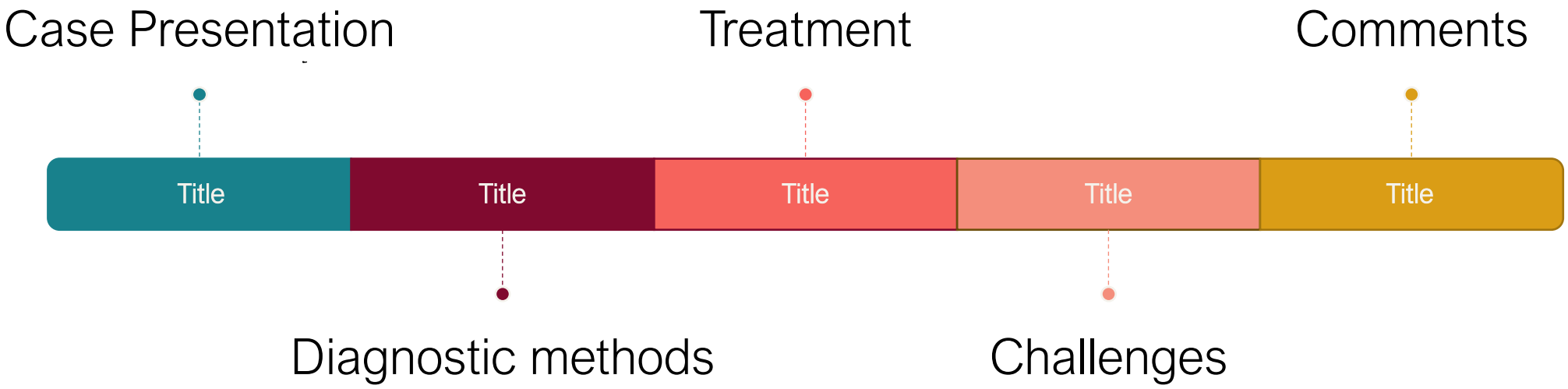
THE 4TH SEMINAR OF INFECTION IN TRANSPLANTATION AND CANCER

FEBRUARY 2024


Case Presentation
Treatment
Comments
Title
Title
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Diagnostic methods
Challenges

a 21-year-old man with the diagnosis of Pre-B-cell ALL admitted to the hematology department for receiving induction chemotherapy.

The chemotherapy regimen was CALGB 10403:

D1-D8-D15-D22

D4 Pegaspargase

D1 IT ara-C

D8-D29 IT MTX

Dear Dr Ghadyani

- CALGB Regimen?
- Predicted risk of neutropenia?

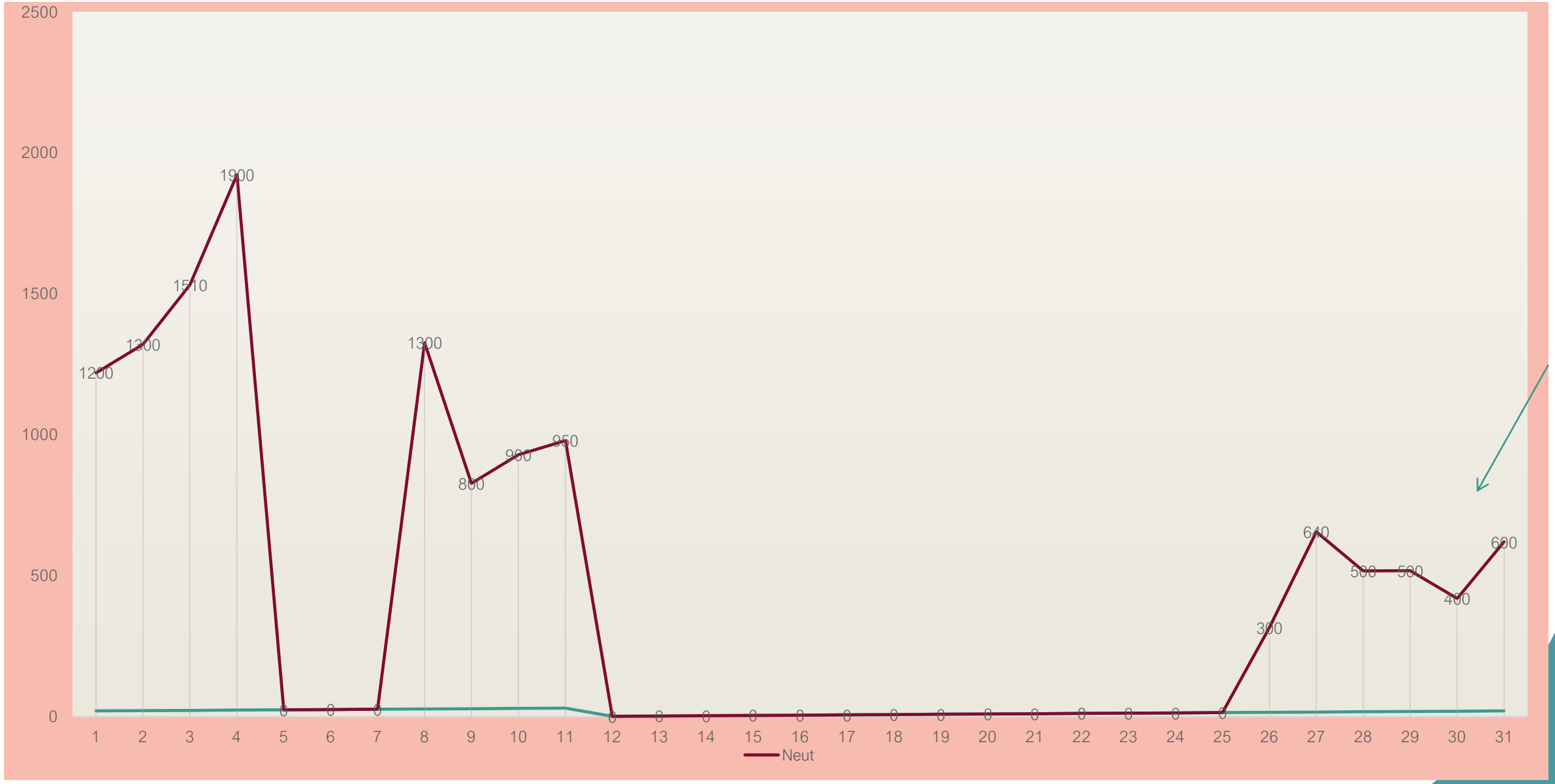
Dear Dr Aghazadeh

- Risk of infections?
- Chemoprophylaxis regimen in this patient?

Prophylaxis

Fluconazole
Acyclovir
Levofloxacin
Co-trimuxazole

- D30 of induction chemotherapy the patient became febrile (T: 38.5).
- He presented fatigue, occasional dry cough, and left pleuritic chest pain with normal vital signs and physical examination.
- Oxygen saturation was 96% while the patient was breathing ambient air.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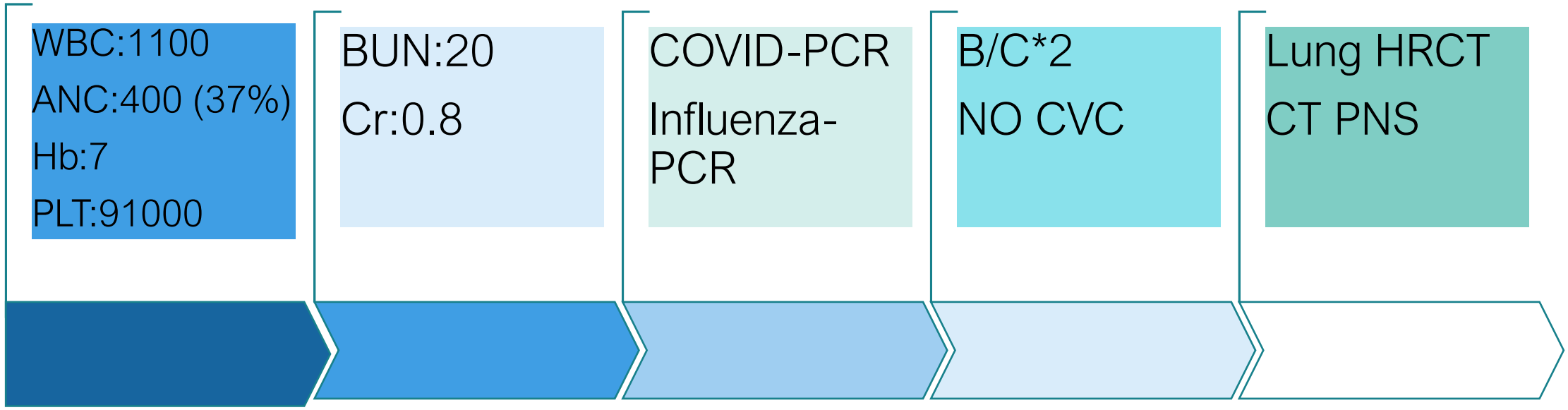
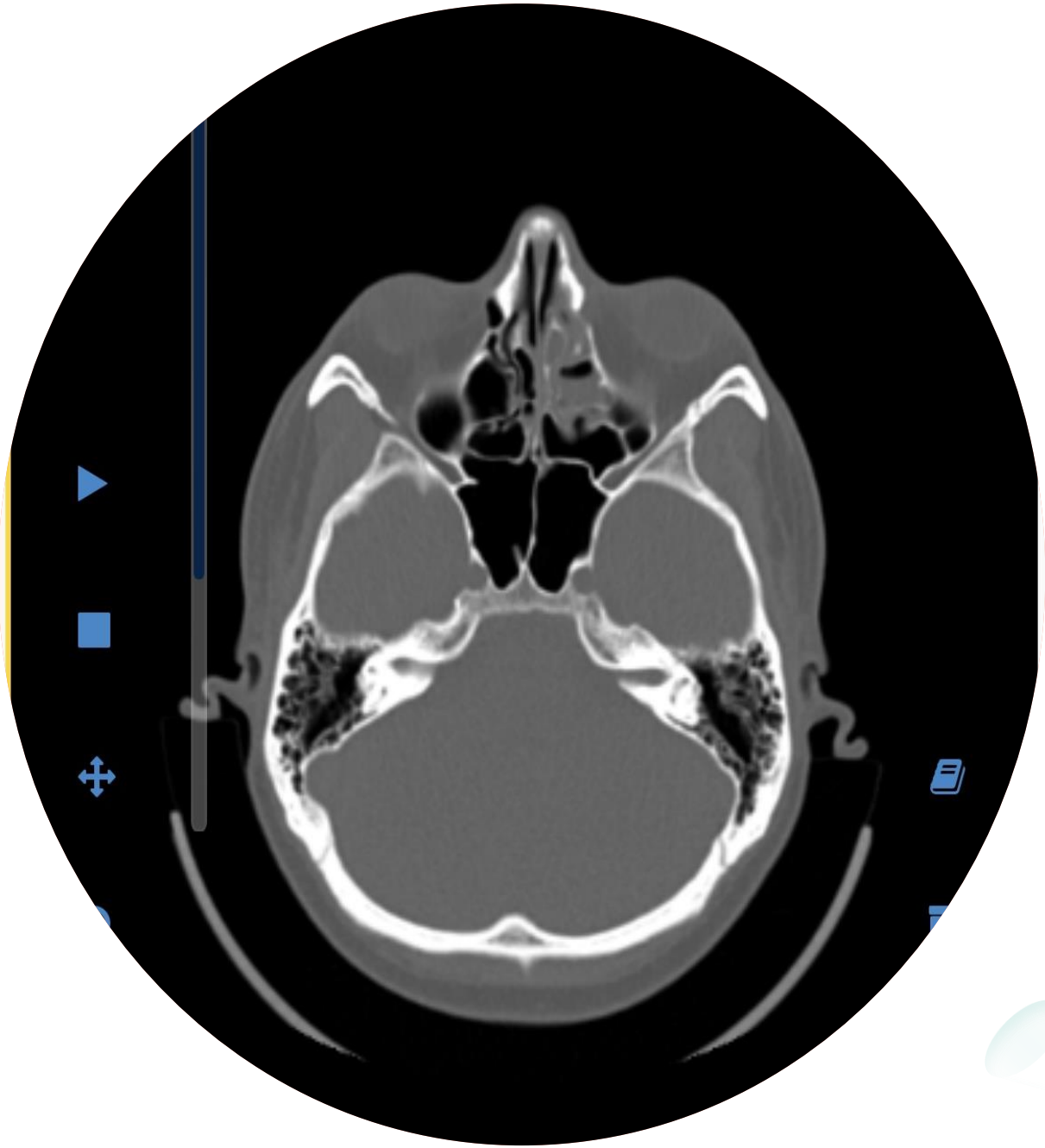
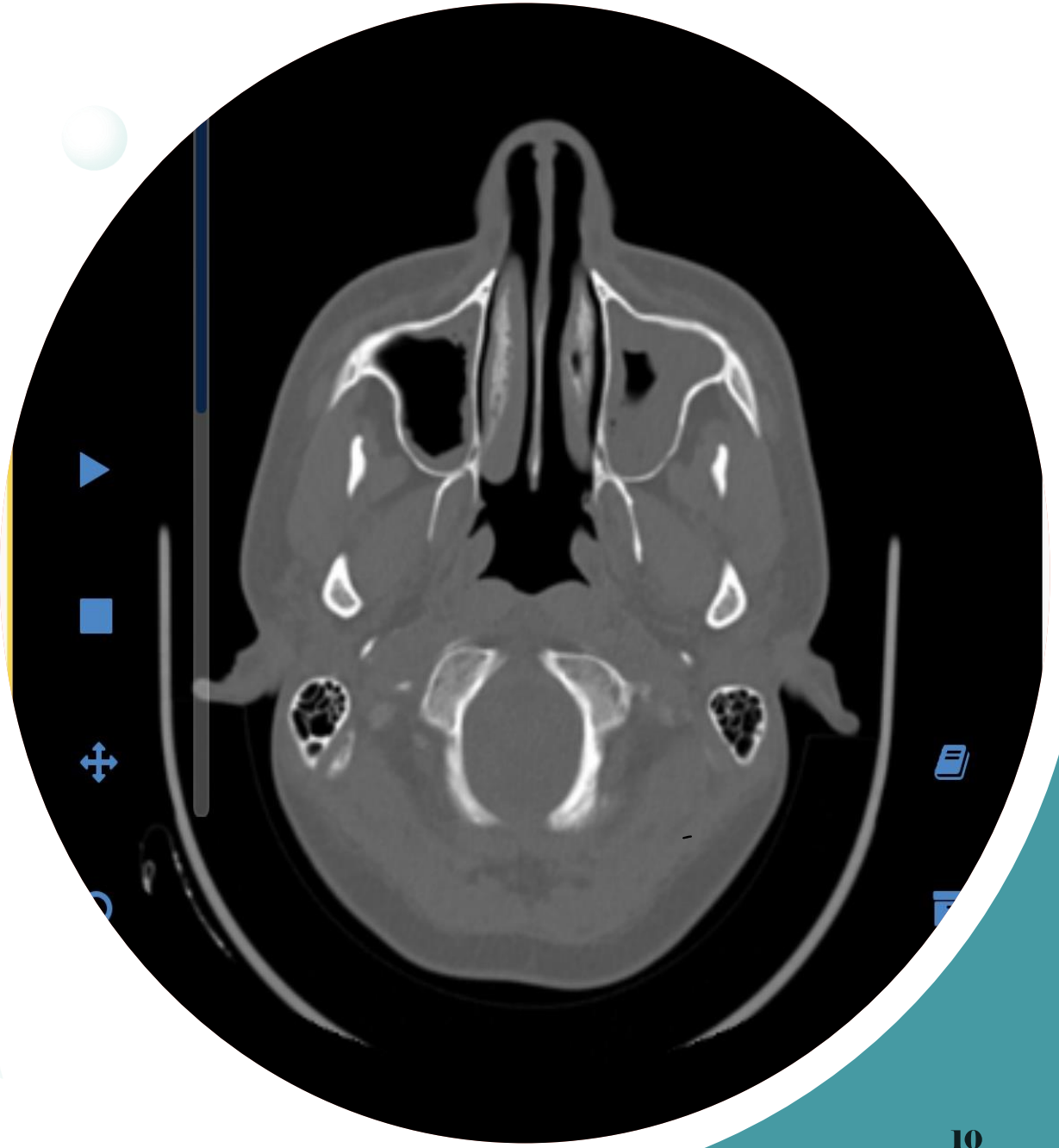
Neut

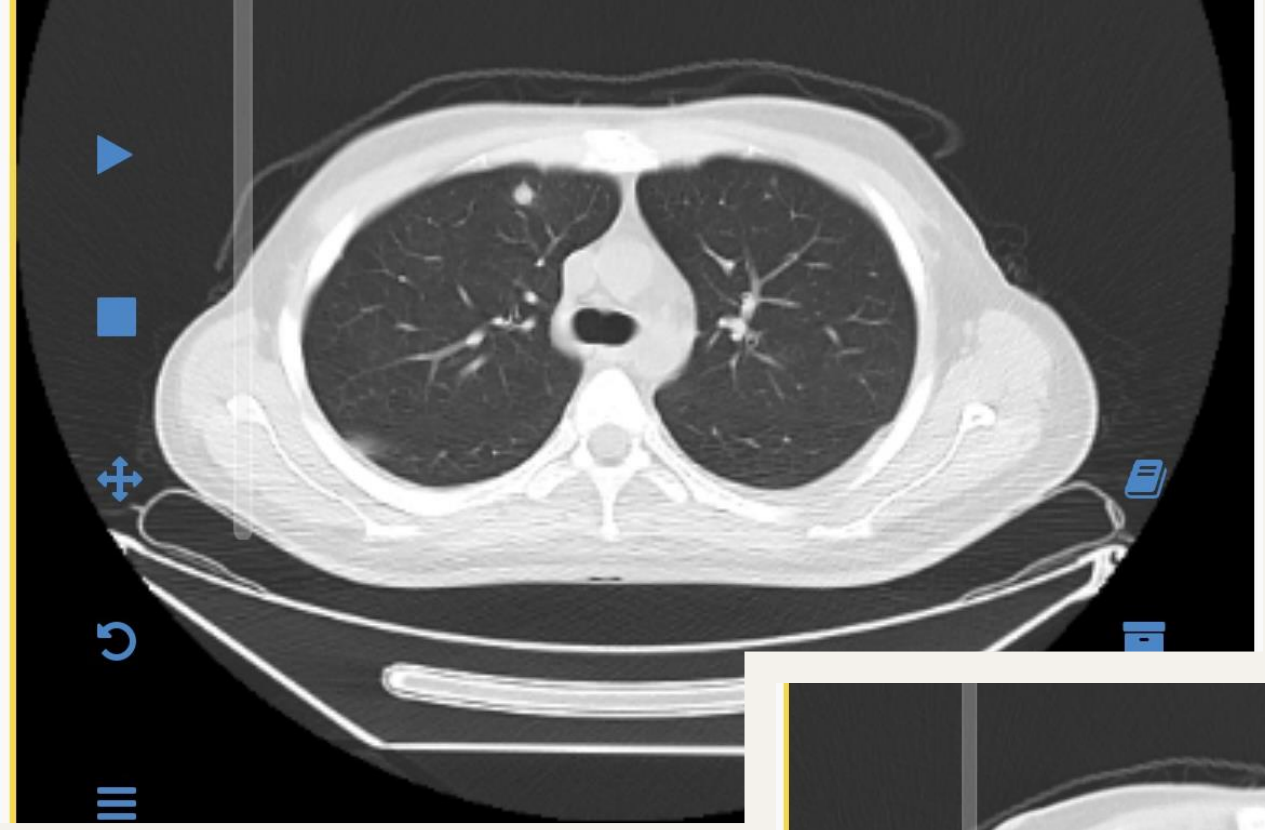
Laboratory data D 30

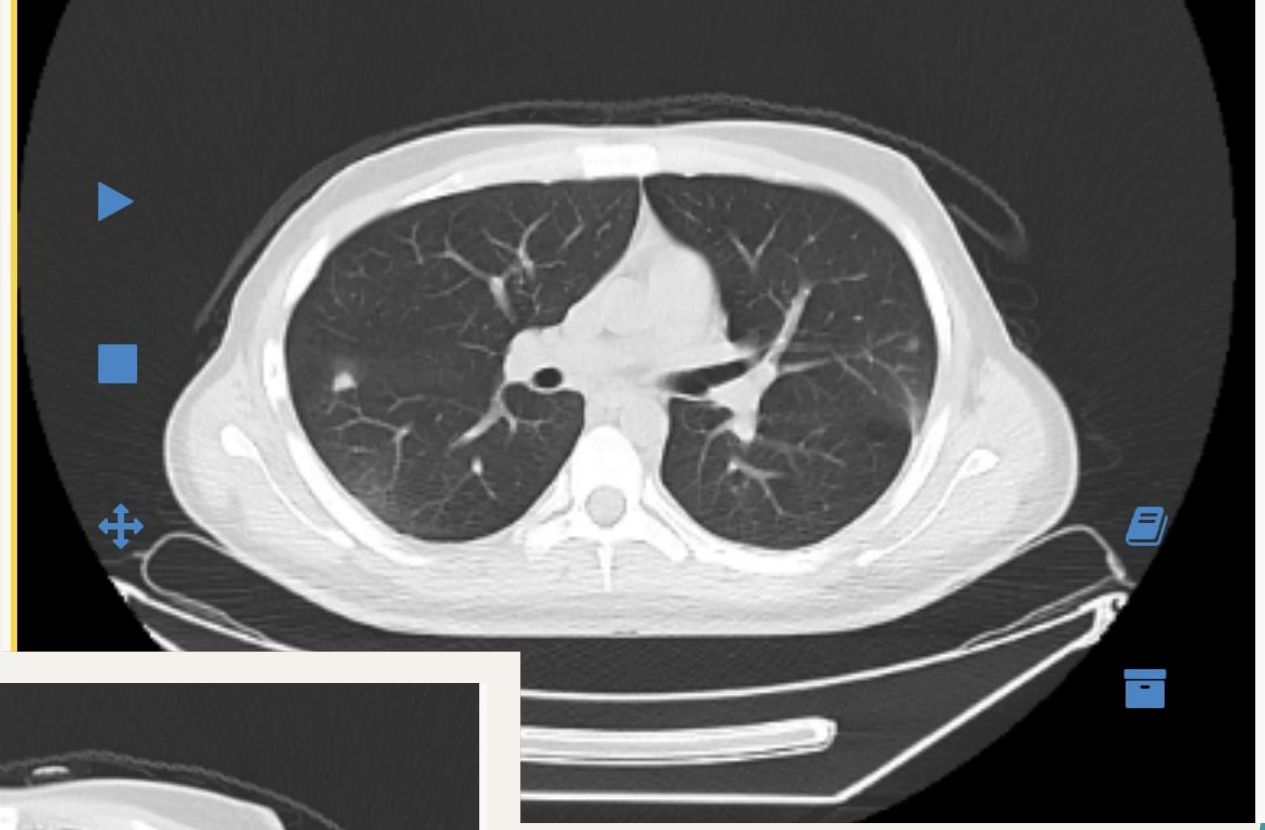
Meropenem was started.

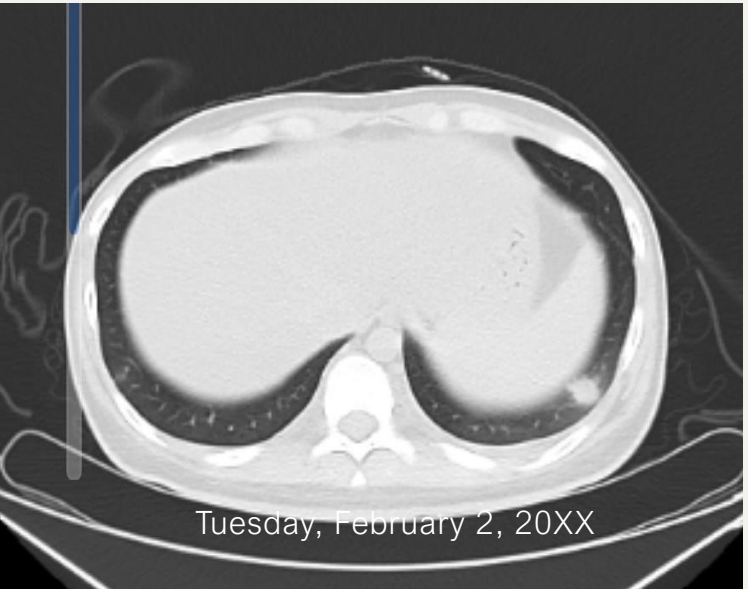


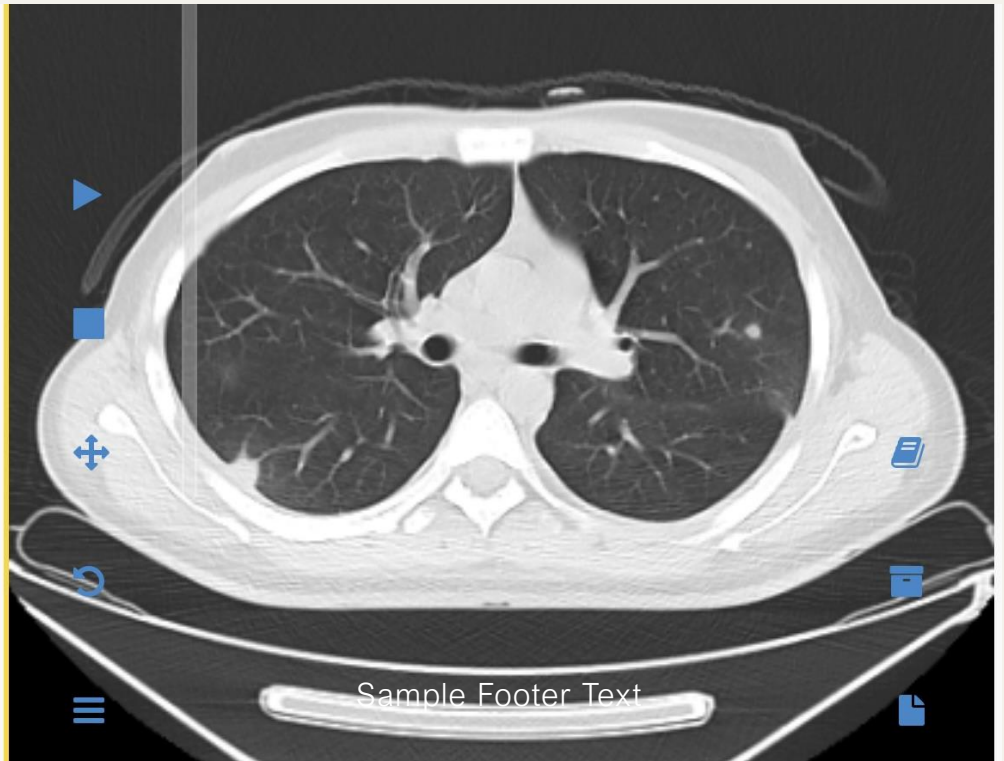


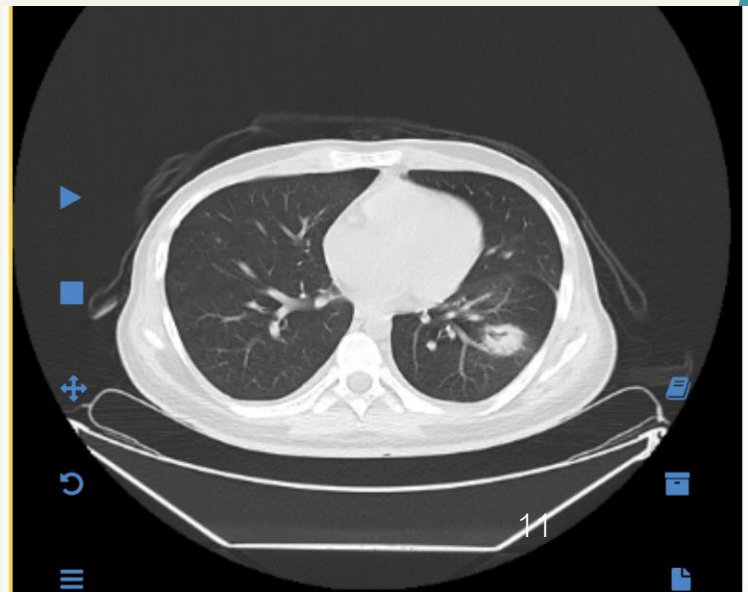












First day of FN

- Sinusitis and pneumonia:
- Serum GM was requested.

- Meropenem continued.
- Liposomal amphotericin B (5mg/kg)
- Ciprofloxacin
- Vancomycin

- D2: Sinuses endoscopy: scattered areas of pale, necrotic tissue concerning for invasive fungal sinusitis, the patient underwent FESS.
- D3: Bronchoscopy with BAL

- D5: the patient was afebrile.

D5: The BAL GM: 3.8

D5: The Serum GM:0.8

Dear Dr Aghazadeh

- What is your comment for antimicrobial regimen?

- D5: the patient was afebrile.

D5: The BAL GM: 3.8

D5: The Serum GM:0.8

The IV voriconazole 6mg/kg was started and ambisom were overlapped 24 hr then stopped.

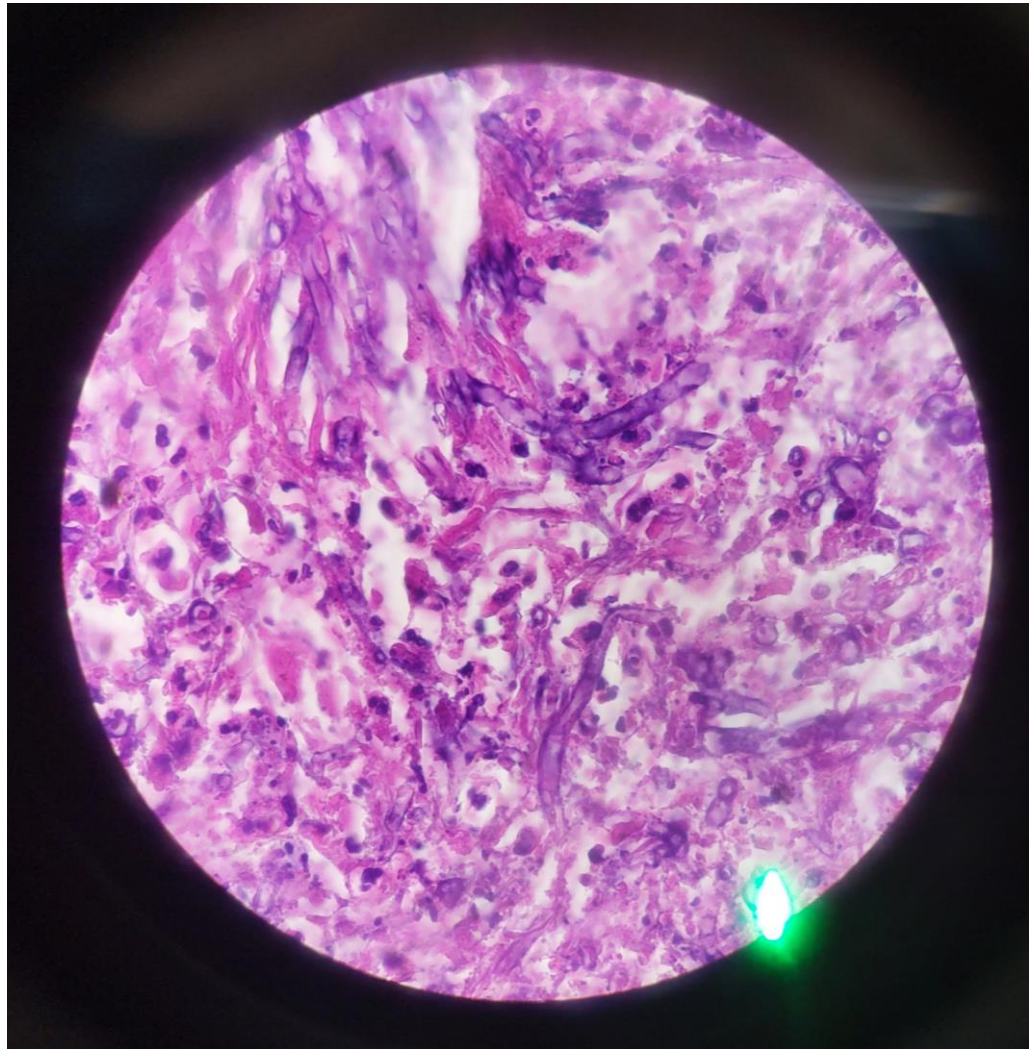
- D5: the patient was afebrile.

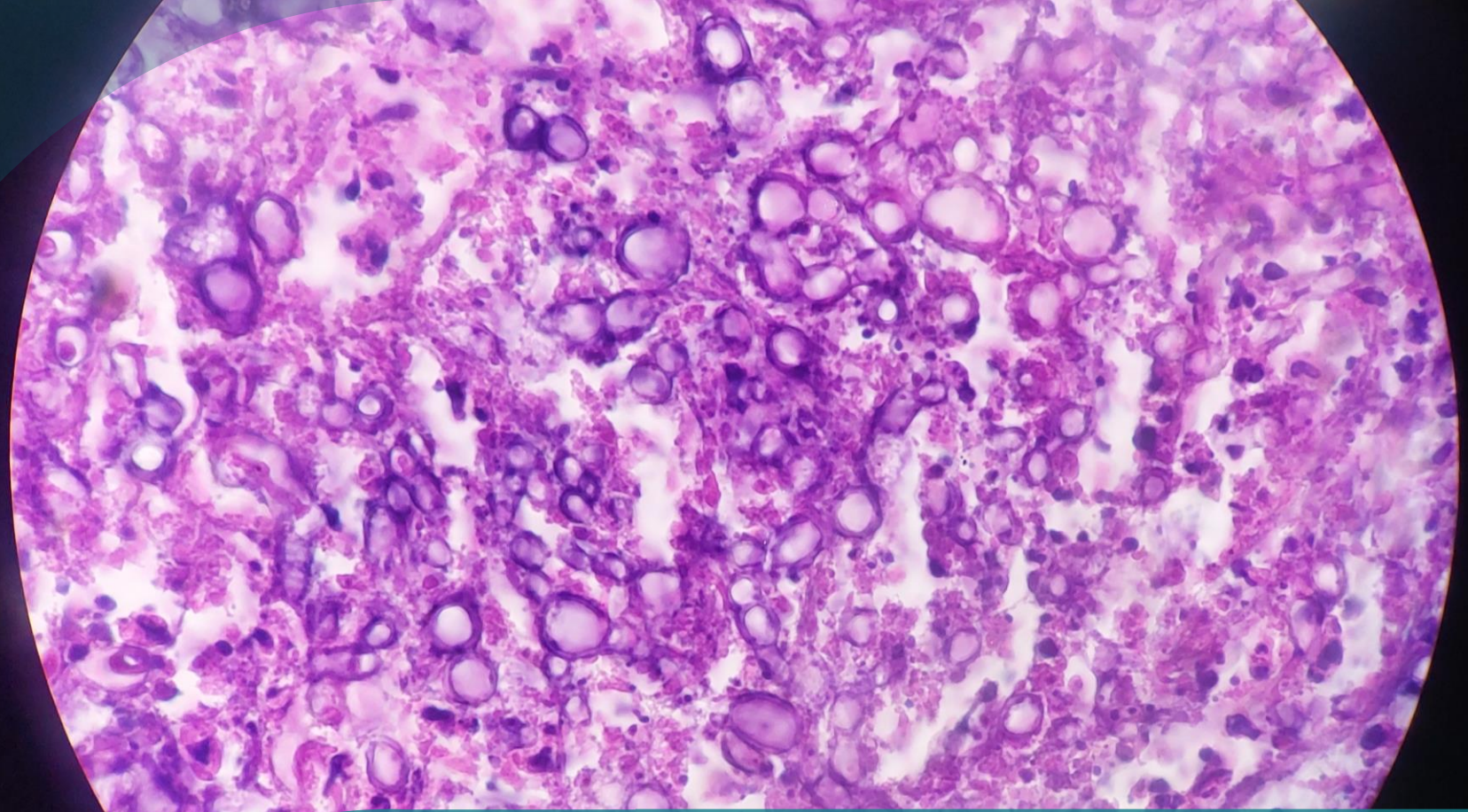
D5: The BAL GM: 3.8

D5: The Serum GM:0.8

D8: the sinus pathology was reported mucormycosis. The voriconazole was stopped and ambisom was started agian.

SINUS PATHOLOGY

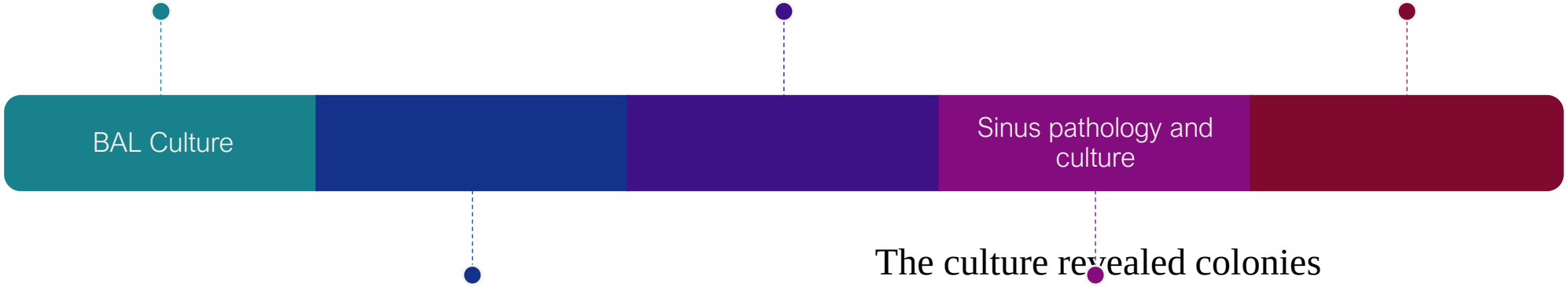




SINUS PATHOLOGY

The culture of BAL revealed colonies phenotypically consistent with *Mucoracea* species.

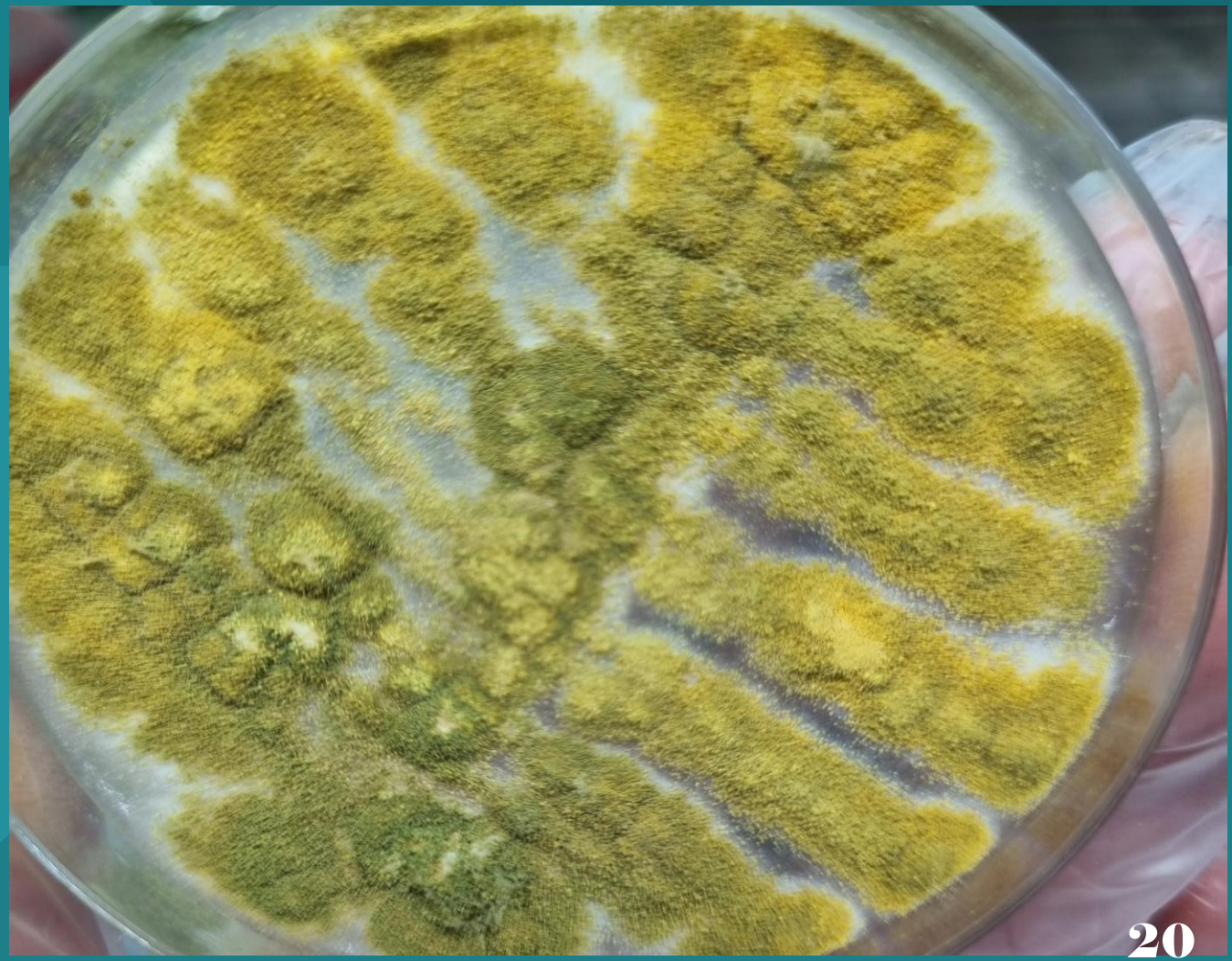
Cytopathology testing for malignancy was negative.

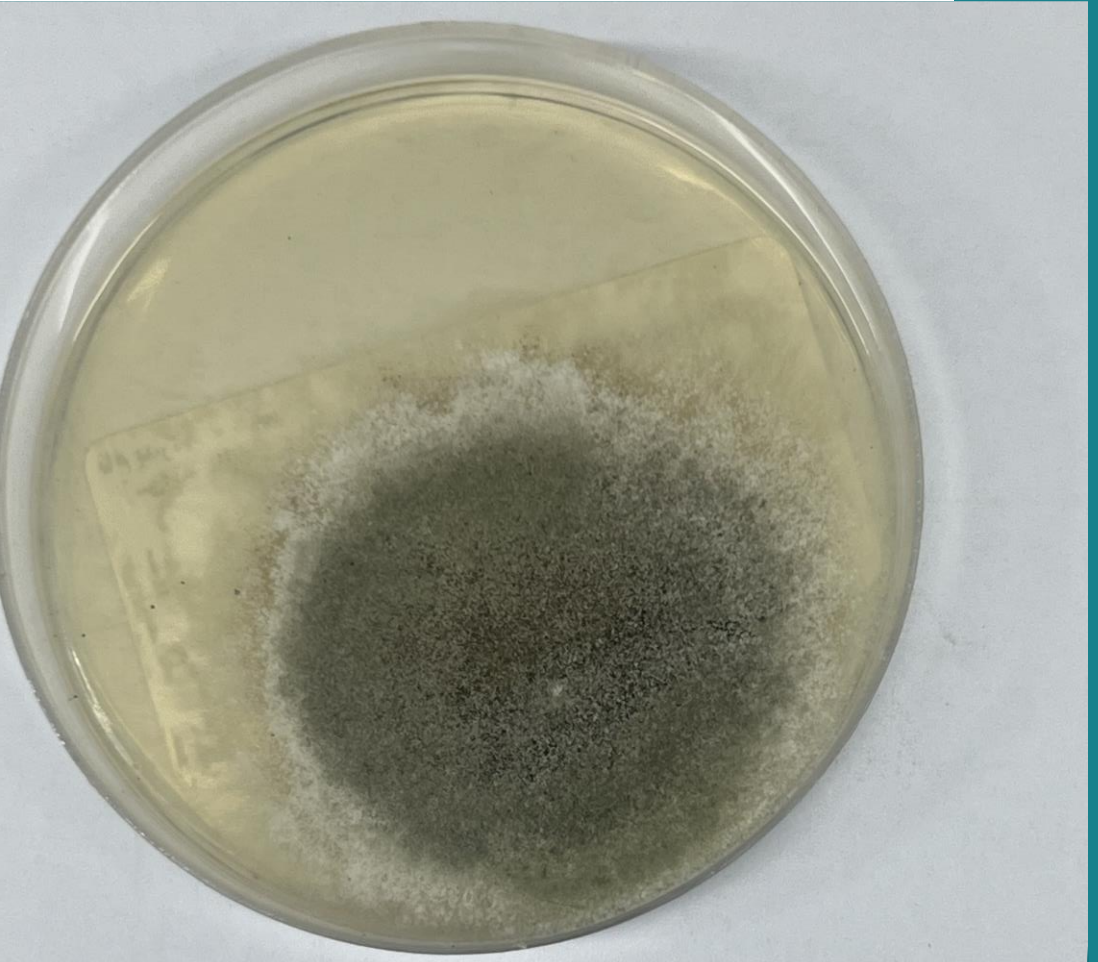


The culture revealed colonies phenotypically consistent with *Aspergillus flavus* .

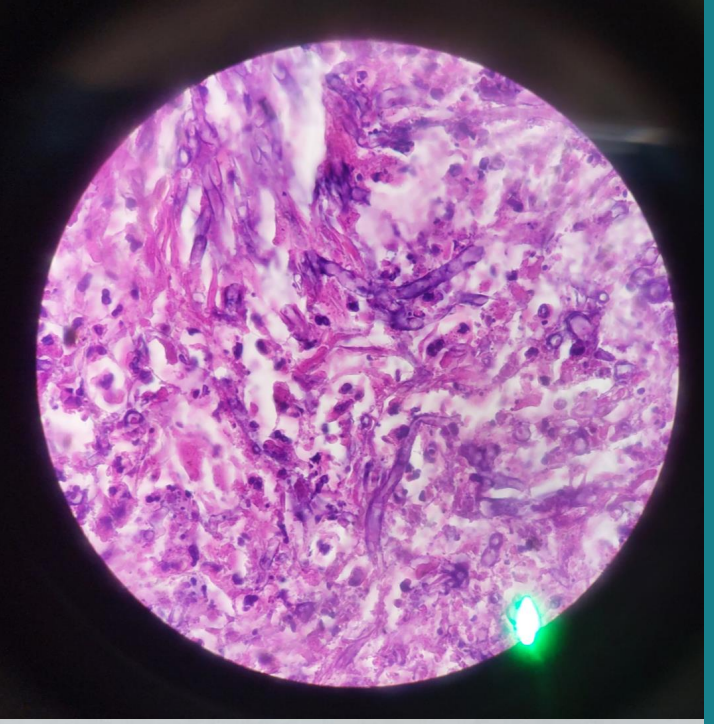
The histopathologic evaluation showed extensive necrosis with invasive broad aseptated hyphae compatible of invasive mucormycosis

SINUS CULTURE

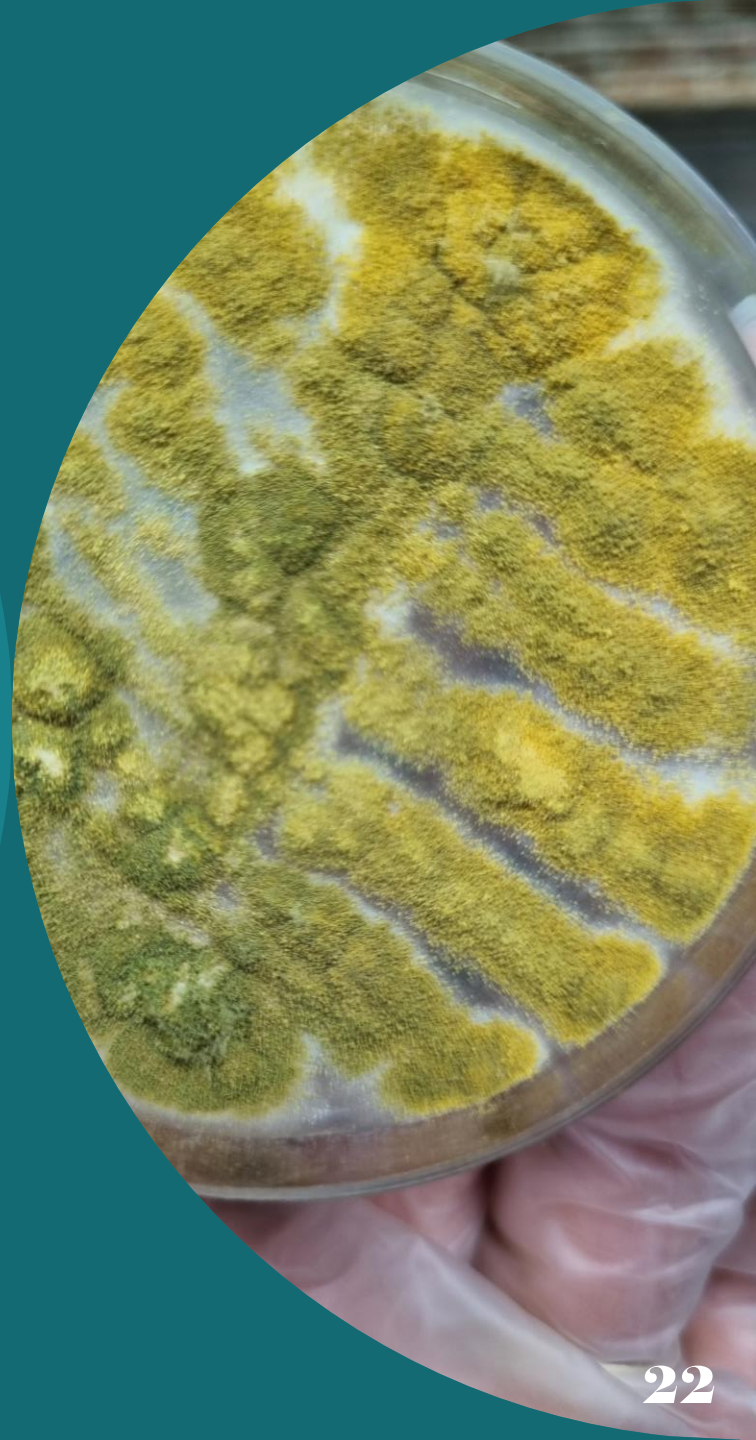




- BAL CULTURE



Probable invasive *aspergillus* rhinosinusitis and confirmed invasive *Mucor* rhinosinusitis with concomitant probable IPA and probable pulmonary mucormycosis



Liposomal amphotericin B was continued. Antibiotics were stopped. He was afebrile and 2 second look for sinuses was performed.

The hematology service decided to start consolidation chemotherapy as soon as possible

The regimen consist of:
Arm IB: HD MTX-ara-C

Dear Dr Ghadyani

- What is your comment?
- And what is the risk for neutropenia?

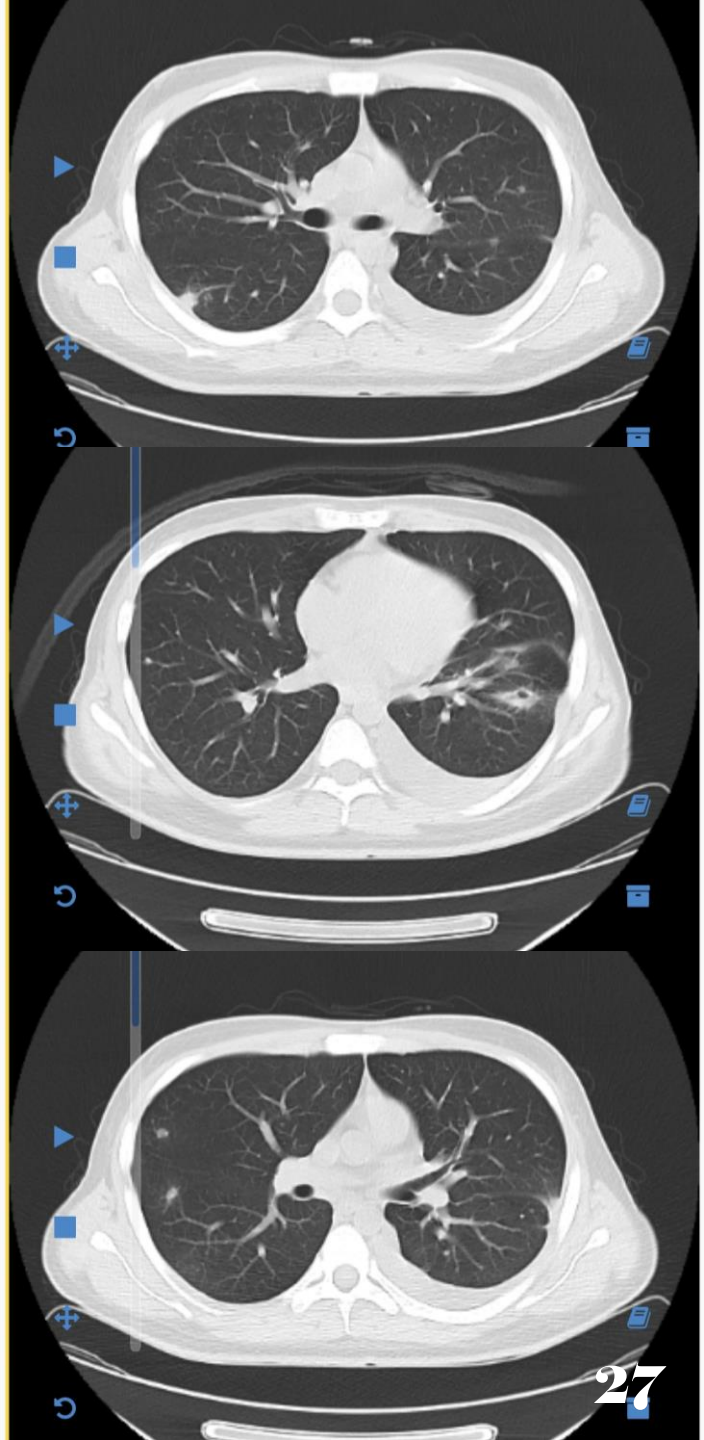
Dear Dr Yadegarynia

- What is your comment on initiation of consolidation chemotherapy?

- When?

On D17 after liposomal amphotericin B consolidation chemotherapy was started with HD MTX+leucovorin/ara-C.

WBC:10600
ANC:8100(76%)
Hb:8
PLT:218000



On D26 of liposomal amphotericin B:

Consult for modification or continuation of antifungal

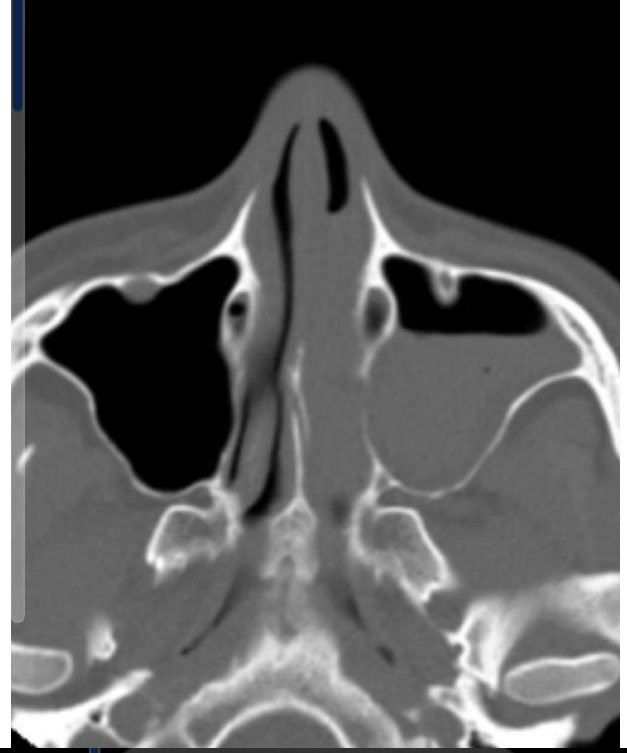
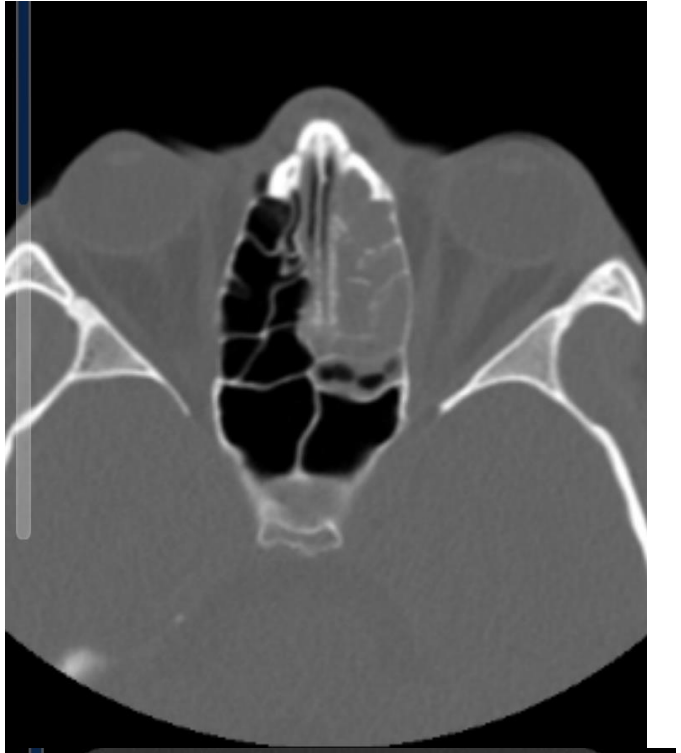
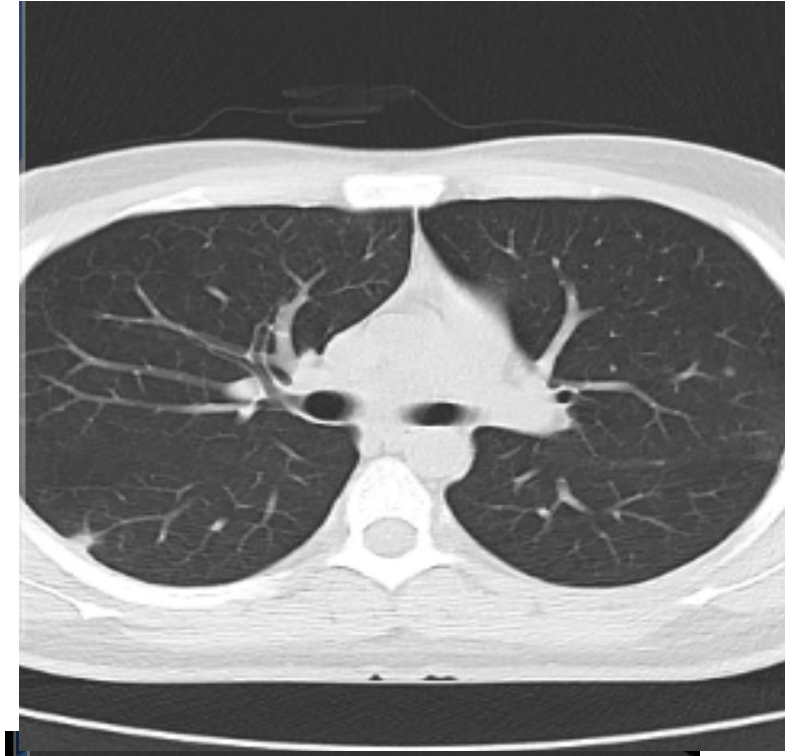
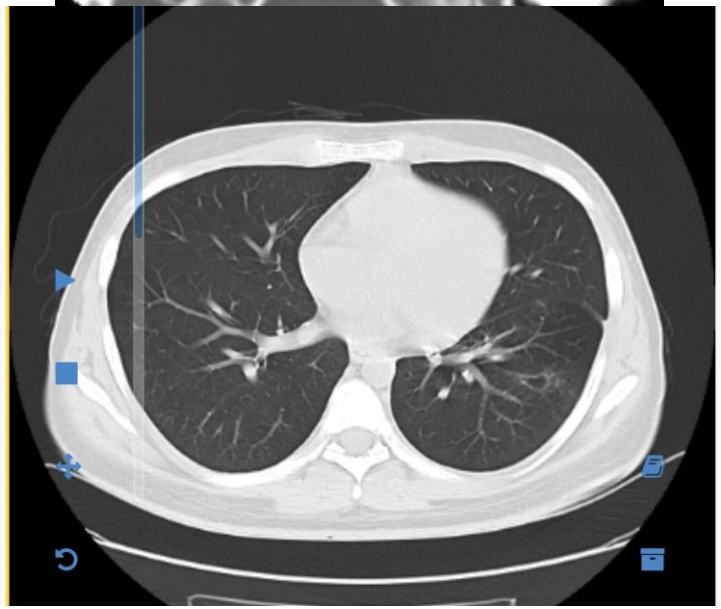
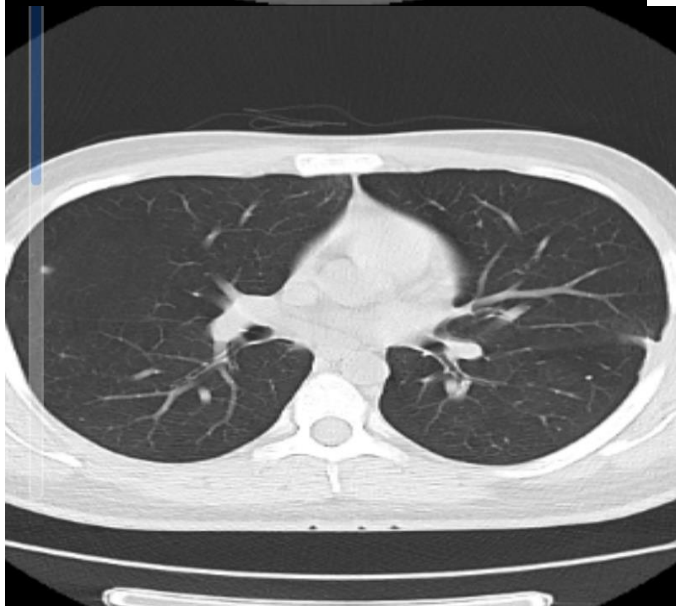
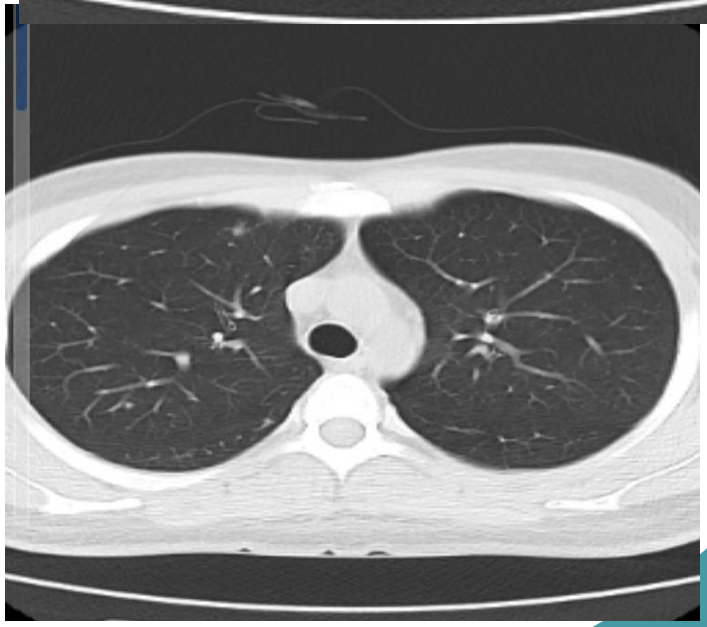
Dear Dr Yadegarynia

- How long do you continue liposomal amphotericin B?
- Stepdown therapy?

On D28:

ENT consult

No evidence for necrosis

Dear Dr Yadegarynia

- What is your comment?

Dear Dr Aghazadeh

- What is your comment for antifungal discontinuation?
- Secondary prophylaxis for this patient?

The stepdown therapy with posaconazole was started on D29.

Invasive fungal infections are relevant infectious complications in hematological patients and are often associated with worse outcomes.

Defining the etiology of invasive mold infections is difficult but of paramount importance for optimal therapeutic management, including antifungal and surgical therapy.

The evaluation of potential treatment failure is a common clinical situation requiring extensive diagnostic testing to rule out potential reasons, including mixed infections

DR DIMITRIOS FARMAKIOTIS (Orcid ID : 0000-0001-8489-108X)

Article type : Original Article

False Positive Bronchoalveolar Lavage Galactomannan: Effect of host and cut-off value

Dimitrios Farmakiotis, MD[1]*, Audrey Le[2], MD, Zoe Weiss, MD[2], Nour Ismail, MD[3], David W. Kubiak, PharmD[3], and Sophia Koo, MD, SM[3]*

BAL-GM is more sensitive than serum GM in diagnosing probable or proven IA, likely due to a higher fungal burden in the airways than in the blood in IA, and increased secretion of GM in lung tissue.

False positive BAL-GM results occur in immunocompetent patients colonized with Aspergillus without clinical or radiographic evidence of IA and potentially in patients receiving piperacillin-tazobactam or gluconate-containing solutions containing GM antigens; this is no longer a major concern due to changes in manufacturing.

BAL-GM seems to have higher positive predictive value (PPV) for IA in neutropenic patients with HM, as compared to other hosts at risk for IA

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JOURNAL ARTICLE

The current management landscape: aspergillosis

Johan A. Maertens, Ola Blennow, Rafael F. Duarte, Patricia Muñoz

Journal of Antimicrobial Chemotherapy, Volume 71, Issue suppl_2, November 2016, Pages ii23–ii29,
https://doi.org/10.1093/jac/dkw393
Published: 07 November 2016

Table 1. Limitations of antigen assays in the diagnosis of invasive fungal disease

	Galactomannan	β-D-glucan
Reactivity with fungal species	*Aspergillus* spp., *Fusarium* spp., *Paecilomyces* spp., *Acremonium* spp., *Penicillium* spp., *Alternaria* spp., *Histoplasma capsulatum*, *Blastomyces dermatitidis*, *Cryptococcus neoformans*, *Emmonsia* spp., *Wangiella dermatitidis*, *Prototheca*, *Myceliophthora*, *Geotrichum capitatum*, *Chaetomium globosum*	*Pneumocystis jirovecii*, *Aspergillus* spp., *Fusarium* spp., *Histoplasma capsulatum*, *Candida* spp., *Acremonium* spp., *Trichosporon* sp., *Sporothrix schenkii*, *Saccharomyces cerevisiae*, *Coccidioides immitis*, *Prototheca*
False-positive test results	Semi-synthetic β-lactam antibiotics[a]	Semi-synthetic β-lactam antibiotics
	Multiple myeloma	Human blood products, including immunoglobulins, albumin, plasma, coagulation factor infusions, filtered through cellulose membranes
	Blood products collected using Fresenius Kabi bags	Cellulose haemodialysis/haemofiltration membranes
	Gluconate-containing plasma expanders (e.g. Plasmalyte)	Exposure to (surgical) gauze
	Flavoured ice-pops/frozen dessert containing sodium gluconate	Bacterial bloodstream infections (e.g. *Pseudomonas*

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Candida in the Respiratory Tract Potentially Triggers Galactomannan Positivity in Nonhematological Patients

M. Aigner,[a] M. Wanner,[a] P. Kreidl,[a] C. Lass-Flörl,[a] M. Lackner[a]

[a]Division of Hygiene and Medical Microbiology, Medical University of Innsbruck, Innsbruck, Austria

ABSTRACT BAL fluid samples from critically ill patients shared a rate of 29% false-positive galactomannan results. We aimed to determine whether *Candida* species abundance in BAL fluid causes galactomannan (GM) positivity. A total of 89 *Candida* culture-positive BAL fluid samples from patients without suspicion of invasive aspergillosis (IA) were analyzed. GM results were correlated with *Candida* species abundance, *Candida* species quantity, and patient data. *Candida* species quantities of $\geq 10^4$/ml and *Candida glabrata* abundance were significantly associated with positive GM results. The added diagnostic value of GM in BAL fluid for diagnosing IA in critically ill patients is limited.

KEYWORDS BAL fluid, antibiotics, antifungals, antigen, antimicrobials, aspergillosis, critical ill patients, cross-reactivity, galactomannan, intensive care

Thank You