Cryptococcosis screening and isolates characterization in asymptomatic people living with HIV in Kinshasa, DRC

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Results: Cryptococcal meningitis (CM) is a life-threatening invasive mycosis affecting people living with HIV (PLHIV) and has a high prevalence and case fatality rates in sub-Saharan Africa. While most PLHIV presenting CM are symptomatic, the asymptomatic ones are diagnosed following routine screening used to identify all advanced PLHIV (CD4 <200 μL⁻¹). We, therefore, hypothesized that asymptomatic CM patients would be infected with different Cryptococcus spp. strains than those in symptomatic CM patients (referring to the parallel study conducted in the same clinic). This study describes the prevalence of serum and meningeal cryptococcosis in asymptomatic PLHIV presenting a CM count of <200 μL⁻¹ in the screening context.

Objectives: To describe the epidemiologic, clinical, and laboratory features of asymptomatic CM patients presenting with cryptococcal meningitis in Kinshasa (DRC). The aim was to determine the prevalence and clinical characteristics of asymptomatic CM in a cohort of PLHIV.

Methods: Cross-sectional study conducted in Kinshasa between January and March 2022. All PLHIV patients consulting the Internal Medicine Department of Hopitalier Roi Baudouin 1er, Kinshasa, Congo were included.

Results: A total of 242 PLHIV individuals were included in the study. Among them, 21.4% (18/84) were CM positive. The prevalence of CM was estimated at 5.8% (21/242) for PLHIV, based on the positive serum and meningeal cryptococcal antigen (CrAg). Among the CM-positive patients, 78.6% (17/21) were asymptomatic. Among the asymptomatic CM-positive patients, 23.8% (5/21) were women.

Conclusions: This study highlights the importance of screening asymptomatic PLHIV for CM to prevent adverse outcomes. Further studies are needed to determine the long-term clinical impact of asymptomatic CM in PLHIV.
Spread of Sporothrix brasiliensis from the sneeze of infected cats: a potential novel route of transmission

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Objectives: Cat-transmitted sporotrichosis (CTS), caused by Sporothrix brasiliensis, is an emerging fungal disease that has become a major public health concern in Brazil. Transmission of CTS usually occurs through the implantation (e.g., scratches or bites) of infectious yeast from feline Sporothrix lesions. Recent reports on transmission events have suggested that S. brasiliensis might be transmitted through feline respiratory droplets created while sneezing. The aim of our study is to determine whether infectious respiratory secretions are expelled when cats with sporotrichosis sneeze.

Methods: We collected respiratory secretions expelled while sneezing from 28 cats diagnosed with sporotrichosis. We placed a Mycosel agar plate, a fungal culture medium, in front of the animals’ noses and used a nasal swab to stimulate sneezing (Fig. 1). Samples were incubated at 28–30°C for 4 weeks in the Mycology laboratory of Hospital de Clínicas. Molecular identification of the isolates was performed by sequencing the Caladanib gene. The infected cats enrolled in the study were subsequently tested at the School Veterinary Clinic of the Pontifical Catholic University of Paraná, a referral hospital for the treatment of feline sporotrichosis.

Results: One of the 28 sporotrichosis samples collected (20%) had evidence of fungal growth morphologically consistent with S. brasiliensis. Sequencing of all isolates identified S. brasiliensis (Fig. 2).

Conclusions: We identified a possible novel route of transmission of S. brasiliensis through infectious feline respiratory secretions expelled during sneezing. The respiratory droplets expelled by a sneeze could contain viable S. brasiliensis yeast that could infect humans and other animals after mucosal exposure. One health partner and collaborator such as veterinarians, physicians, health authorities, epidemiologists, and fungal disease researchers should be made aware of the potential spread of S. brasiliensis through respiratory droplets and sneezing to prevent and control the further spread of CTS. To prevent cat-to-human transmission of S. brasiliensis, personal protective equipment (PPE) should be worn while handling a cat with suspected sporotrichosis. Veterinarians, veterinary clinic employees, students, and pet shop owners are at increased risk due to their profession. Veterinary care frequently involves procedures that encourage respiratory droplets (e.g., nasal smears), contact and other close contact may directly expose staff to infectious secretions. Because this study identified viable yeast in respiratory droplets from sneezing, decontamination and disinfection of exposed surfaces is increasingly important. As surfaces and objects can serve as fomites for S. brasiliensis, Physicians who diagnose and treat human cases of sporotrichosis should be aware of this new transmission method to improve clinical suspicion, diagnosis, and treatment for sporotrichosis.

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