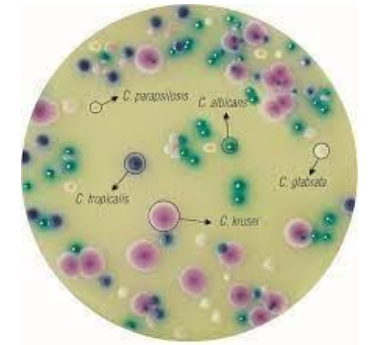
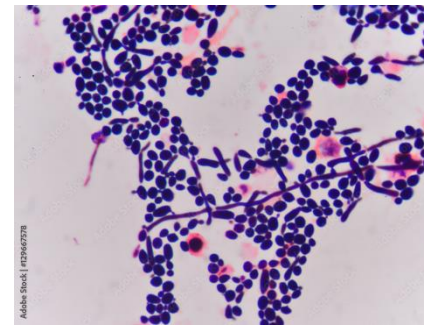


Gærsvampe som årsag til urinvejsinfektioner

Urologiske sygeplejerskers landsmøde 2022





M1297AR - HiCrome™ Candida Differential Agar

Mikrobiologisk baggrund

- Gærsvampe omfatter mange *Candida* arter, hyppigst optræder *C. albicans*, *C. glabrata* og *C. krusei* i infektioner i DK
- Er en del af normalfloraen på slimhinder i mave-tarm-kanalen og urogenitalkanalen
- Resistente over for antibakterielle midler (antibiotika) og vil derfor få en overlevelsesfordel under antibiotikabehandling
- Er gode til at kolonisere fremmedlegemer (intravenøse og andre katetre) under biofilmdannelse
- I KMA udføres normalt kun følsomhedsbestemmelse på invasive isolater

Hvad siger internationale guidelines om fund af gærsvampe dvs *Candida* arter i urinen ?

- Skal som udgangspunkt ikke behandles (mistænk kolonisering, kontaminering)
- Er oftest en kolonisering pga fremmedlegeme og/eller forudgående antibiotikabehandling
- Fjern fremmedlegemet og undersøg for disponerende faktorer for at behandle disse
- Hvis der er tale om symptomgivende UVI som følge af *Candida* infektion, er fluconazol førstevalget
- Ved fund af "fungus balls" er kirurgisk fjernelse nødvendig



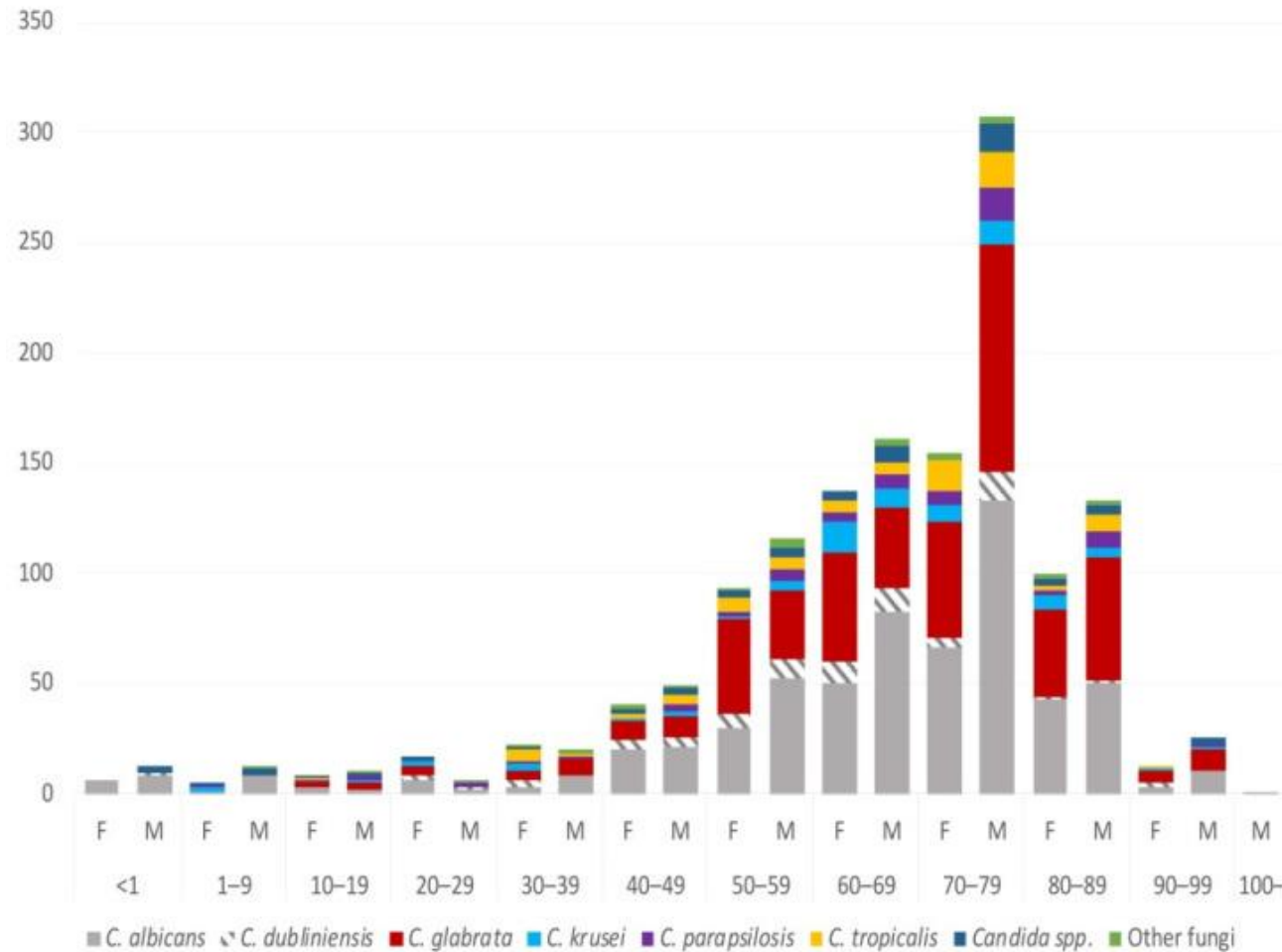
Udfordringer

- Ikke alle gærsvampe er følsomme for fluconazol (*C. glabrata*, *C. krusei*)
- Forekomsten af *C. glabrata* (fluconazol I) er stigende i DK, *C. albicans* (fluconazol S) faldende
- Meget få svampemidler udskilles i urinvejene:
 - Fluconazol
 - Konventionel (= gammeldags og toksisk) amphotericin B
 - Flucytosin (også toksisk, hurtig resistensudvikling ved anvendelse som monoterapi)
- Standardbehandling af candidæmi, også hvis fokus er urinvejene, er echinocandiner (som ikke udskilles i urinen)

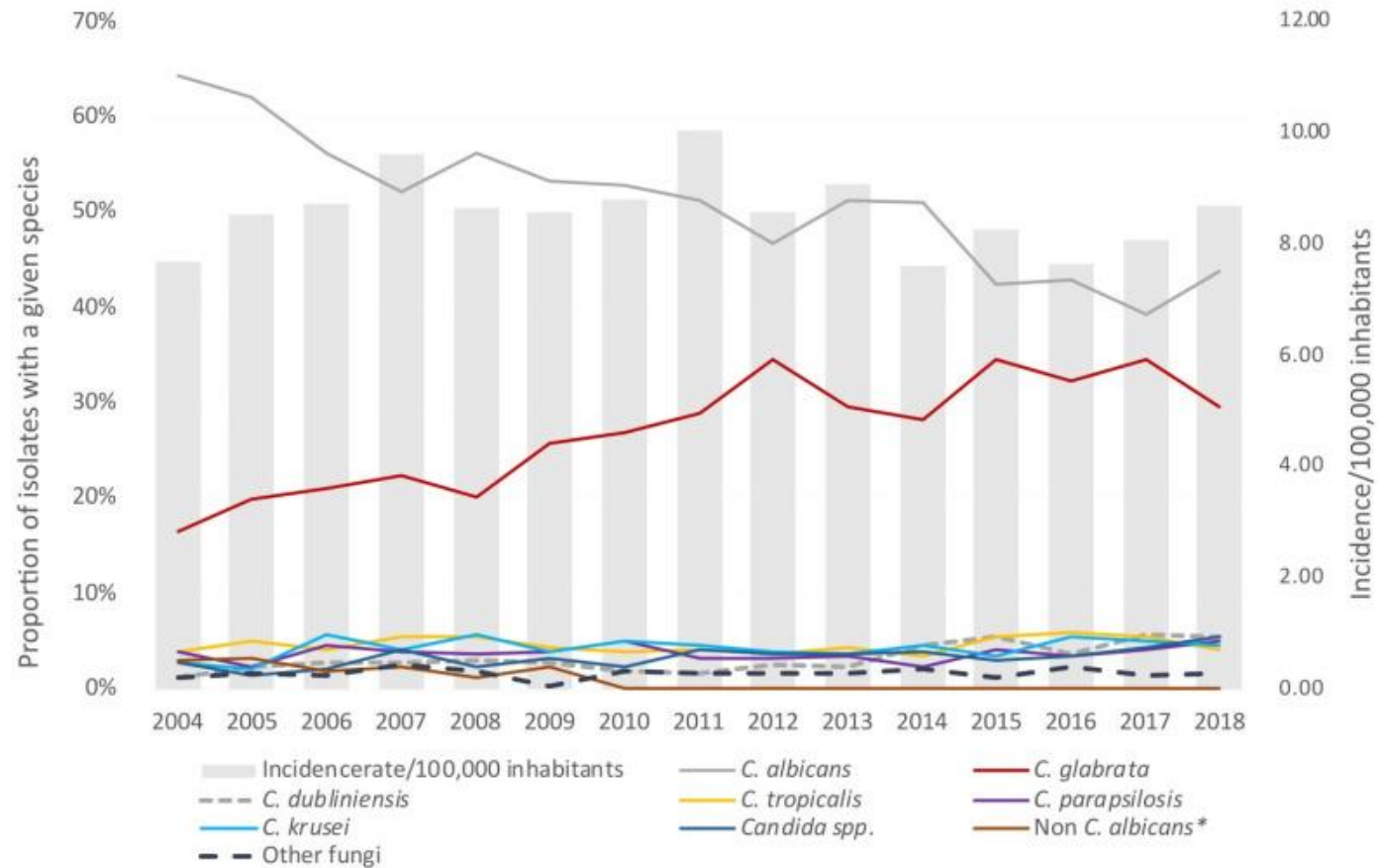
Hvordan ser det ud i vores område mht fordelingen af *Candida* fund (antal patienter)?

	Gær i urin 2019	Gær i urin 2021	Gær i blod 2019	Gær i blod 2021
C. albicans (fluco S)	75	391	38	31
C. glabrata (fluco I)	82	146	43	30
C. krusei (fluco R)	78	83	1	8
Total	235	620	82	69

Candidæmi i DK 2015-2018, alders- og artsfordeling



Fordeling af Candida arter fra bloddyrkninger i DK



Hvad siger eksperterne ?

Treatment of Fungal Urinary Tract Infection



Lewis Thomas, MD, Chad R. Tracy, MD*

KEYWORDS

• Funguria • Candiduria • Fungus ball • Candidemia • Fluconazole • Flucytosine • Amphotericin B

KEY POINTS

- Candiduria is a common condition particularly in patients with diabetes, urinary catheters, or recent antibiotics or steroids, or in those who were recently hospitalized.
- Asymptomatic candiduria does not typically necessitate antifungal treatment, although workup and modification of candiduria risk factors are important.
- For symptomatic patients, fluconazole is the mainstay of therapy because it readily accumulates in high levels in the urine. Almost all cases of *Candida* cystitis can be treated with fluconazole.
- Care must be taken in treating patients with candiduria with nephrolithiasis or fungal bezoars, because urinary tract manipulation or failure to drain obstructed systems can lead to *Candida* pyelonephritis or candidemia.
- Noncandidal funguria is very rare and mostly occurs in patients who are severely immunocompromised.



Disponerende faktorer til candiduri

	Inpatient (%)	Outpatient (%)	ICUs (%)
Strong Risk Factors			
Diabetes mellitus	39	29	22 (insulin dependent)
Indwelling catheter use	83	15	98
Recent antibiotic use	85	46	98
Urinary tract disease	38	36–59 ^a	N/A
Possible Risk Factors			
Pregnancy	2	23	NA
Malignancy	22	10	13
Immunosuppression	4.3 (neutropenia)	3	6 (25% with steroid use)
Recent surgery	52	NA	42
Renal transplant	4	NA	1
Gender and Age			
Gender (female)	60	82	49 ^b
Age (mean)	64.5	46	61.2

Abbreviation: N/A, not assessed.

^a Incompletely assessed and reported as individual conditions.

^b Women represented just 34% of the ICU cohort.

Data from Refs 3–5

Forslag til algoritme ved fund af *Candida* spp i urin

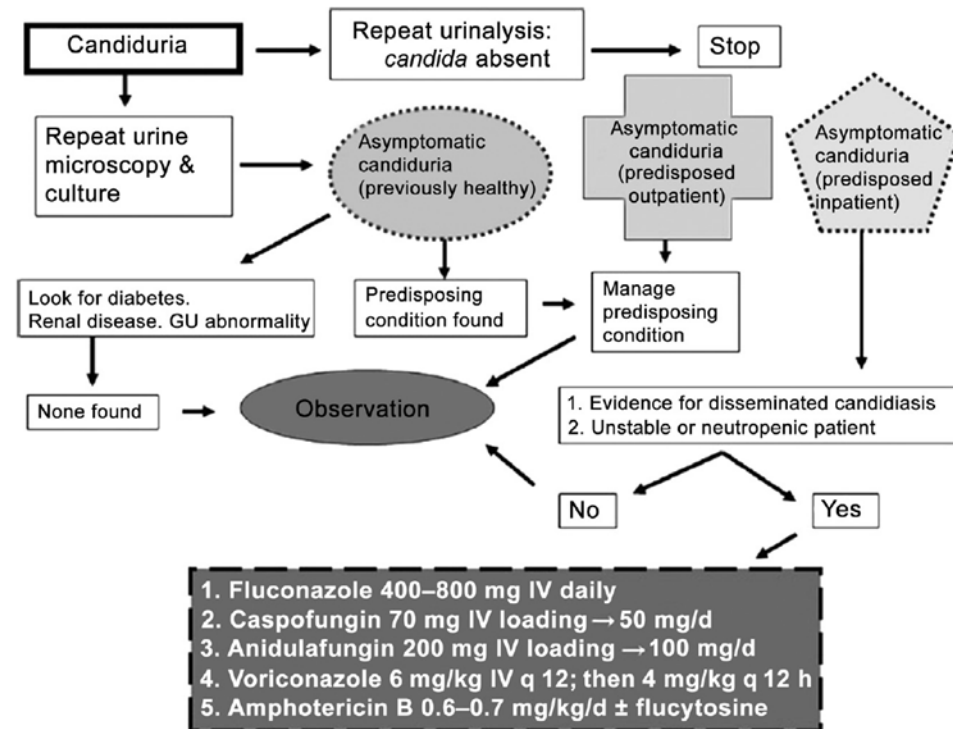
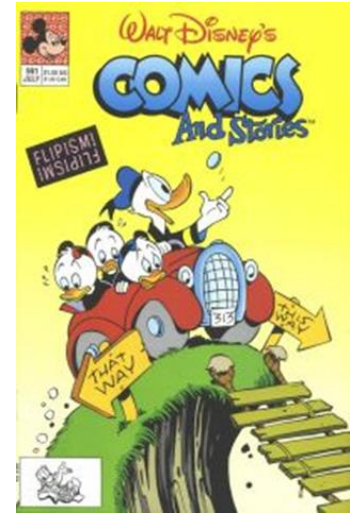


Fig. 1. Algorithm for the management of asymptomatic candiduria. IV, intravenous. (From Fisher JF, Sobel JD, Kauffman CA, et al. *Candida* urinary tract infections—treatment. Clin Infect Dis 2011;52(Suppl 6):S458; with permission.)

Behandling af Candida UVI med antimykotiske midler

TABLE 8. Recommendations on *Candida* urinary tract infections

Population	Intention	Intervention	SoR	QoE	References
Asymptomatic	To clear candiduria	None ^a	A	II _u	[100]
		Fluconazole 200 mg for 14 days ^b	C	I	[99] [100]
		Removal of urinary catheter	B	I	[101]
		Amphotericin B deoxycholate bladder irrigation	C	II _{r,u}	[100] [102]
Cystitis	To cure	Fluconazole ^b	A	III	[100]
		Amphotericin B deoxycholate +/- flucytosine	B	III	
Fungus balls	To cure	Surgical intervention	A	III	[104] [105]
Pyelonephritis	To cure	Caspofungin 70/50 mg for 9–28 days	C	III	[106]
		Fluconazole +/- flucytosine ^b	A	III	No reference found
		Lipid-based amphotericin B +/- flucytosine	A	III	No reference found

^aIn pre-operative patients, treatment is indicated to suppress candiduria.
^bIf species is susceptible.

Konklusioner

- Asymptomatisk candiduri skal ikke behandles, gentag prøvetagning og udred for disponerende faktorer mhp behandling af disse, fjern fremmedlegemer
- Ved cystitis symptomer og candiduri: ny prøvetagning for at confirmere resultatet. Fluconazol kan anvendes ved *C. albicans* og i forhøjet dosering til *C. glabrata*, ingen attraktive behandlingsmuligheder for *C. krusei* (lokalbehandling med konventionelt amphotericin B, ibrexafungerp ?)
- Ved pyelonefritis og candiduri samme behandling som ovenfor, til *C. krusei* kan echinocandin (anidulafungin eller caspofungin) anvendes
- Ved candidæmi udgået fra urinvejsfokus er førstevalget et echinocandin (anidulafungin eller caspofungin)

Ved tvivl - ring gerne til mikrobiologen !

