

Short Communication

Candida Auris : An Emerging Fungal Pathogen in Health-care Associated Infections

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Healthcare-associated Infections (HAIs) are those infections that patients acquire while receiving health care. All HAIs should be taken care of to keep the hospital environment sterile and healthy. There are various HAIs like Surgical Site Infections, Ventilator Associated Pneumonia, Catheter Associated Urinary Tract Infections, Central Line Associated Blood Stream Infections and also all multidrug resistance pathogens added recently. So knowing and identifying all HAIs is very important step in hospital infection and prevention. Various standard precautions and of cohorting of recommended infections should be done immediately will help to keep overall microbial flora sterile. In multidrug resistance newly added is the resistance offered against *Candida auris*. So, identifying the infections caused by *Candida auris* and following proper treatment protocols and isolation strategies is the need of time.

[J Indian Med Assoc 2025; 123(1): 70-2]

Key words : Health-care Associated Infections, *Candida auris*, Blood Stream Infections, Coronavirus Disease 2019 (COVID-19).

In the last decades, fungal infections have been growing faster, presenting a serious threat to the global population, due to the antimicrobial resistance issues, but also the fact that there are much fewer drug classes available than bacterial diseases. Additionally, with the ongoing corona virus disease 2019 (COVID-19) pandemic situation concerning millions of cases Worldwide, nosocomial infections including *Candida auris* may contribute to worsening of healthcare settings. Chowdhary (2020) discussed the situation in India, where for four months there was a 60% case-fatality rate of patients with diagnostic coronavirus disease, while two-thirds of them had confirmed *Candida auris* infection¹. *Candida auris*, this species of *Candida* was first described after isolation from external ear discharge of a patient in Japan. *Candida auris* has since been reported from a wide spectrum of clinical manifestations, ranging from colonization through deep-seated infections and candidemia. (Jagdish Chandra)². *Candida auris* is a recently identified Multidrug Resistant (MDR) emerging nosocomial pathogen. It poses a great challenge for hospital infection control practices, posing a major threat in Critical Care Units globally³. Healthcare-associated Infections (HAIs) are those

Editor's Comment :

- *Candida auris* is one of the emerging nosocomial pathogens. Therefore, understanding this pathogen is crucial for infection control procedures in order to address the difficulties it presents.
- Source identification is of utmost importance in order to initiate and regulate transmission prevention strategies through frequent source management.

infections that patients acquire while receiving health care. *Candida* species are one of the most common. Out of every 100 hospitalized patients, seven patients in advanced countries and ten patients in emerging countries acquire HAI⁴. All nosocomial infections should be taken care of to keep the hospital environment sterile and healthy. In the context of nosocomial candidaemia, *Candida auris* is over-represented and has become endemic in South Africa and India where it accounts for 15% and 5-30% of the national reported candidaemia figures, respectively. The clinical spectrum of *C. auris*-related infections ranges from mild, superficial infections such as otitis media to invasive diseases similar in spectrum to invasive candidiasis due to other species. The epidemiology for candidaemia is similar to that for other *Candida* spp. At-risk groups include those at extremes of age, ICU patients and patients with underlying immunosuppression or chronic diseases, especially following healthcare exposure. Crude mortality rates of *Candida auris* invasive fungal disease remain high (30-60%) Screening for colonisation is recommended for patients with inpatient healthcare contact in settings where *Candida auris* transmission has occurred or close contacts of

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Received on : 06/01/2023

Accepted on : 23/02/2024

confirmed *Candida auris* cases. Public health laboratories commonly recommend superficial swabs of the axillae and groin for patient screening and environmental sponge samples for mycological culture. This is based on the ability of *Candida auris* to colonise multiple body sites including nares, mouth, external ear canals, urine, wounds and rectum. Swabs immersed in Amies transport medium are preferred over dry swabs as they promote the viability of the organism, and use of flocked swabs is likely to improve yield⁵.

So knowing this can add onto the preventing strategies for hospital prevention from infection. Unlike other *Candida* infections, which are generally thought to result from autoinfection from host flora, *Candida auris* can be transmitted between patients. Controlling *Candida auris* is challenging for several reasons: (1) it is resistant to multiple classes of antifungals, (2) it can be misidentified as other yeasts by commonly available identification methods and (3) because of its ability to colonize patients perhaps indefinitely and persist in the healthcare environment, it can spread between patients in healthcare settings. *Candida auris* can infect people of all ages; *Candida auris* candidiasis is most common in older persons, and infections in neonates and children have occurred⁶. *Candida auris* is often misidentified as *C. haemulonii* using conventional methods⁷. *Candida auris* is a budding yeast, which almost never forms short pseudohyphae and does not form germ tubes. Some strains form aggregates of cells, whereas others do not. Unlike most other *Candida* species, it grows well at 40-42°C on CHRO M agar. *Candida*

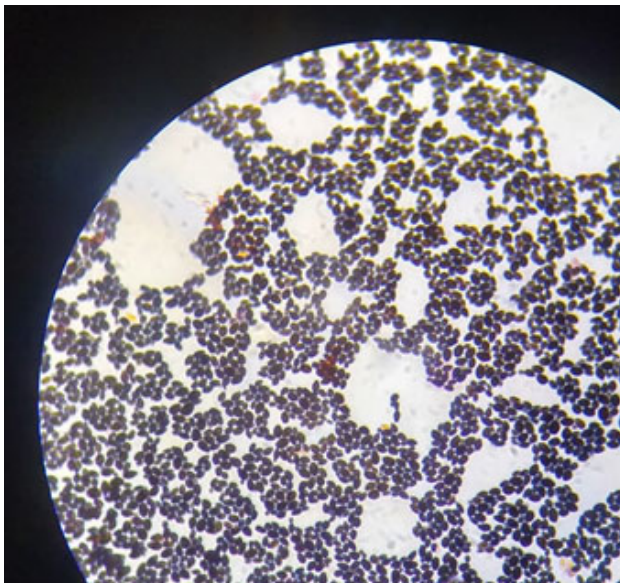


Fig 1 — *Candida auris* Gram stain

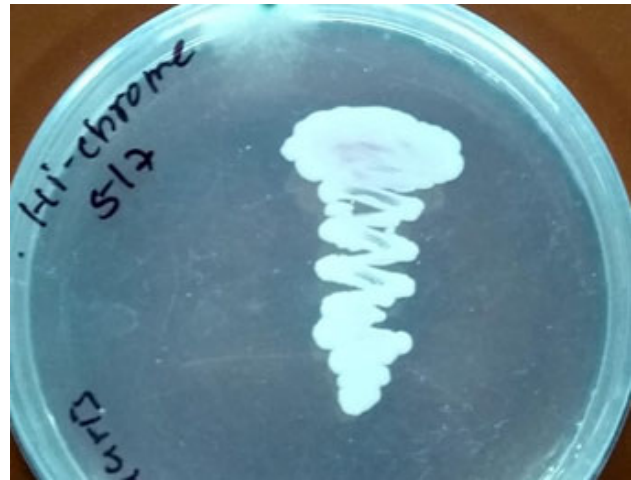


Fig 2 — *Candida auris* on hi-chrom agar

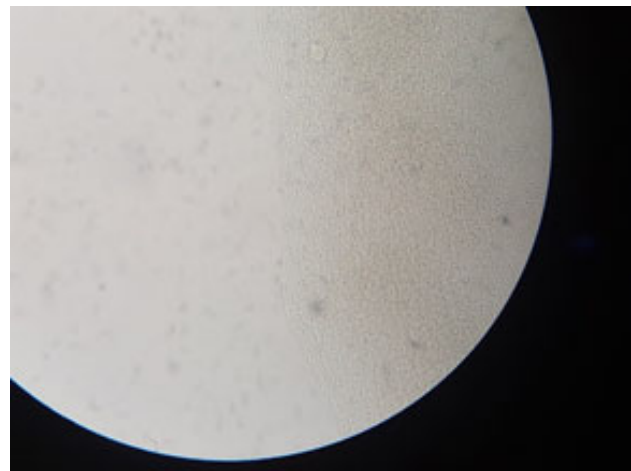


Fig 3 — *Candida auris* on corn-meal agar

auris colonies appear white, pink, red or purple⁸. *C. auris* grows on routine laboratory and mycological media such as Sabouraud Dextrose Agar (SDA) and chromogenic media and has an optimum growth temperature of 37-40°C. A prolonged incubation time of up to 10 days may be required for screening of primary clinical samples⁹. For patients and residents requiring testing for *Candida auris* colonization, collection of following specimens is recommended: minimum of (a) a nasal swab plus a combined bilateral axillary and groin swab, (b) other sites as indicated : swab from wound, urine, line exit site. When testing patients or residents at high risk of *Candida auris*, testing should be repeated if initial results are negative as the sensitivity of a single screen is limited. One approach is to perform additional testing at 7 and 14 days to maximize sensitivity¹⁰. Potentially effective enhanced measures to control *Candida auris* outbreaks include regular active surveillance cultures for *Candida auris* carriage of all patients in affected

wards, cohorting of *Candida auris* -positive patients with dedicated nursing staff in separate areas, as well as rigorous environmental cleaning and disinfection¹¹. In vitro data suggest that both sodium hypochlorite and improved hydrogen peroxide (0.5%, 1.4%) are effective agents against *Candida auris* while quaternary ammonium compounds are not. Therefore, quaternary ammonium compounds should not be used for disinfection of the environment or medical equipment potentially exposed to *Candida auris*¹⁰. Non-albicans *Candida* spp. infections are progressively emerging in hospitals and ICUs' settings. *Candida auris* with high mortality rates, multi-drug resistance, environmental resilience and horizontal transmission has become an issue in clinical practice. *Candida auris* MDR strains may continue to emerge independently and simultaneously throughout the world in next few years. High level of knowledge and alertness by Physicians and Healthcare Workers, especially in critical care settings, would help to control the spread and improve diagnostic and therapeutic strategies¹². *Candida auris* has now become the leading cause or among the leading causes of invasive fungal infections in many healthcare centres, mostly due to its potential to present or develop resistance to multiple classes of antifungal drugs and due to its ability to persist in healthcare settings. Timely diagnosis by rapid and reliable identification methods and diligence in infection control measures can help to contain the spread of *Candida auris* and prevent and control outbreaks¹³. The discovery and emergence of *Candida auris*, however, have significantly changed the way clinicians need to consider antifungal-resistant *Candida*, and it represents new challenges not previously associated with this genus of fungi¹.

CONCLUSION

Candida auris is an important transmissible, emerging nosocomial pathogen. So, in infection control practices, awareness about this pathogen is of great importance to deal with the challenges offered by it. As epidemiologically the identification features also changes so collecting epidemiological data will be of great help to curtail with the management of

associated diseases. As source identification will help the control officer to start and regulate the methods for prevention of transmission by regularising the source control.

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