Journal of
Microbial & Biochemical Technology

OPEN ACCESS Freely available online

Opinion

Bacterial Subcutaneous Infection: Actinomycetoma Caused by Mycetoma

Justine Gerardo*

Department of Biology, O. Wayne Rollins Research Center, Emory University, Atlanta, GA, USA

INTRODUCTION

Nodules, scars, abscesses, and fistulae drain serous or purulent material harbouring the etiological agent in mycetoma, a neglected tropical illness. True fungus (eumycetoma) or filamentous aerobic bacteria can cause mycetoma (actinomycetoma). In the so-called mycetoma belt, which includes Sudan, Nigeria, Somalia, India, Mexico, and Venezuela, mycetoma is more widespread. New antibiotics with fewer side effects, larger susceptibility profiles, and novel delivery routes have necessitated the gathering of data on actinomycetoma treatment and outcomes.

Mycetoma is a persistent skin disease that can spread to the bones and organs beneath the skin. Inadequate treatment could result in long-term impairment. The results of 31 individuals with bacterial actinomycetoma who were treated at a tertiary care hospital in northeast Mexico. TMP/SMX with amikacin or TMP/SMX plus amoxicillin/clavulanic acid were the most common antibiotic combinations used. Ninety percent of patients were cured, with only one requiring surgery.

Firm swellings, nodules, scars, abscesses, and fistulae that drain serous or purulent fluid carrying the etiological agent characterise mycetoma, a persistent subcutaneous granulomatous infection.

Eumycetoma or filamentous aerobic bacteria (actinomycetoma) can produce mycetoma [1–3]. The majority of mycetoma cases are situated in the so-called mycetoma belt, which runs from 15° south to 30° north around the Tropic of Cancer. The majority of eumycetoma cases have been documented in Sudan, Senegal, Nigeria, Somalia, Mauritania, and India, while the majority of actinomycetoma cases have been reported in Mexico and Venezuela, with isolated cases in the United States and Europe. The climate in endemic regions is primarily subtropical and tropical dry, with low humidity and annual rainfall ranging from 50 to 1000 mm [1-3]. Actinomycetomas predominate in drier places, with specific etiological agents varying according to climate and geography. The lower limbs are the most commonly affected areas, followed by the arms and trunk [4]. Actinomycetoma is more aggressive than eumycetoma, spreading faster and having a higher proclivity for extrapedal growth.

The treatment for mycetoma varies based on the cause. Actinomycetoma treatment is based on antimicrobials, while eumycetoma treatment is based on broad surgical removal of the lesion and administration of antifungal drugs. Sulfonamides, particularly trimethoprim-sulfamethoxazole (TMP/SMX), have been the standard treatment for a long time, typically in conjunction with other antibiotics such amikacin, amoxicillin/clavulanic acid, rifampicin, or DDS (diamino-diphenyl-sulfone). Treatment recommendations, on the other hand, are limited and primarily based on case reports or tiny case series of less than 20 individuals [5,6]. Treatment and outcome details are frequently missing from retrospective epidemiological reports. Although sufficient antibiotic therapy can cure actinomycetoma, many clinicians find treating disease difficult due to the scarcity of data.

The size, location, bone/internal organ involvement, recurrence, adverse effects, comorbidities, and response to previous treatments were all factors in determining treatment. Patients with lesions less than 5 cm were treated with TMP/SMX monotherapy. In bigger lesions without bone or internal organ involvement, TMP/SMX in combination with amoxicillin/clavulanic acid was employed.

REFERENCES

1. Nenoff P, Van De Sande WWJ, Fahal AH, Reinel D, Schofer H. Eumycetoma and actinomycetoma—An update on causative agents, epidemiology, pathogenesis, diagnostics and therapy. J Eur Acad Dermatol Venereol. 2015;29(10):1873-1883.
2. Bonifaz A, Tirado-Sanchez A, Calderon L, Saul A, Araiza J, Hernandez M, et al. Mycetoma: experience of 482 cases in a single center in Mexico. PLoS Negl Trop Dis. 2014;8(8):e3102.
3. Vera-Cabrera L, Salinas-Carmona MC, Waksman N, Messeguer-Perez J, Ocampo-Candiani J, Welsh O. Host defenses in subcutaneous mycoses. Clin Dermatol. 2012;30(4):382-388.
4. Lopez-Martinez R, Mendez-Tovar LJ, Bonifaz A, Arenas R, Mayorga J, Welsh O, et al. Update on the epidemiology of mycetoma in Mexico. A review of 3933 cases. Gac Med Mex. 2013;149(5):586-592.
5. Zijlstra EE, Van de Sande WWJ, Welsh O, Mahgoub ES, Goodfellow M, Fahal AH. Mycetoma: a unique neglected tropical disease. Lancet Infect Dis. 2016;16(1):100-112.
6. Welsh O, Al-Abdely HM, Salinas-Carmona MC, Fahal AH. Mycetoma medical therapy. PLoS Negl Trop Dis. 2014;8(10):e3218.

***Correspondence to:** Justine Gerardo, Department of Biology, O. Wayne Rollins Research Center, Emory University, Atlanta, GA, USA, E-mail: justine_gerardo@musc.edu

Received: November 04, 2021; **Accepted:** November 18, 2021; **Published:** November 25, 2021

Citation: Gerardo J (2021) Bacterial Subcutaneous Infection: Actinomycetoma Caused by Mycetoma. J Microb Biochem Technol. S17:003. DOI: 10.35248/1948-5948.21.S17.003.