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Left Knee Mycetoma: A Rare Localization – A Case Report from the University Hospital "La Renaissance" In N'djamena and Literature Review

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Abstract

Introduction

Mycetomas are chronic, inflammatory, and often multi-fistulized pseudotumors of the skin, caused by exogenous fungi (eumycetomas) or aerobic bacteria (actinomycetes), and characterized by the production of grains. These are severe lesions, mostly seen in tropical and subtropical regions. Their management is challenging and can sometimes require radical treatment.

Case report

We report the case of a 23-year-old male farmer with no known medical history, residing in Adré, a town located 1060 km from N›Djamena, the capital of Chad. He presented to the outpatient clinic with a painless swelling of the left knee evolving over four years. The patient reported a history of trauma from an acacia thorn prick. Clinical examination revealed a large, inflamed, polyfistulized knee with a "watering can" appearance. Upon pressure, multiple blackish grains of various sizes were visible to the naked eye. A diagnosis of left knee mycetoma with bone involvement was made. The patient underwent arthrotomy with sample collection and joint lavage, combined with antifungal treatment. The course was marked by recurrence, which required radical surgical intervention.

Conclusion

This localization is particularly severe due to the near-systematic bone involvement

Keywords: Mycetoma, Knee, N'djamena, Management.

1.Introduction

Mycetomas, also known as Madura foot, are chronic, infectious, inflammatory pseudotumors of the skin, often multifistulized, caused by fungi (maduramycoses or eumycetomas) or aerobic bacteria (actinomycetes) of exogenous origin, characterized by the production of grains. Knee localization with bone involvement is rare but particularly difficult to treat. Mycetomas are endemic in three major regions North tropical Africa with the highest number of cases (Senegal, Chad, Mali, Niger, Sudan, Somalia, and Mauritania); Latin America (Mexico, Venezuela, Brazil, and Costa Rica), and India, where the disease was first described.

They predominantly affect young farmers and herders aged between 20 and 40 years. These are serious conditions with significant consequences, potentially threatening functional and aesthetic outcomes. Management is challenging and may require radical treatment, such as amputation. We report a case of mycetoma localized in the knee [1-3].

2. Case Report

We report the case of a 23-year-old male farmer with no known medical history, residing in Adré, a town located 1060 km from N'Djamena, the capital. He presented to the outpatient clinic with a painless swelling of the left knee, which had been evolving over four years. On questioning, the patient reported a history of trauma from an acacia thorn prick. Clinical examination revealed a large, painful, inflamed, extensive, polyfistulized knee with a "watering can" appearance (Figure 1). Pressure on the knee revealed multiple blackish grains of varying sizes, visible to the naked eye. Examination of the left lower limb showed functional limitation of the knee and significant quadriceps muscle wasting. The inguinal and crural lymph nodes were free. No other tumor localizations were noted. The clinical and radiological assessment led to the diagnosis of a mycetoma of the left knee with bone involvement. The patient underwent arthrotomy with carcinologic excision (Figure 2), sampling, and joint lavage, combined with antifungal treatment using ketoconazole at a dose of 400 mg/day for three months.

Figure 1: Mycetoma of the Left Knee A) Clinical Image Showing the Characteristic "Watering Can" Appearance B) Radiographic Image Revealing Osteoarthritic Involvement.

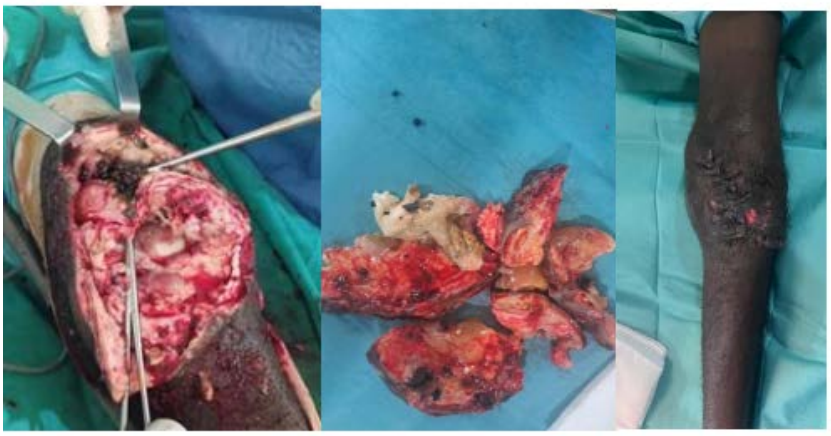

Figure 2: Arthrotomy With Wide Carcinologic Excision

The sample did not isolate any specific germ. Short-term evolution showed brief improvement, with near-complete wound healing two months post-surgery. However, a fulminant recurrence appeared in the third month, marked by increased knee swelling and bone destruction. This led to an indication for transfemoral amputation, which was performed along with psychological support. Postoperative recovery was uneventful; the stump healed well, and the patient is currently awaiting prosthesis fitting.

3. Commentary

Mycetomas were added to the World Health Organization's list of neglected tropical diseases in 2013. These infections primarily affect rural populations, particularly male farmers and herders, as was the case in our patient. Mycetomas have been known in West Africa for a long time. The first reported case in Africa was described by Le Dantec in 1894 in Saint-Louis, Senegal. Since then, several publications have highlighted the different clinical and epidemiological aspects of the disease. It is important to differentiate between fungal mycetomas (eumycetomas) and actinomycotic mycetomas, as their treatment differs significantly. Contamination typically occurs through the skin. The causative agents are saprophytic organisms found in soil and on plants in semi-arid climates. A definitive diagnosis is often based on the characteristics of the grains discharged from the fistulas.

Red grains suggest an actinomycotic origin; black grains are pathognomonic of fungal mycetomas, as observed in our case. Yellow or white grains can indicate either type. Diagnosis is frequently delayed due to the slow progression of the disease. Bone involvement during the progression of a mycetoma varies according to authors, with an average frequency of 51.6%, meaning that one out of two mycetomas becomes complicated by bone damage. Involvement of deep subcutaneous structures such as the patella remains a major concern due to the challenge of conservative surgery and the high risk of recurrence [4-8].

In our case, there was osteoarticular involvement with destruction of the inferior pole of the patella and articular surfaces, with deep embedding of black grains within the synovial membrane. This localization is rarely described in the literature. Conversely, Actinomadura pelletieri (red grains) is considered more osteophilic than Madurella mycetomatis (black grains). Surgical treatment is the gold standard for fungal mycetomas. However, medical treatments using ketoconazole, itraconazole, and terbinafine have been reported in the literature to support carcinologic excision with satisfactory outcomes. In our patient, ketoconazole was used but did not achieve complete remission.Due to the recurrence, the extensive spread of the lesion, and joint destruction, radical surgery was performed, accompanied by psychological support to help ensure the patient's social and professional reintegration [9,10].

4. Conclusion

Knee mycetomas represent a particularly severe localization due to the almost systematic bone involvement. Treatment is often challenging, prolonged, and sometimes mutilating. The best approach remains prevention (protecting the lower limbs in rural settings) and early detection, which allows for conservative management before irreversible bone complications occur.

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