# Stubborn fungi

CASE

A 47-year-old man with no previous medical history presents with skin abnormalities. Just above the right ankle is a large, almost circumferential, ulcerative and partially verrucous lesion visible of about 10 cm in length. It has been gradually increasing in size for one year, and later two subcutaneous multinodular swellings just below the knee developed. The lesions itch but are not painful. Patient has used unknown local medicine without improvement. No further abnormalities found during physical examination. Patient tests negative for HIV.

## SETTING

This case is from St. Walburg's Hospital, Nyangao, Tanzania. The hospital has 185 beds and very limited diagnostic facilities. Basic X-ray and ultrasound is present as well as basic laboratory tests. The nearest referral hospital is in the capital Dar Es Salaam, 500 km away. Currently there is a surgeon present together with 6 medical doctors, 6 assistant medical officers and 4 clinical officers.

## SPECIALIST ADVICE

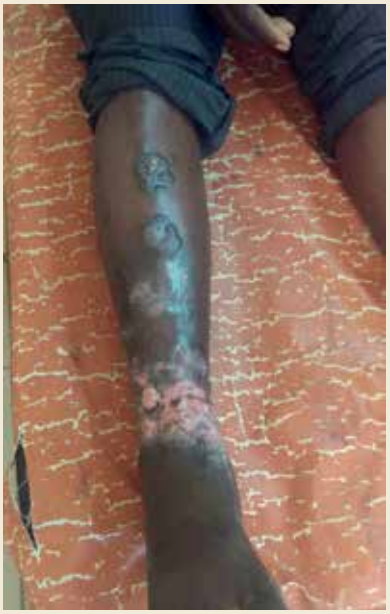
The dermatologists found the abnormality highly suggestive of chromoblastomycosis, a deep fungal infection of the skin and subcutaneous tissues. The diagnosis can be made by demonstrating sclerotic cells in a KOH preparation. At this stage there are not many conditions in the differential diagnosis, although a small risk of developing squamous cell carcinoma should be kept in mind. Treatment consists of local therapy and long-term antifungal agents (itraconazole, terbinafine) and local destructive therapy. Fluconazole, the only anti-fungal agent available in the hospital in question, was not recommended by dermatologists to be used as monotherapy. Surgery should only be applied to exophytic growing tumours.

## FOLLOW UP

Treatment with fluconazole was started but, unfortunately, until now the patient hasn't come for review.

## BACKGROUND OF CHROMOBLASTOMYCOSIS

Chromoblastomycosis (CBM) is a chronic, granulomatous pigmented fungal infection of the skin and subcutaneous tissue resulting from traumatic implantation of melanised fungi found in soil and plant fragments. The most common two fungi genera are Fonsecaea and Cladophialophora. The disease is most prevalent in tropical and subtropical regions, especially in South America. Most patients are adult males, and it primarily affects workers exposed to contaminated plant materials



*Almost circumferential*

*Ulcerative and partially verrucous*

or soil, such as farmers. For instance, in Madagascar, 87% of patients with CBM are males above 16 years of age.[1]

Only select species of melanised fungi can survive in the human body after penetration through the skin and cause clinical features. Multiple fungal virulence factors likely play a role in the development of chromoblastomycosis, and genetic factors may influence the ability of the host to resist infection, as carriers of HLA-A29 seem to have an increased relative risk of this infection.[1]

## CLINICAL FEATURES

Chromoblastomycosis initially manifests at the site of inoculation weeks to months after trauma and begins as a solitary, erythematous macule that may evolve to a smooth, pink papule. In the absence of early diagnosis and treatment, verrucous and hyperkeratotic features may appear and the lesions will increase in size and spread locally, producing satellite lesions. Progressing disease can present clinically in five different forms: nodular, tumorous, verrucous, plaque and cicatricial. The features depend upon factors such as fungal virulence, anatomic location and host response. As the disease progresses, patients may have more than one morphology simultaneously, and pruritus and pain become a dominant complaint. Due to the intense pruritus, scratching commonly contributes to secondary bacterial infection which can in the end lead to squamous cell carcinoma.[1] Internal organ involvement is rare.[2]

## DIAGNOSIS

Chromoblastomycosis should be suspected in patients with slow-growing, cutaneous, verrucous papules who have been to (sub-) tropical areas. Black dots or a 'cayenne pepper' appearance on the lesions is suggestive for this fungal disease. Diagnosis can be confirmed through detection of muriform cells and other brown-pigmented fungal structures with a KOH preparation or skin biopsy. A fungal culture is recommended for identifying the causative organism.[1]

## TREATMENT

Treatment of chromoblastomycosis, especially in an advanced stage, is difficult. Surgical excision can be curative and is the recommended treatment for mild disease, with lesions up to 5 cm in diameter. However, most patients only seek medical care in moderate-severe disease stage when surgery is less likely to be curative. The primary therapy for multiple lesions larger than 5 cm is administration of an oral antifungal agent for several months; itraconazole and terbinafine are most commonly used. A combination of oral antifungal agents may be necessary. Many other systemic antifungal agents, such as ketoconazole or fluconazole, have been abandoned as monotherapy due to relatively poor efficacy or risk of serious side effects.[1] The addition of physical therapies such as cryotherapy, laser therapy, or heat therapy may also be useful to reduce the duration of oral antifungal therapy.[3] Treatment can be discontinued three to four months after clinical resolution, confirmed by skin biopsy, tissue culture and KOH preparation. Patients should be followed for at least two years with reassessments performed every three to four months.



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