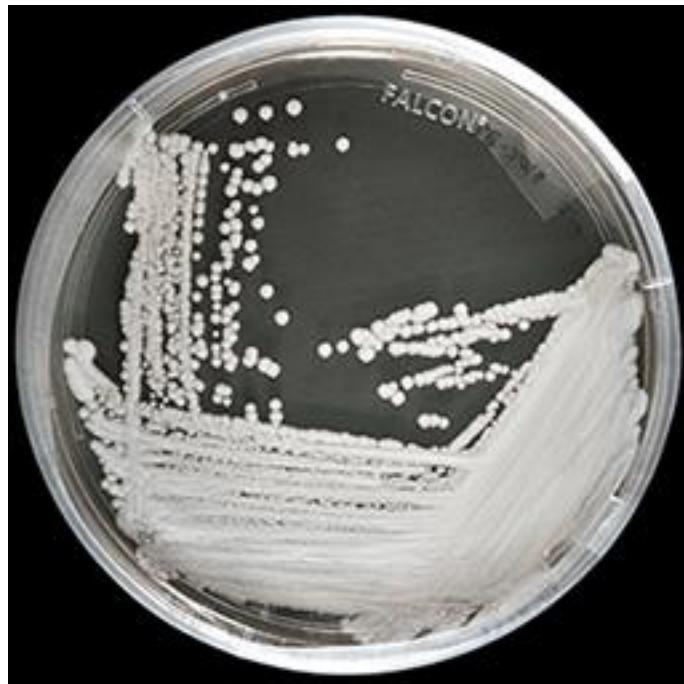


CANDIDA AURIS



Candida auris culture, (CDC)

Introduction

Candida auris is a fungus (or yeast) that is a serious emerging **global health threat**.

Some strains are **multidrug-resistant**, to **all three antifungal drug groups** commonly used to treat *Candida* infections.

The organism is difficult to identify with standard laboratory methods, and it can be misidentified in labs without specific technology.

It has caused outbreaks in healthcare settings. For this reason, it is important to quickly identify *C. auris* in a hospitalized patient so that healthcare facilities can take special precautions to stop its spread.

C. auris can cause invasive disease, septicemia and death, particularly in immunocompromised patients.

More than 1 in 3 patients with invasive *C. auris* infection (for example, infection affecting the blood, heart, or brain) die.

Australia to date has had very few identified cases of *C. auris*. This is due in part to our geographic isolation; *however*, the risk of *C. auris* spreading to Australia is significant enough that it is recognized as an *emerging* and *high risk* public health issue.

History

Candida auris was first discovered in 2009 in Japan

Epidemiology

Since *C. auris*' discovery in 2009, it has spread to at least a dozen countries, now including Australia.

C. auris has caused outbreaks in overseas healthcare facilities and can spread through contact with affected patients and contaminated surfaces or equipment

Countries where *C. auris* has been detected currently include the UK, India, Pakistan, China, South Africa and parts of the USA.

International travel to affected areas creates an increased risk of spread of *C. auris* to Australia.

Admission to healthcare services or residential care in these areas is a particularly significant risk factor for *C. auris* colonization.

Pathology

Organism

- *Candida auris* is a species of fungus (or yeast)

The most common type of *Candida* infection is by far more benign ***Candida albicans***, which commonly causes thrush.

Risk factors:

Invasive candidiasis is an infection caused by a yeast (a type of fungus) called *Candida*.

Unlike *Candida* infections in the mouth and throat (also called “thrush”) or vaginal “yeast infections,” invasive candidiasis is a serious infection that can affect the blood, heart, brain, eyes, bones, and other parts of the body. Candidemia, a bloodstream infection with *Candida*, is a common infection in hospitalized patients.

It is important to recognize that people may carry ***C. auris*** on their skin without any symptoms, (i.e. they are *colonized*, but not *infected*). These individuals however, are at risk of getting *C. auris* **infection** if they are hospitalized for another reason.

C. auris is more likely to affect patients who have:

1. A hospital stay in an area with documented or suspected C. auris transmission
2. A prolonged hospital stay
3. An indwelling medical device, such as a central venous catheter, urinary catheter, biliary catheter or wound drain
4. An impaired immune system
5. Multiple or recent exposures to broad spectrum antibiotics
6. Diabetes mellitus
7. Recent surgery

Reservoir

- Colonized people

In most cases, patients carry the fungus somewhere on their body without it causing any symptoms or an infection, i.e. they are colonized, but not infected.

- Note that C. auris can survive on surfaces for weeks

Transmission

- C. auris can spread in healthcare settings through direct contact with contaminated environmental surfaces or equipment, or from person to person.

More work is needed to further understand how it spreads.

Incubation Period

- Unknown

Period of communicability

- People who are colonized or who have had an infection with C. auris are currently considered to be colonized indefinitely, and must remain in contact precautions for all hospital admissions.

Further research is required before clearance criteria can be determined.

Susceptibility & resistance

- See risk factors above

Clinical Features

Colonization with *C. auris* is asymptomatic.

Colonization generally occurs:

1. On the skin
2. In the urine
3. Around indwelling devices (e.g. PEG tubes and central lines).

Invasive infection can present as:

1. Sepsis (i.e. septicemia)
2. Urinary tract infections
3. Wound infections
4. Ear infections
5. Line infections.

C. auris sepsis has a case fatality rate between 30 - 60 %, similar to other invasive *Candida* infections.

Most people with invasive infection have:

- Co-morbidities
- Immunosuppression

The *types* of infections caused by *C. auris* are no different from those caused by other types of *Candida*; however, *C. auris* is of particular concern as:

- It can be more difficult to treat than other *Candida* infections due to multi-resistance.
- It can be more readily transmitted.

Investigations

Laboratory diagnosis via **culture** is currently the only way to diagnose *C. auris* infection or colonization.

Approximately 54% of *C. auris* cases have been identified from blood; the remaining 46% of cases have been identified from other body sites, including, but not limited to, urine, wounds, sputum, and bile.²

C. auris can be misidentified as other types of fungi unless *specialized* laboratory technology is used.

Clinicians and laboratories should be aware of the possibility of *C. auris*, especially in high-risk patients who have cultured a **non-albicans** *Candida* species.

Any confirmed isolates of *C. auris* should be forwarded to the Victorian Infectious Diseases Reference Laboratory for further confirmation and typing.

Management

Prevention:

Good **hand hygiene** and **cleaning** in healthcare facilities is essential because *C. auris* can live on surfaces for several weeks.

Infection control precautions for patients with *C. auris*, that is, single room and contact precautions, must be instituted every time they are admitted to a health care facility and maintained until discharge (even if screening specimens taken at the time are negative for *C. auris*).

Until further evidence to the contrary is available, the current advice for the use of infection control precautions is that once a person is identified as a case of *C. auris*, they should be considered potentially infectious indefinitely.

Treatment:

Most strains of *C. auris* found in the United States have been susceptible to **echinocandins** although echinocandin-resistant isolates have been reported.

Echinocandin agents include:

- Anidulafungin
- Caspofungin
- Micafungin

Some *C. auris* strains have been resistant to all three major classes of antifungal medicines.

In these situations, **multiple antifungals** at **high doses** may be required to treat the infection.

In all cases there should be consultation with:

- Infectious diseases specialist
- Microbiology

Note that the CDC does not recommend treatment of C. auris identified from non-invasive sites (such as respiratory tract, urine, and skin colonization) when there is no evidence of infection. Similar to recommendations for other Candida species, treatment is generally only indicated if clinical disease is present.

Notification:

C. auris infection or colonization is not currently a notifiable condition under the Public Health and Wellbeing Act (2009).

However, given the public health significance of this disease it is currently requested that all confirmed or probable cases (**invasive infection or colonization**) are notified by the treating clinician, by telephone, to the Department of Health and Human Services via 1300 651 160.

Additionally it is requested that all isolates of confirmed C. auris are forwarded to the Victorian Infectious Diseases Reference Laboratory (VIDRL) for further confirmatory and susceptibility testing.

References

1. Candida auris in The Blue Book Website, 7 August 2018.
2. Candida auris in CDC Website, Accessed August 2018.

Dr J. Hayes.
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