

Periungual sporotrichosis with complete nail regeneration

Esporotricose periungueal com regeneração ungueal completa

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Abstract

Sporotrichosis is a subcutaneous mycosis whose periungual involvement is uncommon and may mimic paronychia of different etiologies, particularly bacterial paronychia, potentially delaying the diagnosis. We report a 59-year-old male farmer from the Brazilian Amazon with painful periungual inflammation of the left fourth finger, initially treated with clindamycin without improvement, followed by ascending nodular and ulcerated lesions. Mycological culture confirmed *Sporothrix* spp. Due to extensive disease and associated arthralgia, osteoarticular involvement was investigated, but imaging showed no bone or deep tissue abnormalities. Itraconazole was initiated at 200 mg/day and increased to 400 mg/day after 30 days. After 9 months of treatment, complete resolution was achieved. Despite extensive initial nail plate loss, a morphologically normal nail completely regrew without residual dystrophy, with no recurrence during 12 months of follow-up. This case highlights sporotrichosis as a differential diagnosis of antibiotic-refractory paronychia and demonstrates the potential for complete nail recovery after severe periungual involvement.

Keywords: Sporotrichosis. Paronychia. Nail diseases. Itraconazole. Antifungal agents.

Resumo

A esporotricose é uma micose subcutânea cujo acometimento periungueal é incomum e pode mimetizar paroníquia de diferentes etiologias, particularmente a paroníquia bacteriana, podendo retardar o diagnóstico. Relatamos o caso de um agricultor de 59 anos, da Amazônia brasileira, com inflamação periungueal dolorosa no quarto dedo da mão esquerda, inicialmente tratada com clindamicina sem melhora, seguida pelo surgimento de lesões nodulares e ulceradas ascendentes. A cultura micológica confirmou *Sporothrix* spp. Devido à extensão das lesões e à artralgia, que levantaram suspeita de acometimento osteoarticular, foram realizados exames de imagem, sem alterações ósseas ou profundas. O itraconazol foi iniciado na dose de 200 mg/dia e aumentado para 400 mg/dia após 30 dias. Após nove meses, houve resolução completa. Apesar da extensa perda inicial da lâmina ungueal, ocorreu regeneração completa de uma unha morfológicamente normal, sem distrofia residual e sem recidiva durante 12 meses de seguimento.

Palavras-chave: Esporotricose. Paroníquia. Doenças da unha. Itraconazol. Antifúngicos.

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Received: 09-08-2026

Accepted: 27-08-2026

DOI: 10.24875/PJDV.26000103

Available online: 19-10-2026

Port J Dermatol and Venereol. (ahead of print)

www.portuguesejournalofdermatology.com

Introduction

Sporotrichosis is a subcutaneous mycosis caused by dimorphic fungi of the genus *Sporothrix*. Although classically associated with traumatic inoculation from contaminated plant material or soil, zoonotic transmission has substantially changed the epidemiological profile of the disease in Brazil. More recently, the emergence of zoonotic sporotrichosis in the Brazilian Amazon has raised concern regarding its geographic expansion.¹

The lymphocutaneous form is the most frequent clinical presentation and typically consists of an initial inoculation lesion followed by nodules progressing along regional lymphatic vessels.² In contrast, prominent periungual and nail involvement is uncommon and may mimic paronychia of different etiologies, particularly bacterial paronychia, potentially delaying appropriate diagnosis.^{3,4}

We report an unusual case of lymphocutaneous sporotrichosis presenting initially as antibiotic-refractory paronychia with extensive nail plate loss. In addition to the diagnostic challenge, the case illustrates complete restoration of normal nail morphology following prolonged antifungal treatment despite striking initial involvement of the nail apparatus.

Clinical case

A 59-year-old male farmer from the Brazilian Amazon presented with a 3-month history of progressive lesions involving the left upper limb. The disease initially manifested as painful inflammation of the periungual region of the fourth finger of the left hand and was diagnosed as bacterial paronychia. He received clindamycin 600 mg every 8 h for 7 days, without clinical improvement.

The inflammatory process progressively worsened, with marked periungual inflammation and extensive loss of the nail plate. Multiple nodular and ulcerated lesions subsequently developed proximally along the hand and forearm, following the lymphatic drainage of the affected upper limb (Fig. 1).

Due to the extensive clinical involvement and associated arthralgia, possible osteoarticular extension was considered. Plain radiography showed no bone abnormalities, while ultrasonography demonstrated inflammatory changes restricted to the soft tissues, without evidence of muscular or osseous involvement. Laboratory investigations showed no significant abnormalities.

Mycological culture yielded *Sporothrix* spp. Microscopic examination of the cultured isolate demonstrated



Figure 1. Clinical presentation of periungual and lymphocutaneous sporotrichosis. Severe periungual inflammation of the left fourth finger with extensive nail plate loss and multiple nodular and ulcerated lesions following an ascending lymphatic distribution in the left upper limb.

delicate hyphae with conidia arranged in a characteristic rosette-like pattern (Fig. 2), establishing the diagnosis of lymphocutaneous sporotrichosis with prominent periungual involvement.

Oral itraconazole was initiated at 200 mg/day. After 30 days of treatment, due to the extensive lymphocutaneous involvement and the need for greater therapeutic response, the dose was increased to 400 mg/day. The patient subsequently showed progressive improvement of the periungual inflammatory process and lymphocutaneous lesions, with no significant abnormalities detected during laboratory monitoring.

Antifungal treatment was maintained for 9 months, resulting in complete clinical resolution. Remarkably, despite the severe initial periungual inflammation and extensive nail plate loss, progressive nail regrowth occurred during treatment. At completion of therapy, the nail plate had completely regenerated, with restoration of normal morphology and no clinically evident residual dystrophy (Fig. 3). The patient remained clinically well without recurrence during 12 months of follow-up after treatment discontinuation.

Discussion

Periungual involvement in sporotrichosis is uncommon and may represent a diagnostic challenge, mimicking paronychia of different etiologies, particularly bacterial paronychia.³ In the present case, painful periungual inflammation was initially interpreted as bacterial paronychia and treated with clindamycin without improvement. The subsequent development of ascending nodular and ulcerative lesions provided an important diagnostic clue. Therefore,

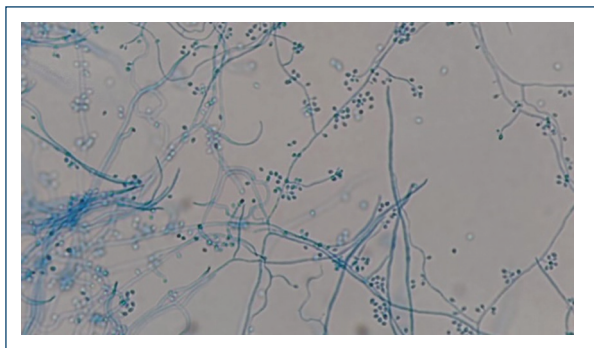


Figure 2. Microscopic morphology of *Sporothrix* spp. isolated in fungal culture. Delicate hyphae with conidia arranged in a characteristic rosette-like pattern. Lactophenol cotton blue preparation, $\times 400$.



Figure 3. Clinical outcome after antifungal treatment. Complete nail plate regrowth with restoration of normal nail morphology and no clinically evident residual dystrophy after 9 months of itraconazole therapy.

sporotrichosis should be considered in the differential diagnosis of chronic or antibiotic-refractory paronychia, particularly in endemic areas. Previous reports of periungual sporotrichosis have similarly emphasized the potential for diagnostic delay when nail-unit involvement predominates.^{3,4}

The extensive nail involvement was a particularly striking feature. Nail abnormalities associated with sporotrichosis are rarely reported and may result from direct involvement of the nail unit or intense surrounding inflammation.^{3,4} Despite severe periungual inflammation and extensive nail plate loss, complete regrowth of a morphologically normal nail occurred after control of the infection. This outcome suggests that the dramatic appearance of nail plate destruction does not necessarily indicate irreversible matrix damage. The complete absence of residual dystrophy in this patient suggests preservation of the functional integrity of the

nail matrix despite the severity of the initial inflammatory process.

Mycological culture remains the reference method for confirming sporotrichosis.² In this patient, isolation of *Sporothrix* spp. in association with the characteristic clinical presentation established the diagnosis. The presence of arthralgia and extensive lesions raised concern for possible osteoarticular involvement. However, plain radiography showed no bone abnormalities, and ultrasonography demonstrated inflammatory changes restricted to the soft tissues. This distinction was therapeutically relevant because osteoarticular disease generally requires a more prolonged and intensive treatment approach.²

Itraconazole is the first-line systemic treatment for cutaneous and lymphocutaneous sporotrichosis due to its efficacy, oral administration, and favorable safety profile.^{2,5} Brazilian recommendations indicate itraconazole at 100-200 mg/day for uncomplicated cutaneous disease in immunocompetent patients, whereas doses of 200-400 mg/day may be used according to disease extent, severity, host characteristics, and clinical response.² International guidelines similarly recommend itraconazole for cutaneous and lymphocutaneous disease, with dose escalation to 200 mg twice daily as an option when a greater therapeutic response is required.⁵ In the present case, itraconazole was initially administered at 200 mg/day and increased to 400 mg/day after 30 days due to the extensive lymphocutaneous involvement and the need for greater therapeutic response. The patient subsequently showed progressive improvement, with no significant abnormalities during laboratory monitoring.

Alternative treatments for cutaneous sporotrichosis include terbinafine and potassium iodide.^{2,5} Terbinafine represents an oral alternative when itraconazole is contraindicated, poorly tolerated, or otherwise unsuitable. Potassium iodide remains an effective and inexpensive option, although its use may be limited by tolerability and the inconvenience of the dosing regimen.^{2,5} Amphotericin B is generally reserved for severe, disseminated, or selected extracutaneous forms of sporotrichosis, with subsequent transition to itraconazole after clinical improvement when appropriate.^{5,6} In this patient, the absence of imaging evidence of osteoarticular involvement, together with the subsequent favorable clinical response, supported continuation of oral itraconazole therapy without escalation to intravenous antifungal treatment.

Itraconazole was maintained for a total of 9 months, resulting in complete resolution of the

lymphocutaneous lesions and full restoration of normal nail morphology. No recurrence was observed during 12 months of follow-up after treatment discontinuation. This favorable outcome emphasizes both the importance of adequate antifungal treatment and the remarkable regenerative potential of the nail unit despite initially severe periungual disease.

Conclusion

Periungual sporotrichosis should be considered in the differential diagnosis of chronic or antibiotic-refractory paronychia, particularly in endemic areas. Importantly, extensive nail plate loss associated with severe periungual inflammation does not necessarily indicate irreversible nail matrix damage. As illustrated by this case, successful antifungal therapy may result in complete nail regrowth without residual dystrophy despite striking initial involvement of the nail apparatus.

Funding

The authors received no financial support for the authorship and/or publication of this article.

Conflicts of interest

None.

Ethical considerations

Protection of human subjects and animals. The authors declare that no experiments on humans or animals were performed for this research.

Confidentiality, informed consent, and ethical approval. The authors have followed their institution's confidentiality protocols, obtained informed consent from all patients, and secured approval from the Ethics Committee. SAGER guidelines have been followed as applicable to the nature of the study.

Declaration on the use of artificial intelligence. The authors declare that ChatGPT (OpenAI) was used for language editing and assistance with manuscript drafting.

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