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A 72-Year-Old Male Farmer from Laos With Extensive Skin Lesions on the Lower Leg

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Clinical Presentation

History

A 72-year-old male farmer is admitted to a provincial hospital in northern Laos with extensive, painful verrucous skin lesions on his left foot and lower leg.

Ten years prior, he had a leech bite on the dorsum of his left foot. One week later a small painless red nodule developed at the site of the bite. Over the following years the lesion slowly increased in size; further lesions developed and spread up to his knee. Three days before admission his ankle became painful and swollen.

Clinical Findings

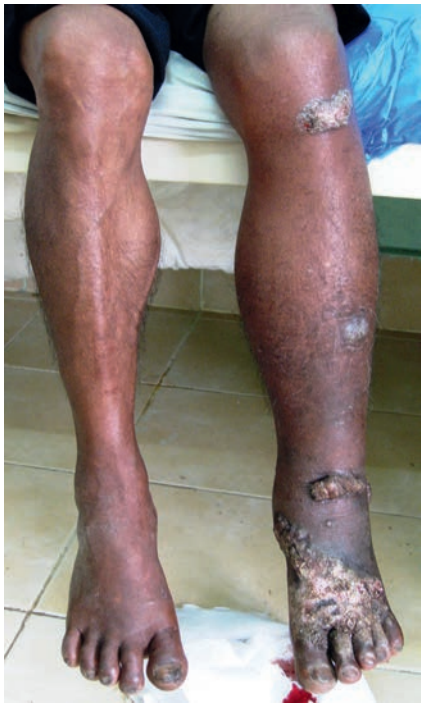
Vital signs are normal and the patient is afebrile. His left lower leg and foot are grossly swollen (Fig. 25.1); the skin is hyperaemic and feels hot. There are several cauliflower-like masses and oval plaque-like lesions on his left lower leg and foot. The lesions are partly erythematous, partly fungating and purulent, oozing a bad odour.

Investigations

Radiography of the left leg and foot showed no bone involvement.

Questions

1. What are the important differential diagnoses?
2. Which diagnostic tests should be done?



• **Fig. 25.1** Lower legs of the patient at presentation with fungating lesions on his left foot that spread centripetally up to his knee. The left lower leg is also swollen and hyperaemic.

Discussion

A male Lao farmer presents with several verrucous, partially fungating skin lesions on his left leg and foot, which have been growing over the past 10 years after a minor trauma. The affected leg has additionally swollen up and become painful over the previous 3 days.

Answer to Question 1

What Are the Important Differential Diagnoses?

Chronic verrucous skin lesions can typically be seen in fungal infections such as sporotrichosis (*Sporothrix schenckii*) and chromoblastomycosis, which is caused by various pigmented fungi. Mycetoma ("Madura Foot") is a chronic subcutaneous infection caused either by fungi ("eumycetoma") or actinomycetes ("actinomycetoma"). Fistulating lesions discharging granules are the hallmark feature of madura foot but verrucous manifestations may occur. The colour of the granules may indicate the causing pathogen. Despite being common in other parts of Asia, Mycetoma has rarely been described from Laos.

Mycobacterial infections (cutaneous tuberculosis, lepromatous leprosy and infections with atypical mycobacteria) also need to be considered. Cutaneous leishmaniasis can present with verrucous lesions, however it has not been reported in Laos. In HIV-positive patients, Kaposi's Sarcoma may look very similar.

Non-infectious causes such as squamous cell carcinoma, sarcoidosis, chronic eczema and psoriasis should be borne in mind.

Acute localized inflammatory signs are indicative of bacterial superinfection or deep vein thrombosis.

Answer to Question 2

Which Diagnostic Tests Should be Done?

Direct microscopy of skin scrapings taken from the lesions can help detect pigmented fungi in chromoblastomycosis and may be useful to visualize amastigotes in cutaneous leishmaniasis.

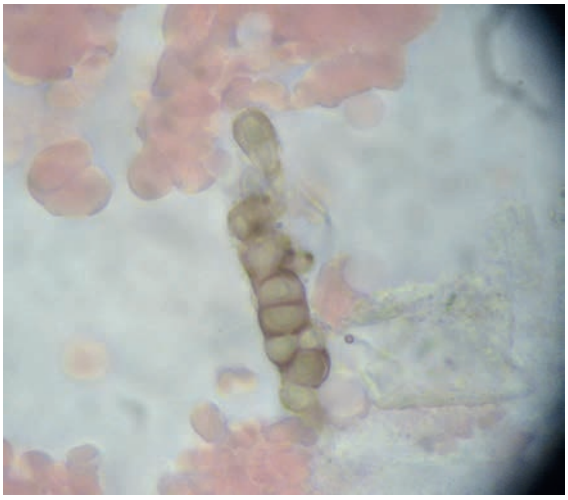
Sporotrichosis differs from the other subcutaneous mycoses in that culture is the most reliable mode of diagnosis because there are few organisms present in lesions and these may be difficult to find.

In leprosy, slit skin smears are fairly easy to obtain; however, for other mycobacterial infections biopsy and/or culture may be necessary.

The Case Continued…

Secondary bacterial superinfection was suspected and so iodine-based antiseptics were applied locally and oral antibiotics were started, initially cloxacillin and metronidazole. After bacterial culture of the pus grew *Escherichia coli,* antibiotics were changed to co-trimoxazole, guided by susceptibility testing.

Simple direct microscopic investigations of wet film lesion scrapings revealed characteristic brownish, round, thick-walled, multiseptate sclerotic cells typical of chromoblastomycosis (Fig. 25.2). Use of 10% potassium hydroxide solution made the fungal cells more readily visible. Antifungal treatment was initiated with itraconazole (400 mg/d for 7 days monthly pulse therapy) and surgical debridement of all lesions performed. PCR from skin tissue was positive and sequencing revealed 100% similarity with *Fonsecaea pedrosoi, F. monophora* and *F. nubica.* When oral terbinafine could be obtained this was added (initially 500 mg/d, later 750 mg/d) for 9 months and local terbinafine ointment was applied for 6 months. Liver function tests and serum glucose were monitored during treatment and remained normal. The lesions healed uneventfully with some residual swelling and hypopigmentation.



• **Fig. 25.2** Characteristic brownish sclerotic cells in skin scrapings (100×, oil immersion, wet film).

SUMMARY BOX

Chromoblastomycosis

Chromoblastomycosis is a chronic fungal infection of the skin and subcutaneous tissue, most commonly of hands, feet and lower legs. It is typically caused by traumatic percutaneous inoculation of the genera *Fonsecaea, Phialophora* and *Cladophialophora* which are found in plant debris or forest detritus. Infection occurs worldwide but is most common in rural tropical and subtropical areas. Male agricultural workers are most commonly affected.

Painless lesions develop slowly over years from the site of inoculation as verrucous nodules or plaques, gradually spreading centripetally by lymphatic or cutaneous dissemination. Typical complications are ulcerations, bacterial superinfection and chronic lymphoedema, which may be confused with elephantiasis in regions co-endemic with lymphatic filariasis.

Diagnosis is made by direct microscopic detection of pathognomonic sclerotic cells in skin scrapings ('Medlar bodies', fumagoid or muriform cells). These are brownish, round, thick-walled structures of 4 to 12 μm length, which are already visible on a simple wet film. Hyphae can be more readily seen on a potassium hydroxide preparation. More sophisticated techniques such as culture as well as serology and PCR are rarely available in endemic areas and are often reserved for research purposes; but species identification can also guide treatment schemes.

Treatment is challenging and effectiveness depends on the causative agent, the clinical form and the severity of the lesions. Antifungal therapy commonly comprises oral itraconazole

(200–400 mg/d) alone or in combination with terbinafine or flucytosine (which may be hard to obtain). Antifungals have to be given for at least 6 to 12 months and, in advanced stages, for years to avoid relapse. Cure rates range from 15% to 80%. Multidrug therapy seems more effective but is expensive. Itraconazole pulse therapy (7 d/month) is cost-saving.

In addition, topical heat therapy, phototherapy, cryosurgery, surgical debridement and/or combination therapy may be helpful.

Further Reading

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