

Please read this bit first

The HPCSA and the Med Tech Society have confirmed that this clinical case study, plus your routine review of your EQA reports from Thistle QA, should be documented as a "Journal Club" activity. This means that you must record those attending for CEU purposes. Thistle will **not** issue a certificate to cover these activities, nor send out "correct" answers to the CEU questions at the end of this case study.

The Thistle QA CEU No is: **MT00025**.

Each attendee should claim **THREE** CEU points for completing this Quality Control Journal Club exercise, and retain a copy of the relevant Thistle QA Participation Certificate as proof of registration on a Thistle QA EQA.

Cycle 21 Organism 2:

Candida lusitaniae

Yeasts are by far the most common fungi isolated from human patients. The significance of their presence in a specimen ultimately rests with the physician. Accurate and complete information from the laboratory is essential for a conclusion to be made. The number of hospitalized patients with candidal infections has increased over the last number of years. In a 4-year global study the proportion of *Candida albicans* isolates decreased from 69.7% in 1997 – 1998 to 63% in 2001. This decrease was accompanied by a concomitant increase in *Candida parapsilosis* and *Candida tropicalis* isolates as well as other non-*Candida albicans* species¹.

The heterogeneous genus *Candida* belongs to the family *Cryptococcaceae*, within the Deuteromycota. The genus contains approximately 200 species². *Candida* species are ubiquitous yeasts being found on many plants and as members of the normal flora of the alimentary tract of mammals and mucus membranes of humans. The most commonly isolated species from the human gastrointestinal tract is *Candida albicans*, followed by *C. tropicalis*, *C. parapsilosis*, and *C. glabrata*³.

Candida species can be present in clinical specimens as a result of environmental contamination, colonization, or actual disease processes. *C. albicans* is the most common species isolated from patients with nearly all forms of candidiasis³. Other medically important *Candida* species include *C. lusitaniae*, *C. guilliermondii*, *C. krusei*, *C. lypolytica*, *C. parapsilosis*, and *C. tropicalis*. The species that emerging as opportunistic pathogens include *C. lusitaniae*, *C. krusei*, *C. parapsilosis*, and *C. lypolytica*.

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These species have been isolated from patients with fungemia. *C. lusitaniae* and *C. guilliermondii*, which are generally low-virulence organisms, may be either innately or potentially resistant to amphotericin B. *C. krusei* appear to be sensitive to amphotericin B, but resistant to fluconazole⁴.

Regardless to the species, a single isolate of *Candida* from blood should be considered significant whether it come from an immunocompromised or immunocompetent patient. Considering that about 10% of nosocomial bloodstream infections are caused by *Candida* species, it obvious that *Candida* fungemia represents a serious patient management problem⁵.

References

1. Banerjee SN, Emori TG, Culver DH *et al.* Secular trends in nosocomial primary bloodstream infections in the United States. *Am J Med* 1989; **91** (Suppl 3B): 86S-89S.
2. Kurtzman, CP., and Fell JW (ed). 1998. The Yeasts, a Taxonomic Study. 4th ed. Elsevier, New York, NY.
3. Odds FC. 1988. *Candida* and Candidosis. 2nd ed. Bailliere Tindall, London, UK.
4. Wingard JR. *et al.* 1991. Increase in *Candida krusei* infection among patients with bone marrow transplantation and neutropenia treated prophylactically with fluconazole. *N Eng J Med.* **325**: 1274-1277.
5. Edwards JE., and Fuller SG. 1992. Current strategies for treating invasive candidiasis: emphasis on infections in neutropenic patients. *Clin Infect Dis.* **14**: S106-S113.

Questions

1. What media would you use to isolate members of the genus *Candida*?
2. What methods would you use to identify *Candida lusitaniae*?
3. What methods are used to determine the susceptibility of clinically important yeasts to antifungal agents?