BR5 – Board Preview: Day 5

Moderator: Paul Auwaerter, MD

IDBR INFECTIOUS DISEASE BOARD REVIEW AUGUST 20-24 2022

Board Review: Day 5

Moderator: Paul Auwaerter, MD
Faculty: Drs. Bennett, Marr, Masur, Mitre, Nelson, and Rose

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#61 A 44-year-old farmer from Turkey is visiting family in the United States. He reports a several month history of fever and night sweats.

One week ago, he developed right low back and hip pain, worse with sitting. He has no cough, and chest X ray is normal.

CT of the pelvis shows enhancement of the right sacroiliac joint capsule anteriorly.

Blood cultures held 5 days remain negative and IGRA is negative.

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#61 What is the best next step?

A) Initiate empiric treatment for tuberculosis

B) Initiate empiric treatment with vancomycin and ceftriaxone

C) Start anti-inflammatory therapy for spondyloarthropathy

D) Open arthrotomy of the sacroiliac joint for cultures and debridement

E) Percutaneous sampling of the sacroiliac joint

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#62 In early July, a 48-year-old male chicken farmer from rural Oklahoma had the acute onset of chills, fever, and myalgia without headache. Six days later, he developed confusion and vomiting.

His wife said the patient often picked ticks off the family cat but didn't know about ticks on his body. He had just received a shipment of baby chicks, but they hadn't looked sick.

On admission, his temperature was 39.4°C, pulse 110, BP 110/40. He was confused, but the physical examination was normal except for basilar crackles in both lung fields.

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#62 There was no rash or nuchal rigidity.

On lab studies, WBC was 1100 with 43% bands, 20% PMN, 20% monocytes, and 17% lymphs.

The platelet count was 48,000.

Hemoglobin 11.2. BUN 50, creatinine 4.6, ALT 500, AST 700, alkaline phosphatase and bilirubin normal.

Chest x-ray was normal.

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#62 PCR of blood for which of the following infections is most likely to be positive?

A) Rickettsia rickettsii

B) Rickettsia typhi

C) Rickettsia felis

D) Anaplasma phagocytophilum

E) Ehrlichia chaffeensis

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#63 A 22-year-old male from Trinidad has had aplastic anemia since 2003. He is being prepared for a matched stem cell transplant from his brother after failing eltrombopag and several courses of horse anti-thymocyte globulin (ATG) and prednisone.

He is chronically neutropenic with a current absolute neutrophil count of 75/cu mm and platelet count of 15,000/cu mm.

Renal and hepatic function are normal.

He is admitted to the ICU from clinic with fever, hypotension, and abdominal tenderness and distension with some rebound tenderness and only a few bowel sounds.

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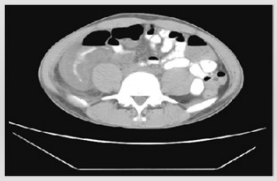
#63 He was started on vancomycin, and meropenem plus fluconazole.

Surgical consultation was obtained and a CT scan with oral and intravenous contrast was ordered:



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#63 What would you recommend be added to his regimen of vancomycin/meropenem/fluconazole at this time?

A) Ivermectin
B) Surgical resection
C) Linezolid
D) Liposomal Amphotericin B
E) Nothing. Continue present management.

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#64 An 80-year-old resident of a nursing home has severe dementia, type 2 diabetes mellitus and a chronic indwelling Foley catheter which is in place to manage his persistent incontinence.

He has no remarkable medical history and is quite healthy except for his dementia.

He has received antibiotics for presumed urinary tract infection twice in the last year.

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#64 The nursing home staff decided to obtain a urinalysis and urine culture: they call you because the urine culture is growing Candida albicans with a colony count of 100,000 cfu/ml.

His UA shows 30-40 WBC and 10-20 RBC per HPF, with a 1+ leukocyte esterase.

He is in his usual state of health with no fever, no urinary symptoms that you can elicit from him, and no flank tenderness.

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#64 What would you recommend?

A) Observe and do nothing more unless the patient becomes symptomatic
B) Observe but obtain repeat urinalysis and culture in one week
C) Change Foley catheter and give oral fluconazole for 1 week
D) Change Foley catheter and IV caspofungin for 1 week
E) Change the Foley catheter and order Amphotericin B deoxycholate bladder washes daily for 5-7 days

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#65 A 58-year-old male underwent a right knee replacement 6 months earlier for severe osteoarthritis.

He did well, but one month prior to admission, he was in a motor vehicle accident and had some trauma to the knee.

He subsequently had pain in the knee and later noted a draining hole in his right knee near the surgical site. He was febrile to 39°C and examination of the right knee revealed some swelling and erythema, and a sinus tract that was draining seropurulent material.

Cultures of the drainage revealed methicillin-resistant Staphylococcus aureus.

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#65 What would be the most appropriate approach in treating this patient's infection?

A) 6-week course of parenteral antimicrobial therapy followed by life-long oral antimicrobial therapy

B) Surgical drainage of the knee with prosthesis retention followed by a 6 month course of antimicrobial therapy

C) Prosthesis removal and immediate reimplantation of a new prosthesis followed by a 6 week course of antimicrobial therapy

D) Prosthesis removal and reimplantation of a new prosthesis after 2-4 weeks of antimicrobial therapy followed by 6 months of antimicrobial therapy

E) Prosthesis removal and reimplantation of a new prosthesis after 6 weeks of antimicrobial therapy

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#66 An 8-year-old boy complains of itchiness of his buttocks that wakes him up at night.

He has a 2-year-old sister who is in daycare.

A touch prep examination of the peri-anal region demonstrates pinworm eggs. The boy is treated with pyrantel pamoate twice, spaced two weeks apart.

Three weeks after the second treatment the boy returns again with complaints of peri-anal itching.

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#66 The most likely explanation for the boy's symptoms is:

A) Resistant pinworm infection

B) Re-infection with pinworms

C) Dipylidium caninum

D) Non-infectious cause of peri-anal itching

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#67 A 64-year-old female with a history of chronic lymphocytic leukemia (CLL) for several years was recently diagnosed with Richter's transformation to diffuse large B cell lymphoma.

Her oncologist recommended starting R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone) chemotherapy given the advanced stage disease.

The patient has a history of recurrent and severe sinopulmonary infections and hypogammaglobulinemia. As a result, she has been on monthly intravenous immunoglobulin (IVIG) for the past two years.

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#67 The patient's hepatitis B serology obtained a year ago showed:

- HBsAg: nonreactive
- Total HBc Ab: positive
- HBsAb: positive
- HBV viral load: negative

Her oncologist referred her to be seen by you for further recommendations about the patient's hepatitis B.

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#67 What is the most appropriate next step?

A) Treat only if monthly serum quantitative HBV viral load becomes positive while she gets treated with R-CHOP

B) Start tenofovir plus emtricitabine pre-R-CHOP

C) Start entecavir pre-R-CHOP

D) Administer a single hepatitis B vaccine booster dose

E) Review pre-IVIG hepatitis B serology before making a decision

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#68 A 56-year-old woman presents to the urgent care clinic with a two-week history of worsening right knee pain. She has a history of rheumatoid arthritis for which she takes infliximab.

Two months ago she underwent a steroid injection to the right knee. She had transient improvement, but symptoms worsened two weeks ago with decreased range of motion, and more pain with ambulation.

She lives in New Hampshire, and when well enjoys walking in the woods with her dogs. One month ago she underwent a routine dental cleaning.

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#68 On evaluation, she guarded against range of motion of the right knee; a small effusion is present.

She was found to have ESR of 74 and CRP of 53 mg/dL and on synovial fluid analysis, she had 42,000 WBCs (91% neutrophils), a negative gram stain, and few positive birefringent crystals.

Cultures are pending.

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#68 What is the most likely diagnosis?

A) Calcium pyrophosphate crystal deposition disease (pseudogout)

B) Gout

C) Lyme disease

D) Septic arthritis

E) Chondrocalcinosis

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#69 In July, a 25-year-old African-American male turkey farmer from rural North Carolina was taken to the Emergency Department because of fever and headache of approximately 48-hours duration. His farm had a few cows and dogs.

They drank unpasteurized milk from their cows. Occasionally he noted ticks on his body but could not remember when the last time was.

He didn't slaughter animals on the farm, but sent the turkeys elsewhere for processing. He sometimes walked around in stagnant water in the fields where he grazed the cows.

He had been healthy and took no medications.

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#69 On examination:

- His temperature was 40° C, pulse 110 and BP 90/60.
- He was obviously ill and groaning from the headache but oriented x 3.
- No rash was seen.
- Slight but definite nuchal rigidity was found but no other neurologic signs.

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#69 Blood cultures were drawn, and ceftriaxone 2 gm q12h IV was begun.

- Lumbar puncture found WBC 40/cu ml, all lymphocytes and monocytes.
  - CSF protein was 45 mg/dL and glucose 55 mg/dL.
  - Gram stain was negative.
- WBC was 2,500/cu ml with a normal differential.
- Platelet count was 70,000/cu ml and hemoglobin 13 gm.
- Routine chemistries showed aminotransferases were slightly elevated, 1.5 times the upper normal limit.

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#69 Which of the following is the most likely source of this infection?

A) Turkeys
B) Mosquitoes
C) Dog ticks
D) Unpasteurized milk
E) Stagnant water

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#70 A 20-year-old college student who immigrated to the United States at the age of 15 years is referred to you because of a history of rheumatic fever.

The student had fever and arthralgias when she was 5 years old, and again when she was 15 years old.

The referring physician heard a heart murmur and obtained an echocardiogram which show mild mitral stenosis with a calcified mitral valve.

The physician agrees that she appears to have had rheumatic fever and now has rheumatic heart disease.

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#70 What would you recommend to prevent a recurrence of rheumatic fever?

A) No antimicrobial prophylaxis
B) Amoxicillin daily until 5 years after her last episode of rheumatic fever
C) Benzathine penicillin monthly for 10 years after last attack, or until age 40 years, whichever is longer
D) Benzathine penicillin monthly for life
E) Procaine penicillin monthly for life

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#71 A 25-year-old woman with cystic fibrosis and known pulmonary colonization with MRSA underwent bilateral lung transplant.

She was at high serologic risk for CMV and received intravenous ganciclovir IV, inhaled amphotericin B and oral fluconazole, and vancomycin and cefepime prophylaxis beginning on post-operative day 1.

She was extubated and transferred to the step-down unit with an unremarkable post-operative course until day 7 post-transplant when she became agitated and hypoxic.

Work-up included bronchoscopy with BAL cultures and blood cultures which were negative after 48 hours, but a blood ammonia level that was high.

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#71 You recommend:

A) BAL PCR for Mycoplasma and *Ureaplasma* spp. and start antimicrobial therapy directed against these pathogens
B) Switch vancomycin to daptomycin
C) Stop fluconazole and start voriconazole
D) Switch ganciclovir to foscarnet out of concern for ganciclovir resistant CMV pneumonitis

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#72 A 20-year-old male with refractory lymphoma received an HLA-mismatched and T-cell depleted allogeneic stem cell transplant.

He engrafted on day 22, and developed a faint diffuse erythematous rash and low-grade fever on day 68.

He was diagnosed as acute graft vs. host disease (GVHD), for which he was treated with prednisone, which was ultimately tapered. The rash faded and he became afebrile.

He is receiving trimethoprim-sulfamethoxazole three times a week and twice daily valacyclovir for prophylaxis.

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#72 On day 110, he developed fever to 38°C, dyspnea, cough, and a faint erythematous rash.

- His WBC was 7,000, with a normal differential.
- Chest CT scan demonstrated bilateral ground glass opacities but cultures and stains of a bronchoalveolar lavage for bacteria, fungi and pneumocystis were negative.
- Alkaline phosphatase was 309 U/L, AST 488 U/L, ALT 430 U/L, total bilirubin 1.9 mg/dl.
- Urinalysis revealed hematuria: 1500 RBC, 20 WBC, with no bacteria on stain.
- His CMV PCR on peripheral blood was undetectable.

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

A) HSV
B) VZV
C) HHV6
D) Adenovirus
E) BK Virus

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#73 A 40-year-old man from Ghana was visiting his daughter in the United States.

She sought medical care for her father who was constantly scratching himself, with generalized pruritus.

A 4 cm painless nodule was found on his right hip.

Biopsy of the nodule reveals cross-sections of very thin nematodes.

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#73 The most likely cause of the nodule is:

A) Ascaris lumbricoides
B) Onchocerca volvulus
C) Schistosoma mansoni
D) Trichinella spiralis
E) Loa loa

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#74 A 21-year-old female college varsity track and field athlete noted the onset of right knee pain and swelling for three weeks that has persisted despite taking anti-inflammatories, rest and icing.

She feels otherwise well without fever and denies any trauma or prior history of joint swelling.

An MRI of the knee showed no meniscal tears and mild synovial thickening.

Last week, an orthopedist aspirated the joint, revealing 18,000 WBC/ml with PMN predominance. No crystals were identified, and cultures were negative.

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#74 She is a resident of Massachusetts and attends school in South Carolina.

She has no prior past medical history, including sexually transmitted diseases, and doesn't recollect any history of rash consistent with erythema migrans or history of tick bites recently.

Her exam is normal except for her right knee, which has some limited range of motion and a moderate effusion.

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#74 Which selection below would most support a diagnosis of late Lyme arthritis?

A) A therapeutic trial of antibiotics (doxycycline or ceftriaxone)

B) Synovial fluid *B. burgdorferi* immunoblot (IgM or IgG)

C) Synovial fluid culture for *Borrelia* spp.

D) Two-tiered *B. burgdorferi* serology, including IgG immunoblot

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#75 A 48-year-old physician presents with complaints of severe fevers, abdominal pain, diarrhea, and back pain for 5 days. The patient returned from a 6-month medical mission to Sudan 2 weeks ago.

The patient took doxycycline daily for malaria prophylaxis while there, but reports she would occasionally forget a dose.

She experienced frequent insect bites, especially when she took hikes along the banks of the White Nile River.

She was usually careful about what she ate, but about once a week would eat home cooked meals prepared by coworkers at the medicine clinic.

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#75 On exam, her heart rate is 110 bpm, BP is 100/70, respiratory rate is 24/min, and temperature is 38.6°C. Lung sounds are clear to auscultation bilaterally. Abdomen is soft with moderate tenderness in the right upper and right lower quadrants.

Abnormal laboratory values include a white blood cell count of 18,400/mm^3 with 45% neutrophils, 24% lymphocytes, 6% monocytes, 24% eosinophils, and 1% basophils. AST is 158 units/L and ALT is 144 units/L.

Ova and parasite examinations on stool and urine samples, sent by the patient's primary physician three days ago, are negative.

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#75 Which of the following organisms is most likely causing her illness?

A) Salmonella typhi

B) Plasmodium falciparum

C) Onchocerca volvulus

D) Schistosoma mansoni

E) Ancylostoma duodenale