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A Woman with a Chain of Nodules Lesion

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A 50-year-old woman with underlying type 2 diabetes mellitus presented with a three-month history of multiple non-tender nodules over the ventral aspect of her forearm [Figure 1]. The nodules appeared after she was scratched by a domestic cat, which was later euthanized for an undiagnosed cutaneous disease. She was otherwise well with no other constitutional symptoms. Examination revealed multiple well-demarcated non-fluctuant nodular lesions in her left wrist extending to the forearm with varying sizes. Some of the lesions appeared to be erythematous while others were hyperpigmented. Other physical examinations were unremarkable.

Questions

1. What is the most likely diagnosis?
   a. Cutaneous tuberculosis.
   b. Erythema nodosum.
   c. Leishmaniasis.
   d. Leprosy.
   e. Sporotricosis.

2. What are the differential diagnoses?
   a. Bacterial pyoderma.
   b. Inflammatory dermatophyte infections.
   c. Primary cutaneous nocardiosis.
   d. Leishmaniasis.
   e. Blastomycosis.
   f. Chromoblastomycosis.
   g. Cutaneous tuberculosis.
   h. All of the above.

3. What investigation is indicated?
   a. Mantoux test.
   b. Skin slit smear.
   c. Fine needle aspiration cytology.
   d. Punch biopsy.

4. What is the management?
   a. Start antituberculosis treatment.
   b. Start clofazamine treatment.
   c. Start itraconazole treatment.
   d. Start topical paromomycin treatment.

Figure 1: Erythematous, non-tender nodules, and papules, some with central crusting distributed over the ventral aspect of the left wrist and forearm.

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Answers

1. e. Sporotrichosis (lymphocutaneous).
2. h. All of the above.
3. d. Punch biopsy for direct examination and culture.
4. c. Itraconazole, terbinafine, or potassium iodide.

DISCUSSION

Sporotrichosis is a subacute to chronic fungal infection caused by the dimorphic fungi *Sporothrix schenckii*.[1–3] It is mainly associated with occupational disease and usually caused by minor cuts during handling soil or plant material. However, on rare occasions it also can be a zoonotic infection transmitted by an infected feline.[2] Sporotrichosis is widely distributed worldwide and commonly occurs in adults < 30 years old; however, pediatric sporotrichosis has been documented.[2,3]

Sporotrichosis infections mainly involve cutaneous or subcutaneous infection and lymphatics. Lymphocutaneous infection is the most common presentation followed by a fixed type. Disseminated and extracutaneous manifestation involving pulmonary and osteoarticular infection usually occur in immunocompromised patients such as those with human immunodeficiency virus infection and acquired immune deficiency syndrome (HIV/AIDS).[3]

Lymphocutaneous sporotrichosis causes skin lesions with characteristic proximal nodular lymphangitic spread.[4–6] The characteristic skin lesion pattern in patients with a history of trauma (during typical occupational exposure) are highly suggestive of sporotrichosis.[5,6] The primary skin lesion, which develops one to 12 weeks after fungal inoculation usually ulcerates and is followed by proximal nodular lesions across the lymphatic channels. This is typically described as the 'sporotrichoid' characteristic spread. Patients are typically asymptomatic, and routine laboratory testing is normal.

Sporotrichosis can be mistaken for many skin infections such as bacterial pyoderma, inflammatory dermatophyte infection, nocardiosis, leishmaniasis, blastomycosis, chromoblastomycosis, and cutaneous tuberculosis.[3,7] As cutaneous nocardiosis, cutaneous nontuberculous mycobacterial infections, and cutaneous leishmaniasis may present with similar skin manifestation, the diagnosis of sporotrichosis needs to be established by culture and/or histopathological demonstration of the fungus from aspiration or biopsy of skin lesions.

The gold standard for a definitive diagnosis of sporotrichosis is fungal culture. Material aspirated or swabbed from a skin lesion or sample from a tissue biopsy should be inoculated onto Sabouraud's dextrose agar and incubated at room temperature for four weeks.[8] Histopathological examination reveals a mixed pyogenic and granulomatous inflammation with occasional asteroid bodies, which consist of a central basophilic yeasts surrounded by eosinophilic material (Splendore-Hoeppli phenomenon). However, histopathological examination has a lower sensitivity compared to fungal culture.[5,6] Occasionally, a yeast form of *Sporothrix schenkii* can be seen in biopsy samples. Both microbiological and histopathological examinations of skin lesions are also important to rule out other infections that manifest with 'sporotrichoid' skin lesion patterns.[9] Serological antibody measurement is also available, but is costly.[4]

Treatment with antifungal drugs is the mainstay for sporotrichosis.[4–7]Azole groups are the drugs of choice for this infection. The recommended treatment is itraconazole 200 mg per day for three to six months.[3,7] Terbinafine has also been recommended as treatment for sporotrichosis but is more expensive.[7] Alternatively, saturated solution of potassium iodide (SSKI), which has been used historically for the treatment of sporotrichosis is still being used as a mainstay treatment in low-income countries with inaccessibility to other drugs. Even though SSKI is cheap, it is inconvenient to administer and may cause problems with tolerability due to its frequent adverse effects. Fluconazole and ketoconazole should only be used if the above agents could not be tolerated due to its relatively lower response rate.[10] Prognosis is excellent with clinical improvement typically observed within four weeks of therapy initiation.

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