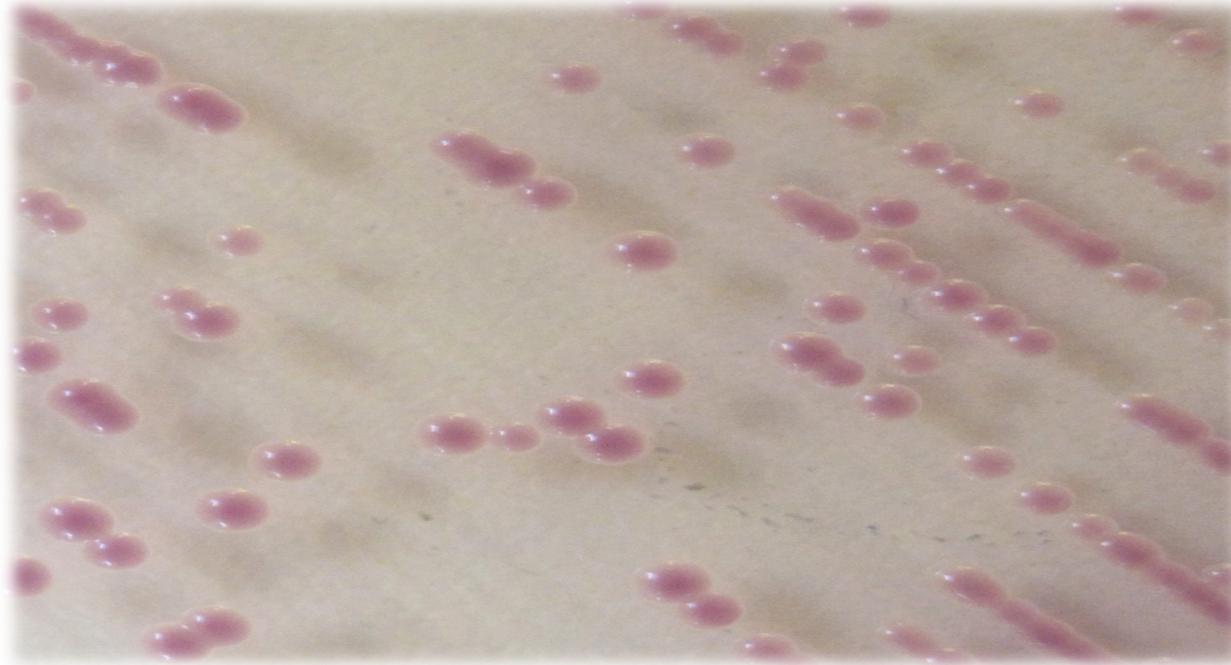


Candida: a case and some clinical aspects



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Case*

- Old man
- Several underlying diseases, including:
 - Pacemaker
 - Prostatism (enlarged prostate): often «rest urine» and recurrent urinary tract infections
 - Treated with pivmecillinam and trimethoprim-sulfametoxazol past month, no clinical effect
- Admitted with:
 - Urinary tract infection symptoms, subfebrile
 - After 2 days: urine culture neg. (U-stix: 3+ lkc/blod, neg nitrite). Blood culture neg. CRP 130

Case continues....

- After 5 days incubation there were positive blood cultures: ***C. glabrata* i 5/8 bottles**
 - **S:** amphotericin-B MIC 0.125, micafungin MIC 0.008, anidulafungin MIC 0.008, **I:** fluconazole MIC 8
- Patient was readmitted with suspected **pacemaker lead endocarditis**
 - Starts antifungal treatment: anidulafungin iv.
 - Echinocandines: fungicidal (*Candida*). Better biofilm-penetration than azoles? What about tissue penetration?
 - Pacemaker removed, temporary pacemaker implanted

Case: overview of diagnostics

- **Blood cultures**
 - *C. glabrata*
 - Repeated blood culture controls were **negative**
- **Urine culture**
 - Initially: **no growth**
 - Later, two positive cultures: *C. glabrata* < 10 000 cfu/ml
 - Control urine 1 week later: **no growth**
- **Pacemaker with leads**
 - No growth of bacteria or fungus. Direct PCR not performed
- **Other**
 - Ecco cor (heart): Minor findings – no suspicion of valve endocarditis
 - CT scan: reactive changes in the urinary bladder wall
 - Cystoscopi: inflammatory changes in the urinary bladder wall/catheter irritation, benign prostata hyperplasi
- **Status after 3 weeks**
 - Good clinical condition, afebrile, CRP 3.5
 - Prostata surgery (TurP) performed under ongoing antifungal treatment: Urinary tract «cleaned out»
 - New pacemaker after 1,5 months

NB! Repeated findings of *C. glabrata* in urin cultures taken at primary care doctor previously: Considered to be «only» colonization or contamination and thus never treated...

Probable diagnosis and challenges

- Candidemia and pacemaker lead endocarditis*

- *Candida* endocarditis very rare!
 - Not 100% certain diagnosis here, but chose to treat as such
- Pacemaker+leads must be extracted

Treated with **anidulafungin iv** 6 weeks

- Infection focus: probably urinary tract**

Cystitis? Prostatitis? Bladder colonization?

- When is *Candida* in urine clinically relevant?
- To treat or not to treat (AST or no AST)?

Treated with **fluconazole po** 2 weeks



* Foong KS et al. *Med Mycol* 2020. Arnold CJ et al. *Antimicrob Agents Chemother* 2015. Le Fort A et al. *Clin Microbiol Infect* 2012

**Alfouzan WA, Dhar R. *Journal de Mycologie Médicale*,2017. Kauffman CA. *Infect Dis Clin N Am* 2014. Sobel JD et al. *Clin Infect Dis* 2011;52 (Suppl 6)

Risk factors for invasive *Candida* infections

Table 1
Risk factors for invasive candidiasis

Immunocompromised	Nonimmunocompromised	Neonates
In addition to →	Broad-spectrum antibiotics	← In addition to
Granulocytopenia	Any type of renal dialysis	Gestational age
SCT	Central venous catheter	Low APGAR
Mucositis	IV drug use	Length of NICU stay
GVHD	Severity of illness	H ₂ blockers
Type of chemotherapy	Total parenteral nutrition	Shock
Organ transplants	GI perforation or surgery	Intubation
—	Candida colonization	GI disease
—	Diabetes	Congenital malformations
—	Length of stay in ICU	—
—	Pancreatitis	—
—	Sepsis	—

Abbreviations: APGAR, appearance, pulse, grimace, activity, and respiration; GI, gastrointestinal; GVHD, graft-versus-host disease; IV, intravenous; NICU, neonatal ICU; SCT, stem cell transplant.

Adapted from Ostrosky-Zeichner, Luis MD, FACP; Pappas, Peter G. MD, FACP Invasive candidiasis in the intensive care unit. Crit Care Med 2006;34(3):857-863; with permission.

Examples:

- Immunosuppression
- Broad-spectrum antibiotics
- GI surgery or perforation
- Renal dialyses
- IV drug use
- Diabetes
- Prematurity
- Etc....

Important points for the lab

- Remember the **risk factors**
 - Add yeast culture when risk factors present (if clinical information is provided)
- Thorough fungal **diagnostics**
- Correct **identification** of the yeast
 - Will help guide correct antifungal treatment until AST is available
- Correct **AST**

Maiken will now teach you everything you need to know



