Veterinary Letters
ISSN 2581-2416
DOI: https://dx.doi.org/10.29244/avl.9.4.107-108
https://journal.ipb.ac.id/index.php/arshivetlett

Mycotic pneumonia in a domestic cat caused by *Mycoleptodiscus indicus* has zoonotic potential and may pose a threat to national security

Putu Mira Puspitayani[1,*], Syamsul Maarif[1], Lilik Kurniawan[1], Anwar Kurniadi[1], Wilopo[1], I Putu Juli Sukariada[2], Sherli Melani Ludji[2]

[1] Study Program of Disaster Management, Faculty of National Security, Republic of Indonesia Defense University, Salemba, Central Jakarta, Indonesia
[2] Study Program of Animal Husbandry, Faculty of Military Logistics Vocational Studies, Republic of Indonesia Defense University, Belu, East Nusa Tenggara, Indonesia

ABSTRACT: Environmental conditions play a critical role in disease transmission in companion animals, particularly in humid settings that facilitate pathogen proliferation and spread. *Mycoleptodiscus indicus* is an opportunistic, saprobic, and endophytic fungus that causes systemic infections in various hosts, including humans. This case report describes a fatal *M. indicus* infection in a kitten. Diagnosis involves clinical examination, cytology, fungal culture, necropsy, and histopathological analysis. Gross pathology revealed swelling and hemorrhage in the heart, spleen, kidneys, and liver, with pulmonary necrosis and hemorrhage. Histopathological examination revealed the presence of fungal spores in the pulmonary tissue. Cytological and culture analyses confirmed the presence of *M. indicus*. The kitten's death resulted from respiratory invasion by *M. indicus* spores, which led to systemic dissemination and sepsis.

Keywords:
cat, imunosupresif, *Mycoleptodiscus indicus*, opportunistic, sytemic, zoonosis

■ INTRODUCTION

Environmental conditions play a crucial role in the transmission of infectious diseases in companion animals, including cats. Humid environments provide favorable conditions for the growth, survival, and dissemination of pathogenic fungi (Spear 2017). Among these fungi, *Mycoleptodiscus indicus* (*M. indicus*) is an opportunistic, saprobic, and endophytic pathogen that has traditionally been recognized as a plant-associated fungus (Hernández-Restrepo 2019). However, increasing evidence indicates that *M. indicus* can cross host barriers and cause infections in humans and animals (Hoang *et al*. 2022).

Mycoleptodiscus indicus causes localized to systemic infections in immunocompromised individuals (Gomez & Weese 2024). Cases include knee infection in a patient with Wegener's granulomatosis and liver infection in an HIV-positive transplant recipient (Garrison *et al*. 2008). It infects cats in Australia (Maboni *et al*. 2019) and immunosuppressed dogs in the US (Metry *et al*. 2010). Infections cause tissue destruction and necrosis (Koo *et al*. 2012). The pathogenicity of *M. indicus* is linked to fatal infections (Revankar *et al*. 2017), requiring clinical awareness in veterinary medicine. This report details a fatal infection in a kitten diagnosed through clinical examination, cytology, culture, and histological analysis.

■ CASE

Signalment and History: A 1.5-month-old domestic kitten was in critical condition, with hypoxia, malnutrition, subcutaneous infection, and nonviable tissue necrosis. **Clinical Examination**: The kitten's vital signs were very weak, and it showed symptoms of seizures. The kitten died on the third day. **Laboratory Test**: The sample was collected using the following methods: (1) tapping smear by applying transparent tape to the surface of the lesion. The collected sample was then stained and examined under a microscope; (2) tissue culture on Sabouraud Dextrose Agar (SDA); (3) necropsy; and (4) histopathology. **Diagnosis**: Mycotic pneumonia by *Mycoleptodiscus indicus*.

■ RESULTS AND DISCUSSION

Physical examination revealed weakness, pale mucous membranes, and cyanosis, indicating hypoxia and malnutrition (Figure 1A). The infection involved wounds, tissue necrosis, and mucopurulent exudates in the limbs, with granulomatous lesions behind the ears (Figure 1B). These signs are indicative of systemic fungal infections that cause tissue damage (Galimberti *et al*. 2012). The presentation

Received: 04.08.2025 | **Revised:** 07.09.2025 | **Accepted:** 13.09.2025

Copyright © 2025 CC-BY-SA. This is an Open Access article distributed under the terms of the Creative Commons Attribution ShareAlike 4.0 International License (https://creativecommons.org/licenses/by-sa/4.0/).

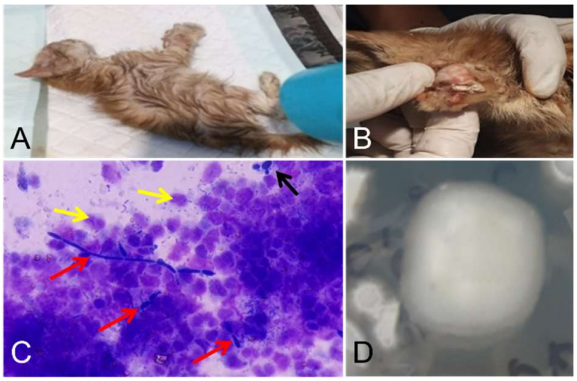

Figure 1. Clinical and mycological findings in a kitten infected with Mycoleptodiscus indicus. (A) Kitten in critical condition. (B) Extensive subcutaneous infection with necrosis. (C) Cytological smear showing *M. indicus* hyphae (red arrow), epithelial cells (yellow arrow), and neutrophils (black arrow). (D) Fungal growth of *M. indicus* on Sabouraud Dextrose Agar (SDA).

resembled that of dogs, where fungal infection with immunosuppression led to death within two months of *M. indicus* diagnosis (Metry *et al*. 2010). Cytological examination revealed fungal hyphae, epithelial cells, and inflammatory infiltration (Figure 1C). Cultures on Sabouraud Dextrose Agar at 35 °C yielded white, oval fungal colonies consistent with M. indicus (Maboni *et al*. 2019) (Figure 1D).

During hospitalization, the kitten received fluid therapy, oxytetracycline, tolfenamic acid, and wound management but died within 48 h. Necropsy showed inflammation and hemorrhage in the heart, liver, kidneys, and spleen (Figure 2). Fungal spores enter through inhalation, ingestion, and wounds, causing systemic inflammation (Hurst 2019). Histopathological examination revealed pulmonary necrosis and inflammation (Figure 2F), leading to death (Crespo-Szabo & Stafford 2021).

The therapeutic management of *M. indicus* infections involves antifungal combination therapy, primarily terbinafine and itraconazole, which inhibit ergosterol synthesis in the fungal membranes. This achieves cure rates of up to 90% (Sharma *et al*. 2020). The limited clinical data on *M. indicus* pose challenges, particularly in veterinary medicine. The zoonotic potential of this pathogen highlights the need for early diagnosis and research to protect animal and public health.

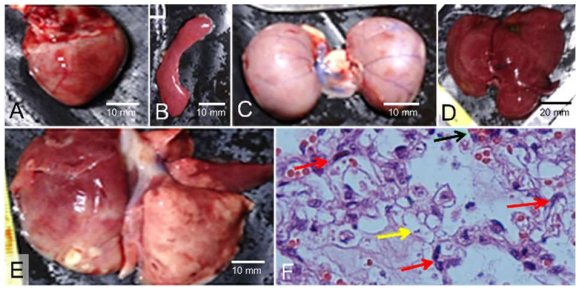

Figure 2. Gross and histopathological findings in a kitten with systemic *Mycoleptodiscus indicus* infection. Swelling and hemorrhage were observed in the heart (A), spleen (B), kidneys (C), and liver (D). The lungs showed necrosis, hemorrhage, hepatization, and multifocal white lesions (E). Histopathological examination revealed pulmonary necrosis (yellow arrow), hemorrhage (black arrow), and fungal conidia consistent with *M. indicus* (red arrow) (F).

■ CONCLUSION

The kitten's death was attributed to respiratory invasion by *Mycoleptodiscus indicus*, as confirmed by clinicopathological and mycological findings.

■ AUTHOR INFORMATION

Corresponding Author

*PMP: mirapuspitayani27@gmail.com

Study Program of Disaster Management, Faculty of National Security, Republic of Indonesia Defense University, Salemba, Central Jakarta, INDONESIA.

■ REFERENCES

Crespo-Szabo SM, Stafford JR. 2021. Diagnosis, treatment, and outcome in a dog with systemic *Mycoleptodiscus indicus* infection. Journal of Veterinary Internal Medicine. 35(4):1972.

Galimberti R, Torre AC, Baztán MC, Rodriguez-Chiappetta F. 2012. Emerging systemic fungal infections. Clinics in dermatology. 30(6):633-50.

Garrison AP, Procop GW, Vincek V, Moon J, Morris MI, Doblecki-Lewis S, Cleary TJ, Brust D, Rosa-Cunha I. 2008. A case of subcutaneous *Mycoleptodiscus indicus* infection in a liver transplant recipient successfully treated with antifungal therapy. Transplant infectious disease. 10(3):218-20.

Gomez DE, Weese JS. 2024. Antimicrobial prophylaxis, metaphylaxis, and the treatment of immunocompromised patients. Antimicrobial Therapy in Veterinary Medicine. 487-511.

Hernández-Restrepo M, Bezerra JD, Tan YP, Wiederhold N, Crous PW, Guarro J, Gené J. 2019. Re-evaluation of Mycoleptodiscus species and morphologically similar fungi. Persoonia-Molecular Phylogeny and Evolution of Fungi. 42(1):205-27.

Hoang TK, Nguyen QH, Nguyen TN, Tran TH, Le QT. 2022. Study on the in vitro and in vivo antifungal activities of nano-silver against mycoleptodiscus indicus causing leaf blight on lotus in Vietnam. Indian Journal of Agricultural Research. 56(6):726-33.

Hurst CJ. 2019. Dirt and disease: the ecology of soil fungi and plant fungi that are infectious for vertebrates. In Understanding terrestrial microbial communities. Cham: Springer International Publishing. pp. 289-405

Koo S, Sutton DA, Yeh WW, Thompson EH, Sigler L, Shearer JF, Hofstra DE, Wickes BL, Marty FM. 2012. Invasive Mycoleptodiscus fungal cellulitis and myositis. Medical Mycology. 50(7):740-5.

Maboni G, Krimer P, Baptista R, Lorton A, Anderson C, Sanchez S. 2019. Laboratory diagnostics, phylogenetic analysis and clinical outcome of a subcutaneous *Mycoleptodiscus indicus* infection in an immunocompetent cat. BMC veterinary research. 15(1):354.

Metry CA, Hoien-Dalen PS, Maddox CW, Thompson EH, Sutton DA, Romanelli AM, Wickes BL, MacNeill AL. 2010. Subcutaneous *Mycoleptodiscus indicus* infection in an immunosuppressed dog. Journal of clinical microbiology. 48(8):3008-11.

Revankar SG, Baddley JW, Chen SC, Kauffman CA, Slavin M, Vazquez JA, Seas C, Morris MI, Nguyen MH, Shoham S, Thompson III GR. 2017. A mycoses study group international prospective study of phaeohyphomycosis: an analysis of 99 proven/probable cases. In Open forum infectious diseases. US: Oxford University Press. 4(4):ofx200.

Sharma P, Bhalla M, Thami GP, Chander J. 2020. Evaluation of efficacy and safety of oral terbinafine and itraconazole combination therapy in the management of dermatophytosis. Journal of Dermatological Treatment. 31(7):749-53.

Spear ER. 2017. Phylogenetic relationships and spatial distributions of putative fungal pathogens of seedlings across a rainfall gradient in Panama. Fungal Ecology. 26:65-73.