BR1 –Board Review: Day 1

Moderator: Andrew Pavia, MD

Board Review: Day 1

Moderator: Andrew Pavia, MD
Faculty: Drs. Alexander, Aronoff, Patel, and Thomas

7/30/2024

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#1 **You are caring for a 70-year-old man in 2024 with HIV (CD4 cell count 300, HIV RNA <20) and chronic obstructive pulmonary disease (COPD).**

He calls because he has fever and cough for 3 days, and his home rapid SARS CoV-2 test is positive.

He says he is not short of breath and his oxygen saturation is >95% (on home oximeter).

1 of 4

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#1 **He takes darunavir, ritonavir, TAF/FTC for HIV infection.**

He takes inhaled corticosteroids for COPD.

His renal function is normal.

He received 2 doses of an mRNA Covid vaccine in 2021 but has not had a booster.

2 of 4

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#1 **You recommend:**

A) Start nirmatrelvir/ritonavir (Paxlovid) and continue his other medications

B) Start nirmatrelvir/ritonavir and hold his other medications while he is taking nirmatrelvir/ritonavir

C) Start nirmatrelvir/ritonavir and hold or change darunavir, ritonavir, TAF/FTC while he is taking nirmatrelvir/ritonavir

D) Start molnupiravir

E) No need for Covid treatment

3 of 4

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#2 **A 56-year-old male with underlying alcoholic cirrhosis underwent a deceased-donor orthotopic liver transplant 7 months ago.**

He now presents to the emergency department for a progressive non-productive cough and increasingly painful skin lesions. The skin lesions are multifocal but most concentrated on the right leg. He denies antecedent trauma including arthropod bites. His only antimicrobial prophylaxis is sulfamethoxazole-trimethoprim for *Pneumocystis jirovecii*.

1 of 5

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#2 **A peripheral pustular lesion is unroofed and PCR testing of this fluid is negative for varicella zoster and herpes simplex virus. Dermatopathology from a punch biopsy of the affected site demonstrates broad-based budding yeast measuring 8 to 15 microns in diameter (Figure B). Mucicarmine stains and serum cryptococcal antigen are negative.**

Cross-sectional imaging of the chest, abdomen, and pelvis demonstrates new multifocal pulmonary nodules.

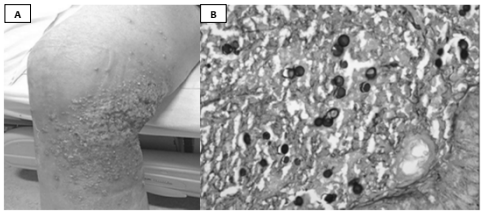
2 of 5

BR1 –Board Review: Day 1

Moderator: Andrew Pavia, MD

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#2



3 of 5

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#2 **Which of the following would be the most appropriate INITIAL therapy?**

A) High dose intravenous sulfamethoxazole and trimethoprim

B) Amphotericin-B deoxycholate plus flucytosine

C) Oral terbinafine

D) Intravenous micafungin

E) Intravenous liposomal amphotericin

4 of 5

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#3 **An 18-year-old male is admitted with diarrhea, fever, and abdominal pain. Six weeks previously, he was diagnosed with parotiditis, and prescribed clindamycin for 14 days.**

Approximately 2 weeks later, he developed onset of frequent non-bloody liquid stools. Clostridioides difficile PCR and antigen returned positive, and he completed a 10-day course of oral fidaxomicin.

He initially improved, but 5 days before admission started having recurrent liquid stools, decreased appetite, diffuse abdominal pain, and fever prompting hospital admission.

1 of 5

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#3 **On exam he is a thin, uncomfortable appearing man. Temperature is 102.4 F, BP is 102/68, HR is 95 and O2 saturation is 98% on room air. Abdominal exam is notable for diffuse discomfort to palpation, but no peritoneal signs. Bowel sounds are hyperactive.**

Labs include:

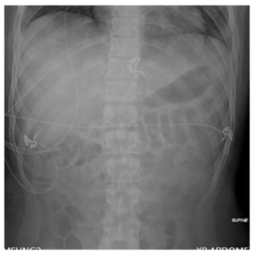
WBC=10.9, Cr=0.68

Stool C diff PCR and antigen are both positive.

2 of 5

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#3 **Abdominal imaging shows dilated loops of bowel, but no evidence of ischemic colitis or megacolon:**



3 of 5

BOARD REVIEW DAY 1 — INFECTIOUS DISEASE BOARD REVIEW 2024

#3 **What is the best treatment option for this patient?**

A) Oral vancomycin and IV metronidazole

B) Fecal microbiota transplant

C) Oral vancomycin x 10 days followed by rifaximin for 20 days

D) Oral Metronidazole x 14 days

E) Fidaxomicin x 10 days

4 of 5

BR1 –Board Review: Day 1

Moderator: Andrew Pavia, MD

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#4 **As director of your institution's Infection Prevention and Control team, you are made aware of three patients in the surgical intensive care unit with Klebsiella pneumoniae bacteremia.**

The isolates are all KPC-positive, which is unusual at your institution. You ask the laboratory to type the associated isolates (to assess relatedness).

1 of 3

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#4 **What is the preferred typing method?**

A) Multiple locus variable-number tandem repeat analysis

B) Whole genome sequencing

C) Pulsed-field gel electrophoresis

D) Multilocus sequence typing

2 of 3

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#5 **A 56-year-old man with genotype 1 HCV infection is treated with 8 weeks of glecaprevir and pibrentasvir. Prior to treatment, liver elastography was 12.6 kPa.**

Your liver consultant suggests this elastography score indicates severe fibrosis.

1 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#5 **(Normal score is between 2 and 7 kPa. Scores of 7.2, 9.3, and 12.7 kPa indicate mild, moderate, and severe fibrosis.**

One year after treatment, a repeat liver elastography is 8.7 kPa. HCV RNA remains undetectable. ALT is 26 IU/L. At baseline and 6 months after treatment, liver ultrasounds were negative for hepatocellular carcinoma (HCC).

2 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#5 **What would you recommend?**

A) He should continue ultrasounds every 6 months for life for early detection of HCC

B) He can stop 6-monthly ultrasounds

C) Alpha fetoprotein blood levels should be monitored instead of ultrasounds

D) Liver biopsy is necessary to exclude cirrhosis before stopping HCC screening

3 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#6 **An 80-year-old woman with congestive heart failure and a recent hip fracture is admitted with confusion, hypoxemia and is found to have bilateral infiltrates on her chest x-ray.**

Blood cultures are negative, urine studies for Legionella and pneumococcal antigen are negative, and sputum studies are not diagnostic.

1 of 4

BR1 –Board Review: Day 1

Moderator: Andrew Pavia, MD

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#6 **Several other residents of her nursing home are ill with fever and cough.**

A nasopharyngeal swab PCR is positive for human metapneumovirus and negative for influenza and RSV.

2 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#6 **Which of the following therapies is most appropriate:**

A) Inhaled ribavirin

B) Azithromycin

C) Methylprednisone

D) Doxycycline

E) Supportive care only

3 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#7 **A 68-year-old man underwent heart transplant and is maintained on mycophenolate mofetil, tacrolimus, and prednisone, as well as valganciclovir, atovaquone and nystatin swish + swallow.**

He previously was diagnosed with invasive pulmonary aspergillosis. At the time of diagnosis, blood and BAL galactomannan were positive/above the upper limit of the assay, and 1,3 beta-D-glucan was >500 pg/ml positive.

1 of 5

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#7 **His pulmonary lesions improved, and he became afebrile on voriconazole.**

Three months later, while he was still on voriconazole, he became febrile, and a large new pulmonary lesion appeared on CT in a different location. The earlier lesion had nearly resolved.

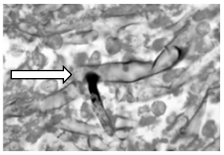
1,3 Beta D glucan had fallen to 216 pg/ml. His serum galactomannan is negative.

2 of 5

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#7 **His bronchoalveolar lavage was not diagnostic: the BAL galactomannan was negative.**

A biopsy of the new lung lesion is performed and the GMS stain is shown below.



Grocott-Gömöri methenamine silver (GMS) 400x

3 of 5

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#7 **What is the most likely pathogen?**

A) *Cryptococcus neoformans*

B) *Aspergillus terreus*

C) *Scedosporium apiospermum complex*

D) *Cunninghamella bertholletiae*

E) *Fusarium solani*

4 of 5

BR1 –Board Review: Day 1

Moderator: Andrew Pavia, MD

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#8 **A 56-year-old man is seen for low back pain that has been present for a month. He is afebrile and x-rays show abnormalities of the left sacroiliac joint suggestive of infection.**

Two months before his pain began, he spent a two-week vacation in Spain where he enjoyed eating local cheeses made from unpasteurized cow, goat, and sheep milk. He has had no gastrointestinal or genitourinary symptoms.

1 of 3

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#8 **Which one of the following is the most likely cause of his sacroiliitis?**

A) *Brucella*

B) *Listeria*

C) *Yersinia*

D) *Salmonella*

E) *Campylobacter*

2 of 3

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#9 **A 23-year-old presented with headache, fever, and confusion of two days' duration.**

Physical examination was notable for a petechial rash, nuchal rigidity, and a temperature of 39°C.

1 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#9 **Cerebrospinal fluid analysis revealed a protein of 137 mg/dL (15-45 mg/dL), glucose of 10 mg/dL and 500 leukocytes/µL, of which 95% were neutrophils and 5% lymphocytes.**

A multiplex PCR panel performed on cerebrospinal fluid detected Neisseria meningitidis and human herpes virus 6.

2 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#9 **Which of the following is the most appropriate therapy?**

A) Ceftriaxone

B) Ceftriaxone and acyclovir

C) Ceftriaxone and ganciclovir

D) Ceftriaxone and foscarnet

E) Ceftriaxone, vancomycin, and acyclovir

3 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#10 **A 68-year-old woman is referred because her internist responded to an EPIC prompt and performed HBV serologic testing. Her results were as follows:**

HBsAg – neg

Anti-HBc IgM – neg

Anti-HBc IgG – positive

Anti-Hbs Ab – positive

HBV DNA – negative

ALT – 26 IU/L

1 of 3

BR1 –Board Review: Day 1

Moderator: Andrew Pavia, MD

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#10 **What is the best diagnosis to give the woman?**

A) Occult hepatitis B

B) Prior hepatitis B

C) False positive anti-HBc IgG

D) HBV vaccination

E) Chronic hepatitis B

2 of 3

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#11 **A 63-year-old male underwent allogeneic stem cell transplant for chronic myelogenous leukemia 120 days ago.**

He has had multiple episodes of acute graft-versus-host disease, for which he received multiple pulses of corticosteroids and remains on maintenance cyclosporine.

His absolute neutrophil count hovers between 750 and 1000 cell/μL. He is receiving prophylactic doses of trimethoprim-sulfamethoxazole.

1 of 5

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#11 **The patient developed a fever, patchy pulmonary infiltrates, and hypoxia. He is intubated and undergoes bronchoscopy.**

The micro lab reports that branched hyphae are present on wet mount of the BAL.

No pneumocystis was seen. PCR on the BAL is positive for CMV.

Liposomal amphotericin (5 mg/kg/day) is started.

2 of 5

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#11 **Five days later, the lab reports that the BAL culture is growing *Scedosporium apiospermum*.**

PCR of peripheral blood for CMV is undetectable.

The patient is still febrile, and the pulmonary status has deteriorated.

3 of 5

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#11 **At this point, you would recommend:**

A) Raise the dose of liposome amphotericin B to 10 mg/kg

B) Add ganciclovir

C) Switch to fluconazole

D) Switch to voriconazole

E) Add caspofungin

4 of 5

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#12 **A 45-year-old male is diagnosed with *Helicobacter pylori* infection by endoscopy and antral gastric biopsy performed for weight loss and abdominal pain.**

There is a family history of gastric cancer.

He is treated for 14 days with bismuth subsalicylate, metronidazole, a proton pump inhibitor, and tetracycline.

1 of 3

BR1 –Board Review: Day 1

Moderator: Andrew Pavia, MD

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#12 What would be best option to evaluate this patient regarding Helicobacter infection/disease after completing antibiotic therapy?

A) No further testing is necessary for one year

B) Perform the stool Helicobacter pylori antigen test 8 weeks after treatment

C) Perform the urea breath test 3 weeks after treatment

D) Repeat endoscopy, biopsy, and rapid urease test (RUT) 6 weeks after treatment

2 of 3

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#13 You are treating a 56-year-old Asian woman for chronic hepatitis B.

She wants to know if it is ok to stop her entecavir. She is tired of taking it as her only medicine, and it has become expensive in her health plan.

1 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#13 Her HBV DNA has been suppressed for more than 8 years and you witnessed an e antigen conversion (HBeAg positive to negative with anti-HBe) four years ago.

Her ALT has been normal, and she does not have cirrhosis. She is HIV negative.

2 of 4

BOARD REVIEW DAY 1 INFECTIOUS DISEASE BOARD REVIEW 2024

#13 Which is most appropriate?

A) Continue entecavir

B) Check quantitative HBV core antigen

C) Discontinue entecavir and monitor

D) Check anti-HBs

3 of 4