Crimson Publishers
Wings to the Research

Case Report

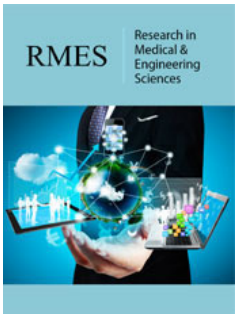
Mycoleptodiscus indicus in an Heart-Transplant Recipient. A Case Report and Review of the Literature

Passera M[1], Ortalli G[1], Vittori C[2], Cavallini M[1], Guarneri D[1] and Farina C[1]*

[1]Microbiologia e Virologia, ASST Papa Giovanni XXIII, Bergamo, Italy

[2]Cardiologia, ASST Papa Giovanni XXIII, Bergamo, Italy

ISSN: 2576-8816



***Corresponding author:** Farina C, SMeL Microbiologia e Virologia, ASST Papa Giovanni XXIII, Piazza OMS 1, 24127, Bergamo, Italy

Submission: February 06, 2021

Published: March 11, 2021

Volume 9 - Issue 2

How to cite this article: Passera M, Ortalli G, Vittori C, Cavallini M, Guarneri D, Farina C. *Mycoleptodiscus indicus* in an Heart-Transplant Recipient. A Case Report and Review of the Literature. Res Med Eng Sci. 9(2). RMES.000708. 2021. DOI: 10.31031/RMES.2021.09.000708

Abstract

Mycoleptodiscus indicus, a phytopathogenic dematiaceous hyphomycete, has only sporadically been described as an agent of subcutaneous infections in immunocompromised patients. A case of *M. indicus* abscess infection is reported here in a patient undergoing orthoptic heart transplantation. Surgical debridement together with Amphotericin B followed by a long-term therapy with Itraconazole cured the patient.

Keywords: *Mycoleptodiscus indicus*; Subcutaneous infection; Heart transplant

Abbreviations: MOFS: Multi-Organ Failure Sepsis; LSU gene: Large Subunit gene; HIV: Human Immunodeficiency Virus; HCV: Hepatitis C Virus RNA: RiboNucleic Acid

Introduction

Mycoleptodiscus indicus, a dematiaceous hyphomycete, is a common contaminant of tropical or subtropical soils and occurs on the leaves of different plants for which it is pathogenic, particularly but not exclusively monocotyledons [1]. It has only been sporadically described as a subcutaneous infection agent in immunocompetent animals [2-4] and in immunocompromised patients. Compared to the general population, this type of patient has an increased risk of developing opportunistic fungal infections with greater morbidity and mortality. A case of *M. indicus* abscess infection is reported here in a patient undergoing orthoptic heart transplantation.

Case Presentation

D.M., a 27-year-old Senegalese woman, undergoing immunosuppressive therapy due to a heart transplant, was admitted at the "Cardiovascular Department - Heart Failure and Transplantation" of the "Papa Giovanni XXIII" hospital in Bergamo, Italy. She presented a Multi-Organ Failure Sepsis (MOFS), with unknown bacterial etiology, and a *Cytomegalovirus* infection with intestinal localization. During hospitalization, the development of an abscess infection of the left lower limb was observed. Collected purulent material from the abscess was cultured for aerobic and anaerobic bacteria and fungi: it resulted positive for a dematiaceous fungus identified as *Mycoleptodiscus indicus*. The patient was subjected to induction treatment with liposomal Amphotericin B, followed by long-term therapy with Itraconazole. The treatment, together with the drain of the abscess, allowed the complete resolution of the lesion [1-9].

The fungus was thermotolerant, growing well at 25 °C and 35 °C but not at 42 °C, on Sabouraud Dextrose Agar after a 5-day incubation. Flat colonies grew, presenting velvety texture, macroscopically whitish soon which turned yellowish gray with a brownish reverse (Figure 1). Microscopically, hyphae were septate, branched, only later showed the presence of a dark pigment. No conidia were present (Figure 2). Subcultures on Potato Agar and on Malt Agar did not present any sporulation. The fungal identification, performed by gene sequencing with amplification of the D2 region of LSU gene (Large Subunit rRNA), confirmed the presence of a *Mycoleptodiscus indicus* strain.

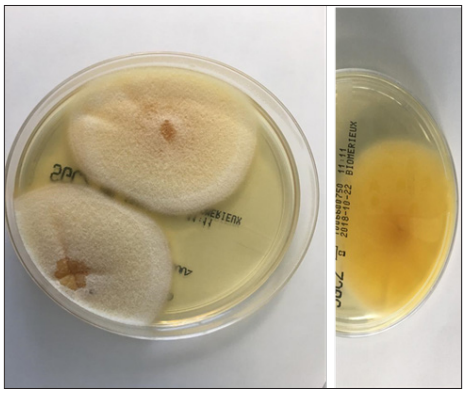


Figure 1: Colonies grown on Sabouraud Dextrose Agar (a. recto; b. verso).

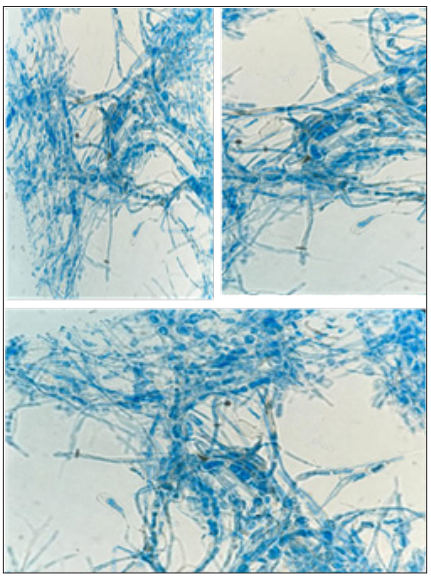


Figure 2: Lactophenol Cotton Blue staining, 25x magnification, showing septate hyphae, with the absence of conidia.

Discussion

Finding in culture of the phytopathogenic black fungus *Mycoleptodiscus indicus* is absolutely sporadic in human pathology. Only few human cases have been reported in the scientific literature. In Padhye AA et al. [5] firstly described a subcutaneous infection of the prepatellar bursa of his right knee in a 72-year-old male, immunocompromised because of a Wegener's granulomatosis chronically treated with methotrexate and prednisone [5]. In Garrison AP et al. [6] reported *M. indicus* as the etiologic agent of nodular lesions: it was initially observed on the dorsum of the right hand of a 51-year-old man affected by HIV and HCV co-infection. Later, it assumed a *sporothrichosis*-like lymphangitic distribution at the forearm. The patient underwent a liver transplant and was thus treated with tacrolimus and steroids [6]. In 2010 Dewar et al. [7] described the first case of *M. indicus* infection in a normal competent 54-year-old male presenting a patellofemoral osteoarthritis at his left knee [7]. In 2012 Koo et al. [8] reported a myositis following a progressive necrotizing cellulitis in a leg of an immunocompromised patient treated with temozolomide and steroids because of a glioblastoma multiforme [8]. All cases mentioned as possible the direct inoculation of *M. indicus* through the injured skin during their staying in tropical or subtropical countries: lower coastal South Carolina [5], Florida [6], Costa Rica [7]. Similarly, to others, our case too occurred in an immunocompromised woman, returning for heart failure from Senegal. All cases included ours, which occurred in immunocompromised people were treated with concomitant Amphotericin B and surgical debridement, followed by azole (*Itraconazole* or *Voriconazole*).

Opportunistic fungal infections in severely immunocompromised patients are burdened with increased morbidity and mortality. The correct identification of *Mycoleptodiscus indicus* is absolutely difficult, requiring highly specialized operating conditions and the use of genetic identification methods. It must be noted that the *Mycoleptodiscus* taxonomy has been recently revised, suggesting that the identifications of *M. indicus* described in all the previously referred clinical cases may be incorrect and have to considered as caused by *Muyocopron laterale* [9]. The correct microbial identification has allowed the adoption of adequate therapy schemes that have permitted the clinical resolution.

References

1. Sutton B (1973) *Pucciniopsis*, *Mycoleptodiscus* and *Amerodiscosiella*. Trans Br Mycol Soc 60(3): 525-536.
2. Hull W, McNamara T, Ireland G (1997) Subcutaneous *phaeohyphomycosis* due to *Mycoleptodiscus lateralis* in a cat. In: Anals do XXV Congresso Brasileiro de Medicina Veterinaria, XIII Congresso Estadual de Medicina Veterinaria, II Congresso de Medicina Veterinaria do Cone Sul. Gramado, Rio Grande do Sul, Brasil.
3. Metry CA, Hoien PS, Maddox CW, Thompson EH, Sutton DA, et al. (2010) Subcutaneous *Mycoleptodiscus indicus* Infection in an Immunosuppressed Dog. J Clin Microbiol 48(8): 3008-3011.
4. Maboni G, Krimer P, Baptista R, Lorton A, Anderson C, et al. (2019) Laboratory diagnostics, phylogenetic analysis and clinical outcome of a subcutaneous *Mycoleptodiscus indicus* infection in an immunocompetent cat. BMC Vet Res 15(1): 354.
5. Padhye AA, Davis MS, ReddickA, Bell MF, Gearhart ED, et al. (1995) *Mycoleptodiscus indicus*: a new etiologic agent of *phaeohyphomycosis*. J Clin Microbiol 33(10): 2796-2797.
6. Garrison AP, Procop GW, Vincek V, Moon J, Morris MI, et al. (2008) A case of subcutaneous *Mycoleptodiscus indicus* infection in a liver transplant recipient successfully treated with antifungal therapy. Transpl Infect Dis 10(3): 218-220.
7. Dewar CL, Sigler L (2010) Fungal arthritis of the knee caused by *Mycoleptodiscus indicus*. Clin Rheumatol 29(9): 1061-1065.
8. Koo S, Sutton DA, Yeh WW, Thompson EH, Ligler L, et al. (2012) Invasive *Mycoleptodiscus* fungal cellulitis and myositis. Med Mycol 50(7): 740-745.
9. Hernandez M, Bezerra JP, Tan YP, Wiederhold N, Crous PW, et al. (2019) Re-evaluation of *Mycoleptodiscus* species and morphologically similar fungi. Persoonia 42: 205-227.