



Ricardo Ruiz-Villaverde
Manuel Galan-Gutierrez

Skin nodules with a linear distribution

A case study

Keywords: skin diseases

Case study

A man, 35 years of age, with an unremarkable past medical history, attended after developing purplish nodules on the left arm. The nodules were in a linear distribution and had developed during recent months after a minor initial injury. The nodules were moderately painful, but it was mainly the appearance of new nodules that motivated him to consult his general practitioner.

On dermatological examination, six purple nodules were observed following a linear distribution along the back of the left hand and arm (*Figure 1*). They were of variable size. Some of the lesions had a discrete superficial ulceration and a serous crust.

The patient had no fever. Small lymph nodes were detected in the left axilla. Systemic examination showed no abnormalities. Laboratory data, including full blood count, general biochemistry and urine analysis were normal. Culture was unremarkable. Histopathologic examination revealed a mixed granulomatous and pyogenic inflammatory process. Cigar shaped organisms were identified by periodic acid-Schiff (PAS) staining.

Question 1

What is the most likely diagnosis?

Question 2

Which is the aetiology of this condition?

Question 3

What factors contribute to the development of this condition?

Question 4

What differential diagnoses should be considered?

Question 5

What is the treatment?

Answer 1

Lymphocutaneous sporotrichosis.

Answer 2

Sporotrichosis is a subacute or chronic infection that affects humans and animals. It is caused by the dimorphic fungus *Sporothrix schenckii*, and is characterised by its universal distribution across all continents. Cases have been reported in the United States of America, Japan, Mexico, Colombia, Peru, Brazil, South Africa, Spain, India and Australia.¹ The usual mode of infection is by cutaneous inoculation of the organism. Pulmonary and disseminated forms of infection, although uncommon, occur when *S. schenckii* conidia are inhaled.

Lymphocutaneous sporotrichosis is the most common clinical form. The incubation period from the time of inoculation can vary from 5 days to several months. The initial lesion is an inflammatory papule or skin nodule. Over a period of weeks, new lesions may appear, clinically similar to the original lesion, and following the linear pattern of the distribution of the lymph vessels in that area.² The more distal lymph nodes develop draining abscesses while attached proximal lymph nodes have a more elastic consistency and are less prone to necrosis. The patient generally remains systemically well. If lymphocutaneous sporotrichosis remains untreated it can persist for years.



Figure 1. Purplish nodules with a linear distribution on the left hand and arm

Answer 3

The fungus usually gains access through a traumatic injury to the skin. At this point it transforms into yeast, which is the potentially pathogenic form. Occupations most at risk of this infection are farmers, foresters, fishermen, hunters and miners. It has also been reported with recreational exposure and in laboratory staff.³ The clinical features are not pathognomonic but highly suggestive. Given that skin trauma is the usual starting point for the clinical entity, the hands and arms are the most commonly affected locations.

Answer 4

The major differential diagnosis to be excluded is an atypical mycobacterial infection (in particular *Mycobacterium marinum*). Other infections that may present with a 'sporotrichoid' pattern include nocardiosis, infections by pyogenic bacteria such as *Staphylococcus aureus* or *S. pyogenes*, leishmaniasis, anthrax, cowpox and tuberculosis.

Answer 5

For cutaneous and lymphocutaneous sporotrichosis, itraconazole 200 mg orally daily is recommended until 2–4 weeks after all lesions have resolved, usually for a total of 3–6 months.^{4–6} Patients who do not respond should be given a higher dosage of itraconazole (200 mg twice daily) or terbinafine 500 mg orally twice daily, or saturated solution of potassium iodide (SSKI), initiated at a dosage of five drops (using a standard eye dropper) three times daily and increasing, as tolerated, to 40–50 drops three times daily.^{4,5} Fluconazole at 400–800 mg/day should be used only if the patient cannot tolerate other agents.⁵

In systemic infections, amphotericin B is often administered intravenously. In the literature, the most commonly used formula is amphotericin B deoxycholate, but many clinicians prefer to use lipid formulations of amphotericin B, as they have fewer adverse effects.⁵ The application of topical antiseptics is indicated, but is a complementary measure to the systemic treatment and should never be used as monotherapy.⁵

Authors

Ricardo Ruiz-Villaverde PhD, MD, is a dermatologist, Department of Dermatology, Complejo Hospitalario de Jaen, Spain. ismenios@hotmail.com

Manuel Galan-Gutierrez PhD, MD, is a dermatologist, Department of Dermatology, Complejo Hospitalario de Jaen, Spain.

Conflict of interest: none declared.

References

1. Da Rosa AC, Scroferneker ML, Vettorato R, Gervini RL, Vettorato G, Weber A. Epidemiology of sporotrichosis: a study of 304 cases in Brazil. *J Am Acad Dermatol* 2005;52:451–9.
2. Lupi O, Tying SK, McGinnis MR. Tropical dermatology: fungal tropical diseases. *J Am Acad Dermatol* 2005;53:931–51.
3. Pang KR, Wu JJ, Huang DB, Tying SK. Subcutaneous fungal infections. *Dermatol Ther* 2004;17:523–31.
4. Morris R. Sporotrichosis. *Clin Exp Dermatol* 2002;27:427–31.
5. Kauffman CA, Bustamante B, Chapman SW, Pappas PG. Infectious Diseases Society of America. Clinical practice guidelines for the management of sporotrichosis: 2007 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2007;45:1255–65.
6. De Lima Barros MB, Schubach AO, de Vasconcellos Carvalhaes de Oliveira R, Martins EB, Teixeira JL, Wanke B. Treatment of cutaneous sporotrichosis with itraconazole - study of 645 patients. *Clin Infect Dis* 2011;52:e200–6.