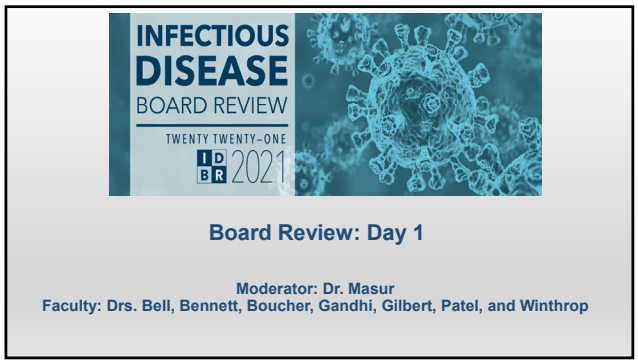
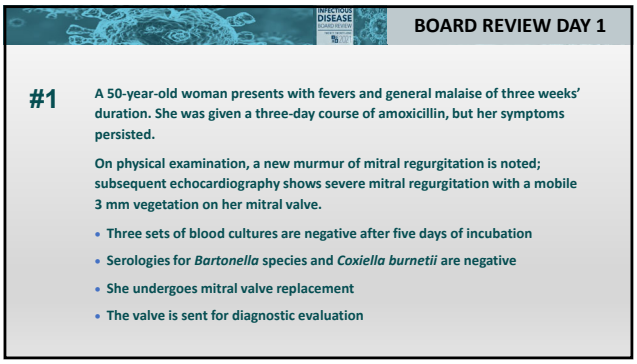
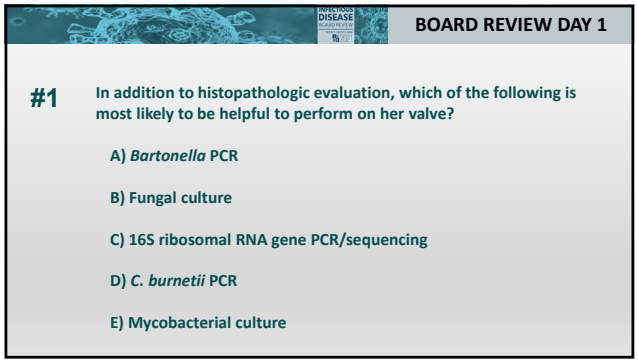
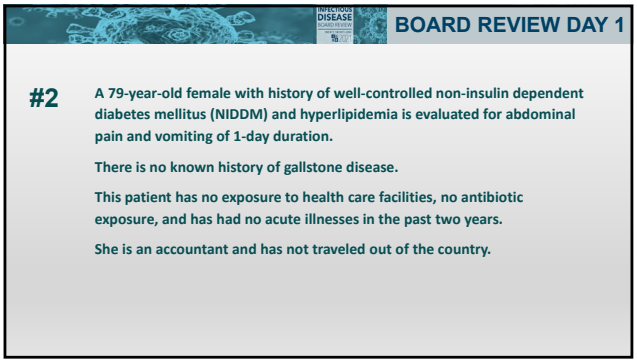
8 – Board Review Day 1

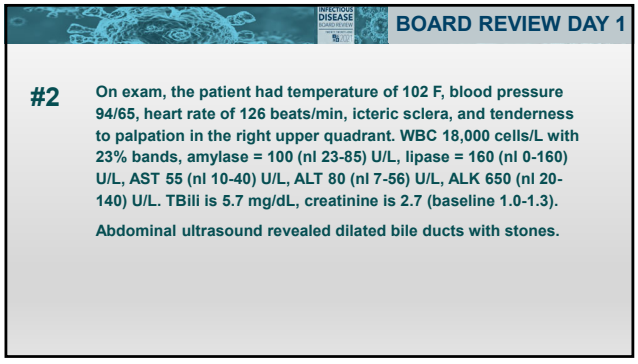
Speaker: Drs. Masur (Moderator), Bell, Bennett, Boucher, Gandhi, Gilbert, Patel, and Winthrop

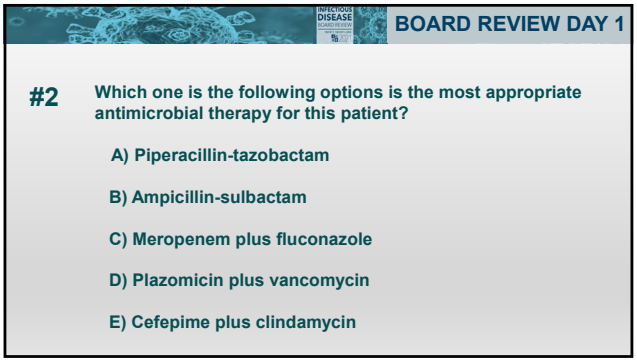












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BOARD REVIEW DAY 1

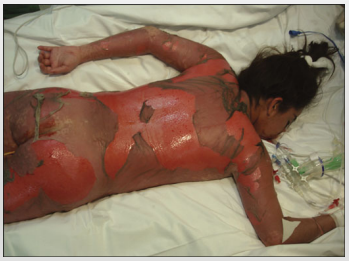
#3 A 36-year-old woman presented with a fever and skin eruption two weeks after starting lamotrigine for depression. She had also had a mild, nonproductive cough for about ten days preceding the initiation of lamotrigine for which she was given trimethoprim-sulfamethoxazole by her family physician.

On examination, she has a temperature of 38.3C, oral ulcers, and ulcerating skin lesions over 75% of her body. Her conjunctiva are inflamed.

Her lungs are clear, as is her chest radiograph. Her CBC shows a slight leukocytosis.

BOARD REVIEW DAY 1

#3



Arch Dermatol. 2008;144(6):724-726

BOARD REVIEW DAY 1

#3 The most likely diagnosis is:

A) Erythema multiforme

B) Stevens Johnson syndrome

C) Toxic epidermal necrolysis

D) Scalded skin syndrome

E) Disseminated herpes simplex

BOARD REVIEW DAY 1

#4 A 56-year-old commercial crab fisherman on the Chesapeake Bay is seen for a painful, red hand.

Three days ago he noticed a red dot on his index finger that was became increasingly painful. The lesion progressed to a red-purple involvement of his entire index finger, his middle finger, and most of the dorsum of his hand looking like a cellulitis.

He is afebrile and says the involved area is quite painful but only slightly tender to the touch.

He says the finger joints feel stiff although there is no joint swelling on exam.

BOARD REVIEW DAY 1

#4 Which one of the following is the most likely cause of his problem?

A) *Erysipelothrix rhusiopathiae*

B) *Mycobacterium chelonae*

C) *Sporothrix schenckii*

D) *Aeromonas*

E) *Pseudomonas aeruginosa*

BOARD REVIEW DAY 1

#5 A 57-year-old medical school research scientist is seen for a febrile illness. Four days ago he was bitten on his hand by a laboratory rat.

Last evening he had a fever, and today he has fever, chills, myalgias, and a painful left knee. On exam he is febrile. The bite wound is largely healed and has no evidence of infection.

His left knee is swollen with obvious effusion and some pain on both active and passive motion.

He has a petechial rash over both shins, and it is also present on the soles of his feet.

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BOARD REVIEW DAY 1

#5 Which one of the following is the most likely cause of his illness?

A) *Leptospira interrogans*

B) *Spirillum minus*

C) *Streptobacillus moniliformis*

D) Hantavirus

E) *Pasteurella canis*

BOARD REVIEW DAY 1

#6 A 66-year-old patient in the ICU is day 6 post-operative following a pancreatectomy for pancreatic carcinoma.

He is recovering uneventfully with improving renal and hepatic function.

On the evening of his 6th post-operative day, he develops a fever of 38.5 C

The surgeons draw three cultures from an indwelling port that was placed preoperatively for chemotherapy that has not yet started. No other blood cultures were drawn.

Piperacillin-tazobactam is started.

BOARD REVIEW DAY 1

#6 On Day 7 the patient remains intermittently febrile but is otherwise stable with no new findings.

Labs are remarkable only for a WBC that continues to decline following surgery and is now 7800 cells/uL with 70% neutrophils

An ID consult is requested because after 14 hours of incubation, all three blood cultures are growing Gram-positive cocci in clusters.

BOARD REVIEW DAY 1

#6 The patient has been stable but still has a low-grade fever. The port and the peripheral IV look fine, there are no other concerning physical findings or lab values.

The organisms have been identified as Staphylococcus epidermidis with an oxacillin MIC of 1 mcg/ml.

The surgeon is very eager to retain the port. Because the patient is stable and will be hospitalized for starting his chemotherapy, you ask for port and peripheral blood cultures.

At 48 hours, the port cultures are positive but peripheral cultures are negative.

BOARD REVIEW DAY 1

#6 You recommend stopping the piperacillin-tazobactam. What else would you recommend?

A) Vancomycin should be started, and the port should be removed

B) Nafcillin or oxacillin should be started, and the port should be removed

C) Start vancomycin through the port

D) Start nafcillin or nafcillin through the port

E) Remove port. No antibiotic needed

BOARD REVIEW DAY 1

#7 A 57 y/o man presents with 1 week of fever, chills, and low back pain.

A transesophageal echocardiogram shows a 6 mm mobile mass on the mitral valve.

MRI of the spine shows evidence of discitis between the 3rd and 4th lumbar vertebrae.

Admission blood cultures are positive for S. aureus resistant only to penicillin.

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BOARD REVIEW DAY 1

#7 He is treated with nafcillin 2 gm IV every 4 hours with resolution of fever but little change in his back pain.

Follow-up blood cultures form hospital days 4 and 5 are negative.

The white blood cell count, 18,000/mm^3 with 90% neutrophils on admission, but on hospital day 10, the white blood cell count is 3,000/mm3 with 30% neutrophils.

Renal function is normal.

BOARD REVIEW DAY 1

#7 Which of the following options is most appropriate for this patient?

A) Cefazolin 2 gm IV every 8 hours

B) Ceftriaxone 2 gm IV every 12 hours

C) Linezolid 600 mg IV every 12 hours

D) Nafcillin 1 gm IV every 4 hours

E) Vancomycin 1 gm IV every 12 hours

BOARD REVIEW DAY 1

#8 A 72 y/o US born, white female reports a history of needing antibiotic therapy for repeated respiratory infections over the last 12 months.

With each treatment she improves to near her baseline, but within several weeks her cough has worsened again, became more productive, and she complains of fatigue.

Overall, she notes a decline in exercise capacity, 10 lbs weight loss, and progressive fatigue the last 6 months.

BOARD REVIEW DAY 1

#8 She is a life-long non-smoker and has no risk factors for tuberculosis. She is otherwise healthy and takes no medications.

Her chest radiograph is normal, but a chest computed tomograph (CT) reveals right middle lobe bronchiectasis with scattered tree-bud infiltrate, mucous plugging, and a small right upper lobe cavity with a fungus ball present within the cavity.

BOARD REVIEW DAY 1

#8 The most likely cause of her syndrome and progressive decline is:

A) Mycobacterium gordonae

B) Chronic necrotizing aspergillosis

C) Mycobacterium tuberculosis

D) Mycobacterium avium complex

E) Nocardia farcinica

BOARD REVIEW DAY 1

#9 A 72-year-old man develops fever, abdominal pain, and unstable blood pressure after a subtotal colectomy for carcinoma of the colon.

Empiric therapy with piperacillin-tazobactam and vancomycin is initiated.

Within hours, the Clinical Microbiology laboratory reports that the patient's blood cultures are positive for enteric Gram-negative rods, preliminarily identified as *Klebsiella pneumoniae*.

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BOARD REVIEW DAY 1

#9 *In vitro*, the *K. pneumoniae* is:

- Susceptible to: piperacillin-tazobactam, meropenem, cefepime, and colistin
- Resistant to: ciprofloxacin, ceftriaxone and aztreonam

BOARD REVIEW DAY 1

#9 Which one of the following antibiotics would you recommend for specific therapy?

A) Continue piperacillin-tazobactam

B) Ceftazidime-avibactam

C) Gentamicin

D) Cefepime

E) Meropenem

BOARD REVIEW DAY 1

#10 A 26-year-old male with HIV infection (CD4=50 cells/uL, Viral Load 500,000 IU/mL) presents with severe right upper quadrant pain, nausea, vomiting and low-grade fever that suddenly occurred over the past 2 days.

The patient has not been adherent to his antiretroviral therapy over the past several years.

He has had diarrhea (6 watery stools per day) for 8 months, and has lost 20 lbs during that period. The stools are brown, without blood or obvious mucous.

BOARD REVIEW DAY 1

#10 He lives in Washington, D.C., works as a tour guide, and eats often at a variety of downtown food carts.

He has multiple sex partners and is not consistent about safe sex practices.

He intermittently uses methamphetamines.

On exam he has normal vital signs (no fever at the time of examination) but severe right upper quadrant pain that is worse with palpation.

BOARD REVIEW DAY 1

#10 CBC: WBC 4400, Platelets 270,000, Hct 43%

Chemistries: liver function tests were moderately elevated: AST 435 IU/L, ALT 530 IU/L, Alk Phos 561 IU/L, Total Bili 2.4 (mg/dl)

Urine toxicology screen positive for marijuana and amphetamines.

Stool PCR, cultures, and ova and parasite exams are pending.

MRCP (Magnetic resonance cholangiopancreatography) reveals of bile duct stricture and moderate ductal dilation with no masses or adenopathy. Ultrasound and CT scan revealed similar findings and also jejunal thickening and thickening of the gall bladder wall.

BOARD REVIEW DAY 1

#10 What is the most likely cause of this syndrome?

A) Methamphetamines

B) CMV

C) Lymphoma

D) Cryptosporidiosis

E) Calculous cholecystitis

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BOARD REVIEW DAY 1

#11 Which of the following is considered a serious hazard to laboratory staff if not handled appropriately?

A) *Neisseria gonorrhoeae*

B) *Haemophilus ducreyi*

C) *Cryptococcus neoformans*

D) *Coccidioides immitis*

E) *Corynebacterium diphtheriae*

BOARD REVIEW DAY 1

#12 75-year-old male with diabetes mellitus and ankylosing spondylitis treated with prednisone 20 mg daily, admitted with 3 weeks of fevers to 39°C, lethargy, and weight loss of 10 lbs

He underwent transurethral resection of a bladder cancer three months prior, and recently completed a six-week course of intravesical Bacille Calmette Guerin (BCG) administered once weekly.

He lives in Tucson, Arizona. Urinalysis shows protein, nitrite, and leukocytes; routine bacterial culture is negative. Chest X-ray is normal. Chest CT scan shows innumerable tiny (1-4 mm) nodules.

BOARD REVIEW DAY 1

#12 What diagnostic procedure is most likely to reveal the diagnosis?

A) Bacterial blood culture

B) Silver stain of induced sputum

C) Ziehl-Neelsen stain of induced sputum

D) Trans-bronchial biopsy

E) Serum antibody testing for Coccidioides

BOARD REVIEW DAY 1

#13 A previously healthy 60 y/o man presented with a few hours of severe pain in the right upper extremity.

The exam was normal and he was discharged.

Over the next few hours, he developed progressive swelling of the right upper extremity. There was no history of trauma.

On exam, he appeared anxious, with cold and clammy skin.

BOARD REVIEW DAY 1

#13 BP55/30. The right upper extremity was diffusely swollen with a deep-red discoloration; there were several bullae (shown).

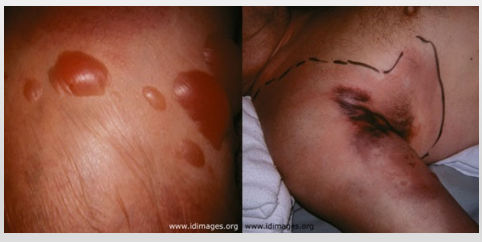
No pulses were palpable in the right upper extremity.

WBC 8,900 (47% polys, 38% bands).

An X-ray showed air in the soft tissues

BOARD REVIEW DAY 1

#13



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BOARD REVIEW DAY 1

#13 The most likely diagnosis is which of the following:

A) Vibrio vulnificus

B) Group A streptococcal necrotizing fasciitis

C) Mixed aerobic/anaerobic necrotizing fasciitis

D) Clostridial gas gangrene

E) Ecthyma gangrenosa

BOARD REVIEW DAY 1

#14 49-year-old man with AIDS (CD4 count 43, HIV RNA 225,000) presented with 4 weeks of pain on defecation.

His physical exam was notable for a tender, boggy prostate. The urinalysis showed 5-10 WBC/hpf. The urine culture was without growth.

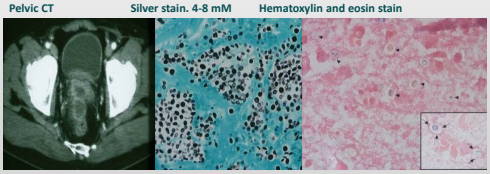
A pelvic CT scan showed a prostate abscess.

Aspirate of the abscess revealed the findings below.

BOARD REVIEW DAY 1

#13

Pelvic CT | Silver stain. 4-8 mM | Hematoxylin and eosin stain



BOARD REVIEW DAY 1

#14 Which of the following is the correct diagnosis?

A) *Blastomyces dermatitidis*

B) *Pneumocystis jirovecii*

C) *Histoplasma capsulatum*

D) *Candida albicans*

E) *Cryptococcus neoformans*

BOARD REVIEW DAY 1

#15 A 38-year-old male with HIV is asymptomatic, but his clinic physician drew a serum cryptococcal antigen test, which has come back positive.

On evaluating the patient you find nothing remarkable by history or examination.

The patient has not been willing to take any medicines for HIV infection but is now willing to start antiretrovirals.

BOARD REVIEW DAY 1

#15 Lab tests:

- Immunoblot: positive for HIV-1, negative for HIV-2
- CD4 count: 45 cells/mm3
- HIV viral load: 400k copies/ml
- CBC: normal
- Chemistry panel: normal
- LP: 0 cells, normal protein, and glucose, negative Cryptococcal antigen
- Serum Crypt antigen: 1:32

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