent clinical presentation, immunocompromised patients such as the one described in this report present a broad differential diagnosis, particularly individuals living with HIV/AIDS, who are also at increased risk of disseminated disease [4]. In the present case, the patient's history of prolonged contact with cats diagnosed with sporotrichosis provided an important epidemiological clue that guided the diagnostic workup, despite the initially nonspecific papular and pustular skin lesions. Fungal culture remains the diagnostic gold standard and should be performed using tissue fragments, lesion exudates, or aspirates obtained from nodules [6].

The greatest clinical challenge in this case arose when the patient experienced clinical deterioration after reinitiating antiretroviral therapy while already receiving antifungal treatment for sporotrichosis. Distinguishing among antifungal treatment failure, progression of fungal infection secondary to persistent immunosuppression, and true immune reconstitution inflammatory syndrome (IRIS), particularly in the context of a rapid increase in CD4+ T-cell count from 55 to 209 cells/mm^3 within 30 days, is extremely challenging. Sporotrichosis-associated IRIS may present as paradoxical worsening of osteoarticular lesions, increased local inflammatory symptoms, fever, and the appearance of new lesions despite appropriate antifungal therapy, virologic suppression, and immune recovery [4,8].

Management of sporotrichosis-associated IRIS is complex. Although systemic corticosteroids may be considered in selected cases to control excessive inflammation, their use must be carefully weighed against the risk of exacerbating an ongoing severe systemic fungal infection [9]. In the present case, amphotericin B had been temporarily discontinued because of nephrotoxicity, and the possibility of concomitant bacterial infection of the lower limb with inadequate empirical antimicrobial coverage remained under consideration. Therefore, corticosteroids were withheld, and management focused on optimizing antifungal therapy, broadening antibacterial coverage, and providing supportive care. Decisions regarding additional immunosuppressive therapy should always balance the benefits of controlling inflammatory responses against the potential risk of impairing antifungal immune defense.

Another important therapeutic consideration is the potential for drug-drug interactions. Itraconazole is extensively metabolized by the cytochrome P450 enzyme system and exhibits clinically significant interactions with protease inhibitors and non-nucleoside reverse transcriptase inhibitors, potentially requiring dose adjustments or careful selection of the antiretroviral regimen. Current recommendations for disseminated sporotrichosis include induction therapy with amphotericin B for 4–6 weeks, followed by oral itraconazole for at least 9–12 months. Treatment response may be monitored through mycological testing and serial imaging studies [3,4,7]. In immunocompromised patients, particularly those living with HIV/AIDS, clinical response is often slower and relapse rates are higher, which may justify prolonged antifungal therapy and, in selected cases, long-term suppressive maintenance treatment after completion of the initial therapeutic course.

Patients with osteomyelitis associated with extensive bone destruction, sequestrum formation, or severe joint involvement may also require surgical intervention, including debridement or excision of infected tissue, as an adjunct to antifungal therapy. In the present case, the patient demonstrated complete clinical resolution of symptoms after approximately six months of antifungal treatment but was subsequently lost to follow-up

after relocating to another municipality. Based on the extent of disseminated osteoarticular disease, we believe that a minimum treatment duration of 12 months would have been appropriate, with continuous clinical and radiological reassessment throughout follow-up.

4. Conclusion

Sporotrichosis is an emerging infectious disease in Brazil, with increasing incidence driven largely by zoonotic transmission. Its heterogeneous clinical presentation may delay diagnosis, emphasizing the importance of including sporotrichosis in the differential diagnosis of chronic cutaneous lesions, particularly in immunocompromised individuals, who are at substantially increased risk of disseminated disease and osteomyelitis. Prompt diagnosis and appropriate antifungal therapy, especially with itraconazole following amphotericin B induction in severe cases, can lead to favorable clinical outcomes, as demonstrated in this report. Furthermore, strengthening public health education, epidemiological surveillance, and strategies for controlling feline transmission are essential to reducing the spread of this increasingly important neglected tropical disease.

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Conflicts of Interest: All other authors declare no conflicts of interest.

References

1. Barros MB, Almeida Paes R, Schubach AO. Sporothrix schenckii and sporotrichosis. Clin Microbiol Rev. 2011;24(4):633-54. doi:10.1128/CMR.00007-11.
2. Cheng S, et al. Current situation of sporotrichosis in China. Future Microbiol. 2024;19(12):1097-106.
3. Macedo PM, et al. Development and validation of a new quantitative reverse transcription PCR assay for the diagnosis of human sporotrichosis. Med Mycol. 2023;61(7):myad063. doi:10.1093/mmy/myad063.
4. Ramírez-Soto MC. Extracutaneous sporotrichosis. Clin Microbiol Rev. 2025 Mar 13;38(1):e0014024. doi: 10.1128/cmr.00140-24. Epub 2025 Jan 14. PMID: 39807894; PMCID: PMC11905371.
5. Ramos V, et al. Bone sporotrichosis: 41 cases from a reference hospital in Rio de Janeiro, Brazil. PLoS Negl Trop Dis. 2021;15(3):e0009250. doi:10.1371/journal.pntd.0009250.
6. Sendrasoa FA, et al. Epidemiological and clinical aspects of sporotrichosis in patients seen at a reference hospital in Madagascar. PLoS Negl Trop Dis. 2023;17(7):e0011478. doi:10.1371/journal.pntd.0011478.
7. Sharma R, et al. The clinico-epidemiological characteristics and therapeutic experience of 152 patients with cutaneous sporotrichosis: a 10-year retrospective study from India. Int J Dermatol. 2021;60(1):99-106. doi:10.1111/ijd.15299.
8. Richards GA, Zamparini J, Kalla I, Laher A, Murray LW, Shaddock EJ, Stacey S, Venter WF, Feldman C. Critical illness due to infection in people living with HIV. Lancet HIV. 2024 Jun;11(6):e406-e418. doi: 10.1016/S2352-3018(24)00096-1. PMID: 38816142.
9. Gutierrez-Galhardo MC, do Valle AC, Fraga BL, Schubach AO, Hoagland BR, Monteiro PC, Barros MB. Disseminated sporotrichosis as a manifestation of immune reconstitution inflammatory syndrome. Mycoses. 2010 Jan;53(1):78-80. doi: 10.1111/j.1439-0507.2008.01655.x. Epub 2009 Nov 13. PMID: 19019165.