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The first case of neonatal fungemia caused by *Aureobasidium melanogenum*

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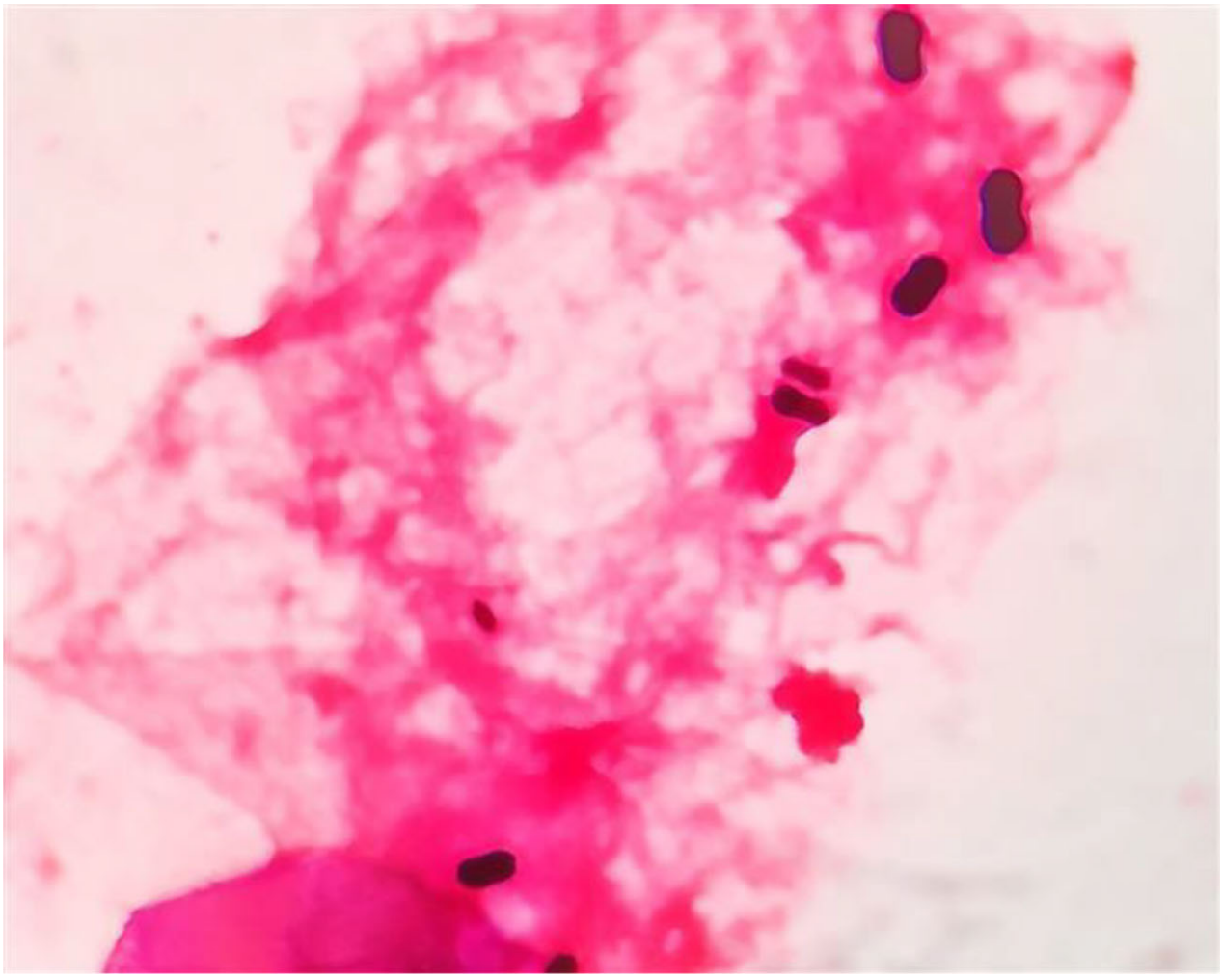
Background: *Aureobasidium melanogenum* is a ubiquitous, saprophytic, dematiaceous fungus commonly isolated from environmental sources. It has the highest virulence potential among all *Aureobasidium* species and is implicated in catheter-related infections, particularly in immunocompromised hosts.

Case Report: A 6-day-old female child was admitted to the neonatal intensive care unit (NICU), AIIMS, Jodhpur with respiratory distress, hypotension, bradycardia, and sepsis. The baby was preterm with a very low birth weight (1140 g) and was born to a 34-year-old G3P1A2 mother at 30 weeks gestation by elective caesarian section at a private hospital. The mother had a primary ovarian failure and had a history of spontaneous abortions for two consecutive times following in vitro fertilization. She also had a history of gestational diabetes mellitus and pregnancy-induced hypertension, for which she was on medication. At birth, the baby had respiratory distress (Apgar scores were 6 and 7 at 1 and 5 minutes of life, respectively), for which she was shifted to NICU and intubated. On day 2, she developed hypotension, bradycardia, hypocalcemia, and sepsis with deranged coagulation profile, for which she received inotropes, broad-spectrum antibiotics, fluconazole, and fresh frozen plasma. On day 3, the baby developed chest retractions and seizure-like episodes with intermittent myoclonic jerks and was started on anti-epileptics. She had persistently raised serum urea, creatinine, and C-reactive protein from day 3 of life. Due to clinical deterioration, she was shifted to AIIMS NICU for further management where she was continued on inotropes, broad-spectrum antibiotics, and fluconazole. After 46 h of admission at AIIMS NICU, the baby developed hypotension with cold extremities, feeble pulses, and increased ventilatory requirements. Chest X-ray showed bilateral diffuse infiltrates suggestive of acute respiratory distress syndrome. Culture of tracheal aspirate yielded Klebsiella pneumoniae, sensitive to piperacillin/tazobactam, amikacin, and carbapenems. The patient was started on intravenous meropenem and colistin. Blood culture showed growth of Gram-positive budding yeast cells after 48 h of incubation (Fig. 1). Subculture on Sabouraud dextrose agar revealed yeast-like colonies, initially cream-colored, becoming dark-brown with an olive-green feathery margin (Fig. 2a). Microscopically, the isolate had septate pigmented hyphae with ellipsoidal hyaline conidia (Fig. 2b). The morphologic features were consistent with *Aureobasidium* species. Sequencing the internal transcribed spacer region of rDNA confirmed the identity of the isolate as A. melanogenum. Antifungal susceptibility testing revealed the following MICs: amphotericin B, 0.5 μg/ml, itraconazole, 0.25 μg/ml, voriconazole, 0.125 μg/ml, fluconazole, 16 μg/ml, and caspofungin, 0.25 μg/ml. Despite maximum inotropic and ventilatory support, the baby had persistent desaturations and hypoxia and developed multiple organ dysfunction syndrome, following which she succumbed to death on day 3 of admission to AIIMS.

Conclusion: This is the first documented case of neonatal fungemia caused by the emerging yeast *A. melanogenum*. The patient had multiple arterial and intravenous catheters and this could be the portal of entry of the pathogen. Accurate identification is crucial for initiating appropriate antifungal therapy. Physicians should be mindful of possible *A. melanogenum* infection in patients with risk factors, and provide appropriate antifungal therapy with the removal of indwelling catheters whenever possible.



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Disseminated cryptococcosis in HIV due to different species — dissimilar yet alike!

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Objective: To present two cases of disseminated cryptococcosis caused by two different species in HIV patients, presenting from the same geographical location.

Introduction: Cryptococcal meningitis is the most frequent cause of adult meningitis in areas with a high prevalence of human immunodeficiency virus (HIV) and is one of the leading causes of HIV-related deaths worldwide. *Cryptococcus gattii*, the lesser prevalent species, 'conventionally' known to affect the non-HIV and otherwise immunocompetent population, may also cause disseminated infection in HIV patients. High MICs of antifungals, especially fluconazole, may pose challenges in the management. Here, we present two cases of HIV patients with disseminated cryptococcosis, who presented from the same geographical area of India in the months of February and March 2022, respectively.

Case 1: A 34-year-old patient from the state of Rajasthan with a past history of abdominal tuberculosis and a defaulter of ART (ABC/3TC/EFV) presented with headache and vomiting for 3 weeks. After an MRI brain and CT scan of the thorax, he was diagnosed to have pulmonary and meningeal cryptococcosis based on CSF examination with a positive Gram's, and India ink stain (Fig. 1), positive cryptococcal antigen (CRAG) by lateral flow assay, and fungal culture positive for *C. gattii* (MALDI-TOF); and a paratracheal lymph node biopsy showing granulomatous inflammation with cryptococci (Fig. 2). Fluconazole MIC was 16 μg/ml. He was treated with liposomal amphotericin B with flucytosine for 2 weeks. After good clinical recovery and negative fungal culture, a high dose (1200 mg) of fluconazole was started. He is asymptomatic with repeated negative fungal culture on 2 months follow-up.

Case 2: A 37-year-old patient from Rajasthan, on ART (TDF/3TC/DTV) for HIV-1 diagnosed a month ago, presented with cough, weight loss, and fever for 2 months with severe chest pain on drinking and eating. He was diagnosed to have cytomegalovirus esophagitis based on the CMV inclusion bodies in a biopsy from the esophageal ulcers and a positive quantitative serum CMV DNA PCR. Bronchoscopy with EBUS-guided lymph node biopsy was done to investigate cavitary lung consolidation and mediastinal lymphadenopathy. BAL CRAG was positive and biopsy showed inflammation with histiocytic aggregates and necrosis, and many encapsulated yeasts form suggestive of *Cryptococcus*, which was identified by MALDI-TOF as *Cryptococcus neoformans*. Serum CRAG was positive. Though patient did not have any neurological complaints, CSF examination was done and CRAG was positive. He was treated with injection of liposomal amphotericin B, flucytosine, and ganciclovir, along with ART.

Conclusion: Default of ART by the patients, initiation of ART without investigation and treatment of opportunistic infections, and co-existence of multiple opportunistic infections, are still major challenges in the management of HIV, especially in developing countries. Though *C. neoformans* is the commonly isolated species, more and more cases of *C. gattii* are being reported. Identification of the species is important as there are differences in the epidemiology, clinical presentation, antifungal susceptibilities, and hence the treatment and prognosis.