



Diagnosis at first sight

Hand and arm injuries of torpid evolution after a puncture wound in a male fond of hiking[☆]



Lesiones en mano y brazo de curso tórpido tras herida punzante en un varón aficionado al senderismo

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Case report

A 52-year-old man was seen due to an eight-week history of nodular skin lesions, which appeared after being pricked with a 'spike' at the base of the fourth finger of his right hand while hiking through scrubland. Days later, his finger swelled and painful beaded lesions appeared on the back of his hand, extending proximally to the ipsilateral forearm and arm. Throughout this time, the patient sought medical attention on multiple occasions, both with his GP and at A&E, and was diagnosed with both soft tissue infection and phlebitis. He received local treatments, ciprofloxacin 500 mg/12 h/per os (7 days) and amoxicillin-clavulanic acid 500 mg/125 mg/12 h/per os (7 days), with no improvement. He did not exhibit fever or any other symptoms. From an epidemiological standpoint, he denied handling meat or fish, maintaining aquariums or contact with animals. The physical examination was normal except for the lesions shown in Figs. 1 and 2.

The complete blood count and clinical chemistry, including transaminases and coagulation, revealed no abnormal findings. Syphilis, HBV, HCV and HIV serology tests were negative. The plain X-ray of the patient's chest and right hand revealed no abnormalities. With a diagnosis of nodular lymphangitis secondary to sporotrichosis, two punch skin biopsies were performed, which were processed for microbiological and histological study.



Fig. 1. Lesions on the fourth finger of the right hand eight weeks after puncture.

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Clinical course

Empirical treatment with itraconazole 200 mg/day/per os was started. The fungal culture isolated *Sporothrix schenckii* (Fig. 3).



Fig. 2. Nodular lymphangitis caused by *Sporothrix schenckii*.



Fig. 3. Pigmented colonies of *Sporothrix schenckii* in their filamentous form after 15 days of growth at room temperature (Sabouraud-chloramphenicol agar).

Auramine staining and mycobacterial culture were negative. The histological study identified a dense mixed inflammatory infiltrate in the superficial and reticular dermis with necrosis. PAS staining was negative and no microorganisms were found in the infiltrate. Three months after starting treatment, the patient's lesions had completely resolved. He completed the six-month regimen with no evidence of clinical or blood toxicity.

Final considerations

Sporotrichosis is a subacute or chronic granulomatous fungal infection caused by fungi of the species *Sporothrix schenckii*. These

fungi are thermally dimorphic, expressing their filamentous form in nature at temperatures below 37 °C and their yeast-like form in the tissue and at temperatures of 37 °C¹. They are found all over the world in soil, plants, decomposing vegetables and several species of animal, particularly cats^{1,2}. The infection is predominantly acquired by cutaneous inoculation with the contaminated medium, or following bites or scratches by infected cats, while infection by inhalation is rare^{1,2}. The clinical perspective takes into consideration the cutaneous, lymphocutaneous, osteoarticular, pulmonary and disseminated forms, with lymphocutaneous sporotrichosis (lymphangitic form) being the classic and most common infection^{1–3}. Differential diagnosis with other nodular lymphangitis-causing infections is therefore warranted: *Nocardia brasiliensis* infection, *Mycobacterium marinum* infection, *Leishmania brasiliensis* infection and tularaemia^{4–7}. The epidemiological context, incubation period and certain clinical characteristics are key to a successful differential diagnosis^{4–7}. A traumatic wound while gardening, caused by splinters or contaminated with earth or soil, should lead clinicians to suspect sporotrichosis or nocardiosis, while an injury in contact with water should point to *M. marinum* infection⁷. For hunters who develop a painful ulcer with regional lymphadenopathy and systemic symptoms days after contact with infected animals, tularaemia should be considered^{5,6}. Purulent exudate is typical of nocardiosis^{5,7}. A definitive diagnosis is made by isolating and identifying the causative microorganism in aspirate culture or tissue biopsy^{2,8}. If *Sporothrix schenckii* is suspected, its isolation in Sabouraud agar incubated at 25 °C is recommended. Growth of the filamentous form should be observed in 5–7 days. Thermal dimorphism, with the conversion of the fungus into its yeast form, is required for definitive identification. This is achieved in enrichment cultures such as brain heart infusion (BHI) agar or blood agar incubated at 37 °C^{2,8}. The treatment of choice for cutaneous forms and nodular lymphangitis caused by sporotrichosis consists of itraconazole 200 mg/day/per os, to be maintained for 2–4 weeks after lesion resolution, typically for a total of 3–6 months⁹. In conclusion, several infectious agents must be considered in the aetiology of nodular lymphangitis in order to clinically diagnose the infection. Early and precise culture-based microbiological diagnosis could prevent the incorrect use of antimicrobials and disease progression.

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