

Parasitology & Mycology book Questions

By Hind Shaker Suhwail

﴿وَيُهِئُ لَكُمْ مِنْ أَمْرِكُمْ مَرْفَقًا﴾

Protozoa

Q1. Regarding *Entamoeba histolytica*, which one of the following is most accurate?

- (A) *Entamoeba histolytica* causes “flask-shaped” ulcerations in the colon mucosa.
- (B) Domestic animals such as dogs and cats are the main reservoir of *E. histolytica*.
- (C) In the microscope, *E. histolytica* is recognized by having two sets of paired flagella.
- (D) *Entamoeba histolytica* infections are limited to the intestinal mucosa and do not spread to other organs.
- (E) The infection is typically acquired by the ingestion of the trophozoite in contaminated food and water

Q2. Regarding *Giardia lamblia*, which one of the following is most accurate?

- (A) The drug of choice for giardiasis is chloroquine.
- (B) In giardiasis, ova and parasite (O&P) analysis of the stool reveals sporozoites in the feces.
- (C) *Giardia lamblia* produces an enterotoxin that increases cyclic AMP within the enterocyte, resulting in diarrhea.
- (D) *Giardia lamblia* infection is acquired by ingestion of food or water contaminated with human feces only (i.e., there is no animal reservoir for this organism).
- (E) Infection by *G. lamblia* occurs principally in the small intestine, frequently resulting in the malabsorption of fat and foulsmelling, frothy, fat-containing stools.

Q3. Regarding *Cryptosporidium hominis*, which one of the following is most accurate?

- (A) Humans are the only reservoir for *C. hominis*.
- (B) Microscopic examination of the diarrheal stool reveals both red cells and white cells.
- (C) Laboratory diagnosis involves seeing cysts of the organism in an acid-fast stain of the stool.
- (D) *Cryptosporidium hominis* is typically acquired by the ingestion of trophozoites in contaminated food or water.
- (E) In immunocompromised patients, such as AIDS patients with a very low CD4 count, disseminated disease occurs that typically involves the brain and meninges.

Q4. Regarding *Trichomonas vaginalis*, which one of the following is most accurate?

- (A) The drug of choice for trichomoniasis is metronidazole.
- (B) Domestic animals, such as dogs and cats, are the principal reservoir of the organism.
- (C) *Trichomonas vaginalis* is typically acquired by contact with the cysts of the organism during sexual intercourse.
- (D) Laboratory diagnosis typically involves the detection of a greater than fourfold rise in the titer of IgA antibody.
- (E) The asymptomatic male sex partner of a woman with *T. vaginalis* infection should not be treated because asymptomatic men are rarely the source of the organism.

Q5. Your patient is a 30-year-old woman who returned from a trip in Eastern Europe 1 week ago. While on the trip, she experienced anorexia, nausea but no vomiting, and abdominal bloating. For the past 2 days, she has had explosive watery diarrhea. An examination of her stool revealed pear-shaped, flagellated, motile organisms. Of the following, which one is the most likely cause of this infection?

- (A) *Cryptosporidium hominis*
- (B) *Entamoeba histolytica*
- (C) *Giardia lamblia*
- (D) *Trichomonas vaginalis*

Q6. Regarding the patient in Question 5, which one of the following is the best antibiotic to treat the infection?

- (A) Chloroquine
- (B) Metronidazole
- (C) Nifurtimox
- (D) Praziquantel
- (E) Stibogluconate

Q7. Your patient is a 30-year-old Peace Corps volunteer who has recently returned from Central America. She now has fever and right-upper-quadrant pain. She reports that she had bloody diarrhea 2 months ago. A computed tomography scan reveals a radiolucent area in the liver that is interpreted to be an abscess. Aspiration of material from the abscess was performed. Microscopic examination revealed motile, nonflagellated trophozoites with ameboid movement. Of the following, which one is the most likely cause of this infection?

- (A) *Cryptosporidium hominis*
- (B) *Entamoeba histolytica*
- (C) *Giardia lamblia*
- (D) *Trichomonas vaginalis*

Q8. Your patient is a 30-year-old Peace Corps volunteer who has recently returned from Central America. She now has fever and right-upper-quadrant pain. She reports that she had bloody diarrhea 2 months ago. A computed tomography scan reveals a radiolucent area in the liver that is interpreted to be an abscess. Aspiration of material from the abscess was performed. Microscopic examination revealed motile, nonflagellated trophozoites with ameboid movement. Of the following, which one is the most likely cause of this infection?

- (A) *Cryptosporidium hominis*
- (B) *Entamoeba histolytica*
- (C) *Giardia lamblia*
- (D) *Trichomonas vaginalis*

Q9. Regarding Trypanosoma cruzi, which one of the following is most accurate?

- (A) Humans are the main reservoir of T. cruzi.
- (B) The drug of choice for the acute phase of Chagas' disease is chloroquine.
- (C) The vector for T. cruzi, the cause of Chagas' disease, is the reduviid (cone-nosed) bug.
- (D) Seeing trypomastigotes in a muscle biopsy supports the diagnosis of Chagas' disease.
- (E) The main site of disease caused by T. cruzi is skeletal muscle, resulting in severe muscle pain.

Q10. Regarding leishmaniasis, which one of the following is most accurate?

- (A) Mefloquine is effective in preventing disease caused by L. donovani.
- (B) Large domestic animals such as cattle are the principal reservoir of L. donovani.
- (C) Both visceral leishmaniasis and cutaneous leishmaniasis are transmitted by the bite of sandflies.
- (D) Marked enlargement of the heart on chest X-ray is a typical finding of visceral leishmaniasis.
- (E) Pathologists examining a specimen for the presence of L. donovani should look primarily at eosinophils in the peripheral blood.

Q11. Your patient is a 20-year-old man who, while playing soccer, experienced palpitations and dizziness and then fainted. An electrocardiogram showed right bundle branch block. Holter monitoring showed multiple runs of ventricular tachycardia. A ventricular myocardial biopsy was performed. Microscopic examination revealed a lymphocytic inflammatory process surrounding areas containing amastigotes. The patient was born and raised in rural El Salvador and came to this country 2 years ago. Of the following, which one is the most likely cause?

- (A) Leishmania donovani
- (B) Plasmodium falciparum
- (C) Toxoplasma gondii
- (D) Trypanosoma brucei
- (E) Trypanosoma cruzi

Answers: A E C A C B B A C C E

Nematodes

Q1. You are a volunteer with Doctors Without Borders in sub-Saharan Africa. In certain villages, you detect anemia in a significant number of children. This is most likely due to infection with which one of the following?

- A. *Ancylostoma duodenale*
- B. *Ascaris lumbricoides*
- C. *Enterobius vermicularis*
- D. *Trichinella spiralis*
- E. *Wuchereria bancrofti*

Q2. In the same villages as described in Question 1, you observe that some people are eating unwashed raw vegetables. Which one of the following organisms is most likely to cause infection in these people?

- A. *Ancylostoma duodenale*
- B. *Ascaris lumbricoides*
- C. *Enterobius vermicularis*
- D. *Trichinella spiralis*
- E. *Wuchereria bancrofti*

Q3. Which one of the following nematodes is transmitted by a f form larva penetrating the skin?

- (A) *Anisakis simplex*
- (B) *Onchocerca volvulus*
- (C) *Strongyloides stercoralis*
- (D) *Toxocara canis*
- (E) *Trichuris trichiura*

Q4. One of the most important public health measures in the United States in the twentieth century was recommending that children in rural areas wear shoes. This effort was designed to prevent infection through the feet with which one of the following organisms?

- (A) *Ascaris lumbricoides*
- (B) *Enterobius vermicularis*
- (C) *Necator americanus* (D) *Onchocerca volvulus*
- (E) *Trichuris trichiura*

Q5. The larvae of certain nematodes migrate through the lung and cause pneumonitis characterized by cough or wheezing. Infection by which one of the following nematodes is most likely to cause this clinical picture?

- (A) *Anisakis simplex*
- (B) *Ascaris lumbricoides*
- (C) *Enterobius vermicularis*
- (D) *Trichinella spiralis*
- (E) *Trichuris trichiura*

Q6. Your patient is a 60-year-old man with abdominal pain, vomiting, and weight loss for the past 2 months. He has a history of asthma that requires 20 mg of prednisone daily to control. He lived most of his life in Cuba, moved to Spain 10 years ago, and has lived in this country for 1 year. Abdominal exam is normal, and radiographic studies are unrevealing. His white blood cell count is 10,900 with 16% eosinophils. Examination of the stool reveals rhabditiform larvae. Of the following, which organism is the MOST likely cause?

- (A) *Ascaris lumbricoides*
- (B) *Onchocerca volvulus*
- (C) *Strongyloides stercoralis*
- (D) *Toxocara canis*
- (E) *Trichinella spiralis*

Q7. Your patient is a 40-year-old man with fever, myalgia, and facial swelling. White blood cell count was 14,400 with 24% eosinophils. Additional history reveals that he shot a bear in Canada and ate some of it about 6 weeks ago. He emphasized that he likes his meat rare. A muscle biopsy was performed, and a hematoxylin and eosin (H&E) stain of the tissue showed coiled larvae within skeletal muscle. Of the following, which one is the most likely cause?

- (A) *Ancylostoma caninum*
- (B) *Anisakis simplex*
- (C) *Necator americanus*
- (D) *Trichinella spiralis*
- (E) *Wuchereria bancrofti*

Answers : A B C C B C D

Cestodes

Q1. Regarding *Taenia solium*, which one of the following is most accurate? Most likely not mentioned I put it just incase

- (A) The scolex of *T. solium* has four suckers and a circle of hooklets.
- (B) The drug of choice for the adult worm in humans is metronidazole.
- (C) The cysticercus of *T. solium* contains the mature eggs of the organism.
- (D) In the laboratory, identification of adult worms is based on finding the typical scolex in the stool.
- (E) Ingestion of the terminal proglottids of *T. solium* by pig's results in mature tapeworms in the pig's intestine.

Q2. Cysticercosis is most likely to be acquired by:

- (A) drinking water contaminated with feces of an infected pig.
- (B) drinking water contaminated with feces of an infected cow.
- (C) drinking water contaminated with feces of an infected human.
- (D) ingestion of undercooked pork from an infected pig.
- (E) ingestion of undercooked beef from an infected cow.

Q3. Regarding *Echinococcus granulosus*, which one of the following is most accurate?

- (A) The drug of choice for *E. granulosus* infection is metronidazole.
- (B) Dogs are a required part of the life cycle of the causative organism.
- (C) *E. granulosus* is one of the longest tapeworms, sometimes measuring 10 ft in length.
- (D) *E. granulosus* larvae typically migrate to skeletal muscle, where they cause an abscess
- (E) The main mode of transmission to humans is ingestion of eggs in food or water contaminated with human feces.

Q4. Your patient is a 15-year-old girl with a 2-week history of headache and vomiting and a 3-day history of confusion and incoherent speech. She was born in Ecuador but moved to this country 5 years ago. Magnetic resonance imaging (MRI) of the brain reveals multiple lesions bilaterally. The following day, she has a seizure and dies. On autopsy, the brain lesions consist of a cyst-like sac containing a larva. Of the following, which one is the most likely cause?

- (A) *Dipylidium latum*
- (B) *Echinococcus granulosus*
- (C) *Taenia saginata*
- (D) *Taenia solium*

Q5. Your patient is a 40-year-old man with occasional mild right upper abdominal discomfort but is otherwise well. On examination, his liver is enlarged. An MRI reveals a cystic mass in the liver. On questioning, he says that he was born and raised in rural Argentina on a sheep ranch and came to this country 10 years ago. Of the following, which one is the most likely cause?

- (A) *Dipylidium latum*
- (B) *Echinococcus granulosus*
- (C) *Taenia saginata*
- (D) *Taenia solium*

Answers : A C B D B

Options are not 100% from what we took , try to solve by elimination . If you find it difficult , don't overthink and just keep going :)

Mycology

Q1. Regarding the structure and reproduction of fungi, which one of the following is most accurate?

- (A) Peptidoglycan is an important component of the cell wall of fungi.
- (B) Molds are fungi that grow as single cells and reproduce by budding.
- (C) Some fungi are dimorphic (i.e., they are yeasts at room temperature and molds at body temperature).
- (D) The fungal cell membrane contains ergosterol, whereas the human cell membrane contains cholesterol.
- (E) As most fungi are anaerobic, they should be cultured under anaerobic conditions in the clinical laboratory.

Q2. Regarding ringworm and the dermatophytes, which one of the following is most accurate?

- (A) The dermatophytes are molds and are not thermally dimorphic.
- (B) The drug of choice for the treatment of ringworm lesions is amphotericin B.
- (C) The purpose of the KOH prep is to observe fungal antigens within infected cells.
- (D) The dermatophytid reaction refers to the necrotic area typically seen in the center of ringworm lesions.
- (E) The principal reservoir of dermatophytes in the genus *Trichophyton* is domestic animals such as dogs and cats.

Q3. Regarding sporotrichosis and *Sporothrix schenckii*, which one of the following is most accurate?

- (A) The main reservoir of *Sporothrix* is dog feces.
- (B) Laboratory diagnosis involves seeing a nonseptate mold in an aspirate of the lesion.
- (C) *Sporothrix* is often acquired by penetrating wounds sustained while gardening.
- (D) The treatment of choice for sporotrichosis is surgical removal of the lesion because there is no effective drug.
- (E) Disease occurs primarily in patients who are deficient in the late-acting complement components.

Q4. Regarding *C. albicans*, which one of the following is most accurate?

- (A) The diagnosis of disseminated candidiasis is typically made by detecting IgM antibodies.
- (B) It exists as a yeast on mucosal surfaces but forms pseudohyphae when it invades tissue.
- (C) Antibody-mediated immunity is a more important host defense than cell-mediated immunity.
- (D) A positive skin test can be used to confirm the diagnosis of skin infection caused by *C. albicans*.
- (E) In the clinical laboratory, it is diagnosed by isolating a mold with nonseptate hyphae when cultures are grown at room temperature.

Q5. Regarding *Cryptococcus neoformans*, which one of the following is most accurate?

- (A) It is a dimorphic fungus, growing as a mold in the soil and a yeast in the body.
- (B) It is acquired primarily by ingestion of food contaminated with pigeon guano.
- (C) Dark field microscopy is typically used to visualize the organism in spinal fluid.
- (D) Pathogenesis involves an exotoxin that acts as a superantigen recruiting lymphocytes into the spinal fluid.
- (E) Laboratory diagnosis of cryptococcal meningitis can be achieved by detecting the capsular polysaccharide of the organism in the spinal fluid.

Q6. Regarding *Aspergillus fumigatus* and aspergillosis, which one of the following is most accurate?

- (A) The natural habitat of *A. fumigatus* is the hair follicles of the human skin.
- (B) In the clinical laboratory, cultures of *A. fumigatus* incubated at 37°C form yeast colonies.
- (C) The India ink stain is typically used to visualize *A. fumigatus* in the clinical laboratory.
- (D) *A. fumigatus* causes “fungus balls” in patients with lung cavities caused by tuberculosis.
- (E) The main predisposing factor to allergic bronchopulmonary aspergillosis is neutropenia.

Q7. Regarding Mucor species, which one of the following is most accurate?

- (A) Infection is acquired by the ingestion of food contaminated by spores of the organism.
- (B) Diabetic ketoacidosis is a major predisposing factor for invasive mucormycosis.
- (C) Mucor species have septate hyphae in contrast to Aspergillus species, which have nonseptate hyphae.
- (D) In biopsy specimens obtained from patients with invasive disease, Mucor species appear as pseudohyphae.
- (E) Skin tests using mucoroidin as the immunogen are used to determine whether the patient has been infected with Mucor species.

Answers : D A C B E D B



Mycobacteria

Q1. Your patient is a 25-year-old homeless man who complains of a cough for the past month. The cough is now productive of several tablespoons of blood-streaked sputum per day. The sputum is not foul-smelling. He has lost 10 pounds but says that he doesn't eat regularly. On physical exam, temperature is 38°C, and coarse rales are heard in the apex of the left lung. An acid-fast stain of the sputum reveals acid-fast rods. Culture of the sputum shows no growth at 7 days, but buff-colored colonies are visible at 21 days.

Of the following organisms, which one is most likely to be the cause of this infection?

- (A) *Mycobacterium fortuitum-chelonae*
- (B) *Mycobacterium leprae*
- (C) *Mycobacterium marinum*
- (D) *Mycobacterium tuberculosis*

Q2. Which one of the following regimens is optimal initial treatment for the patient in Question 1?

- (A) Isoniazid for 9 months
- (B) Isoniazid and gentamicin for 2 weeks
- (C) Isoniazid and rifampin for 4 months
- (D) Isoniazid, rifampin, ethambutol, and pyrazinamide for 2 months

Q3. Your patient is a 70-year-old man with progressive weakness in both legs that began about a week ago. He reports back pain and fever for the past month. Magnetic resonance imaging (MRI) of the spine revealed destruction of the seventh thoracic vertebra and a paravertebral mass. Surgical decompression and debridement were performed. Histologic examination of the mass revealed caseating granulomas, and Langhans' giant cells were observed in the granulomas. Gram stain revealed no organisms, but an acid-fast stain showed red rods. Culture showed no growth at 7 days, but growth was seen at 28 days. Of the following, which one is the most likely cause?

- (A) *Mycobacterium fortuitum-chelonae*
- (B) *Mycobacterium leprae*
- (C) *Mycobacterium marinum*
- (D) *Mycobacterium tuberculosis*

Q4. Your patient is a 20-year-old man with a single, slowly enlarging, nonpainful scaly lesion on his chest for the past 2 months. The lesion is nonpruritic, and he has lost sensation at the site of the lesion. He is otherwise well. He is a recent immigrant from Central America. An acid-fast stain of a scraping of the lesion is positive. Which one of the following diseases is he most likely to have?

- (A) Cutaneous tuberculosis
- (B) Fish tank granuloma
- (C) Lepromatous leprosy
- (D) Scrofula
- (E) Tuberculoid leprosy

Q5. All of the following are the symptoms of pulmonary tuberculosis, EXCEPT? Not a book question

- a) Weakness and fatigue
- b) Decreased body temperature
- c) Weight loss
- d) Severe prolonged cough with sputum or blood

Q6. What is the interferon-gamma release assays (IGRAs) for TB bacteria? Not a book question

- a) Blood test for the detection of the release of interferon-gamma by T-cells
- b) Sputum test for the detection of genetic material of TB bacteria
- c) The test used as an alternative tuberculin skin test in latent tuberculosis
- d) The test used as an alternative tuberculin skin test in the active tuberculosis

Q7. Which of the following pathogen has a shorter incubation period and is a nontuberculous mycobacterium? Not a book question

- a) *Mycobacterium ulcerans*
- b) *Mycobacterium avium complex (MAC)*
- c) *Mycobacterium leprae*
- d) *Mycobacterium fortuitum*

Answers : D D D E B A D