

MSS

Microbiology

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Lecture 3:

1. What kind of skin lesions are usually found in patients with infectious mononucleosis?
 - a. Maculopapular rash
 - b. Vesicular rash
 - c. Petechiae
 - d. Ulceration
 - e. Plaques

Answer: c

2. A 20-year-old male patient presents with symptoms of fever, sore throat and malaise. He is initially diagnosed with streptococcal pharyngitis and prescribed amoxicillin. However, a few days later, he develops a rash. What is the most likely explanation for this scenario?
 - a. Allergic reaction to amoxicillin.
 - b. Misdiagnosis of streptococcal pharyngitis.
 - c. Progression of streptococcal infection to scarlet fever.
 - d. Reaction to other medications taken alongside amoxicillin.
 - e. Development of infectious mononucleosis due to amoxicillin use.

Answer: b

3. Which of the following is a common complication associated with the treatment of EBV mononucleosis with amoxicillin or ampicillin?
 - a. Joint pain
 - b. Kidney stones
 - c. Maculopapular rash
 - d. Hypertension
 - e. Bradycardia

Answer: c

4. Which of the following serologic tests is NOT typically used in the diagnosis of EBV infection?
 - a. VCA IgM
 - b. ASO titer
 - c. EA IgG
 - d. EBNA IgG
 - e. Paul-Bunnell test

Answer: b

5. A 26-year-old man presents with a painless ulcer on his genitalia, from which spiral-shaped bacteria could be visualized on dark-field microscopy. If left untreated, which of the following would be expected to occur within 6 weeks to 8 weeks?
 - a. Ataxia
 - b. Dementia
 - c. Disseminated rash
 - d. Kidney failure
 - e. Meningitis

Answer: c

6. A 28-year-old woman who is 10 weeks pregnant presents to the obstetrics clinic for prenatal care. She has a history of treatment for syphilis 7 years previously. The results of serologic tests for syphilis are as follows: nontreponemal test, RPR, nonreactive; treponemal test (TP-PA), reactive. Which of the following statements is most correct?
- The mother's previous treatment for syphilis was effective.
 - The baby is at high risk for congenital syphilis.
 - The mother needs to be treated again for syphilis.
 - The mother needs a lumbar puncture and a VDRL test of her CSF for neurosyphilis.

Answer: a

7. A 25-year-old man is diagnosed with secondary syphilis based on a diffuse maculopapular rash and a Rapid Plasma Reagin (RPR) titer of 1:256. He is given an intramuscular dose of 2.4 million units of benzathine penicillin G in the clinic, but approximately 4 hours after receiving the dose of penicillin, he returns with fever, headache, myalgia, dizziness, and intensification of his rash. Physical examination shows a temperature of 38.5°C, blood pressure 96/74 mmHg, accentuation of the rash, but no evidence of hives, oropharyngeal swelling, or wheezing. What is the most likely explanation for this man's symptoms?
- Mild type IV allergic reaction to penicillin.
 - Anaphylaxis to benzathine.
 - Exacerbation of secondary syphilis.
 - Jarisch-Herxheimer reaction

Answer: d

8. Rocky mountain spotted fever is spread to people through which of the following?
- Consumption of deer meat
 - Dog bites
 - Person-to-person contact
 - Tick bites

Answer: d

9. A 30-year-old woman visits the emergency department complaining of fever, headache, and muscle aches. She recently went camping in an area known for tick infestation. On examination, you notice a rash that began as small, red spots on her wrists and ankles. What is the most appropriate next step in management?
- Start antibiotics for Lyme disease.
 - Prescribe antiviral medication for herpes zoster.
 - Order serologic tests for syphilis.
 - Initiate treatment with doxycycline for Rocky Mountain spotted fever (RMSF).

Answer: d

10. A 25-year-old female presents to the emergency department with sudden onset fever, hypotension, rash, and confusion. She has been using tampons during her menstrual period. On examination, you note the rash has a sunburn-like appearance. Which of the following is the most likely causative organism?
- Group B streptococci
 - Staphylococcus aureus*
 - Borrelia*
 - Group A streptococci

e. E.coli

Answer: b

Lecture 04

1. A 30-year-old female presents with asymptomatic, hypopigmented patches on her chest and upper back. She is concerned about their appearance and mentions that they do not tan like the surrounding skin. On Wood lamp examination, the lesions fluoresce pale yellow to orange. Which of the following statements is false?
- The infection is restricted to the keratinized epithelial cells of the stratum corneum.
 - The causative agent is a commensal present on the skin of most individuals.
 - The condition is easily treated by antifungals.
 - Skin scrapings clarified with 10% KOH and stained with methylene blue may show “spaghetti and meatballs” appearance.
 - This is a severe, systemic, life-threatening disease.

Answer: e

2. A 4-month-old boy is brought to the physician by his father because of a progressively worsening rash on his buttocks for the last week. He cries during diaper changes and is more fussy than usual. Physical examination of the boy shows erythematous patches and plaques on the gluteal folds. A diagnosis is made, and treatment with miconazole is initiated. Microscopic examination of skin scrapings is most likely to show which of the following findings?
- Narrow budding, encapsulated yeast.
 - Fruiting bodies with septate, acute-angle hyphae
 - Oval, budding yeast with pseudohyphae.
 - Round yeast surrounded by budding yeast cells.
 - Broad-based budding yeast.

Answer: c

3. All of the following conditions are caused by *Candida albicans* except:
- Diaper rash
 - Oral thrush
 - Perlèche
 - Erythrasma
 - Onychomycosis

Answer: d

4. Which of the following is correctly paired?
- Tinea manuum-hand
 - Tinea capitis-body
 - Tinea barbae-head
 - Tinea pedis-groin
 - Tinea corporis-foot

Answer: a

5. A 23-year-old woman presents with erythematous patches in her axillary region associated with mild itching. Wood lamp examination reveals coral-red fluorescence of the lesions. What medication is commonly prescribed to treat this condition?
- Antiviral
 - Antibiotic
 - Antiparasitic
 - Antifungal
 - Anti-inflammatory

Answer: b

6. A 60-year-old diabetic patient presents to the emergency department with red, swollen, and tender skin on his lower leg. He reports a recent injury to the area. On examination, the affected area is warm to touch, and there are signs of systemic inflammation. Which of the following organisms is the most likely cause of this cellulitis?
- Haemophilus influenzae*
 - Neisseria meningitidis*
 - Staphylococcus epidermidis*
 - Corynebacterium minutissimum*
 - Pseudomonas aeruginosa*

Answer: e

7. A 65-year-old immunocompromised individual complains of warmth and redness over their facial skin, particularly on the cheeks and forehead. Visual inspection reveals a rash characterized by distinct, sharply defined borders and an elevated appearance. Which of the following statements accurately reflects a key aspect of the pathogenesis of this condition?
- The rash is primarily caused by an overgrowth of commensal skin flora.
 - Lymphatic drainage impairment is a common predisposing factor.
 - Immunization status plays a negligible role in disease susceptibility.
 - Genetic factors are the primary determinants of disease development.

Answer: b

8. A 50-year-old male patient presents to the hospital with scrotal swelling, tachycardia, purulent drainage, crepitus and fever. He is a prisoner and lives in poor hygienic conditions. Surgical debridement was performed and antibiotic therapy was initiated. What condition is most likely the cause of these symptoms?
- Toxic shock syndrome
 - Erysipelas
 - Fournier gangrene
 - Cellulitis
 - Impetigo

Answer: c

9. What condition does the dematiaceous fungus *Hortaea werneckii* cause?
- Tinea nigra
 - Tinea capitis
 - Tinea pedis
 - Tinea corporis
 - Tinea cruris

Answer: a

10. A 26-year-old male patient presents with malaise, chills, fever, headache, stiff neck, myalgias, and arthralgias with a red macule on his upper arm that expands radially as a nodule with central clearing and swelling. The patient says he went hiking two weeks ago, and the macule appeared shortly after. Examination of a blood smear stained with Wright stain showed spirochetes suggestive of *Borrelia* species. What is the characteristic skin lesion in this tick-borne disease called?
- Erythrasma
 - Erysipelas
 - Tinea versicolor
 - Erythema migrans
 - Impetigo

Answer: d

11. An AIDS patient presented to the hospital with a violaceous pink to purple plaque that covered most of his foot. The patient responded well to HAART. The condition is caused by?
- Human-immunodeficiency virus
 - Human-herpesvirus 8
 - Human-papilloma virus
 - Molluscum contagiosum virus
 - Varicella-zoster virus

Answer: b

12. An Australian female patient presented to the emergency department with a painless, violaceous nodule on her left leg. She was diagnosed with Merkel-Cell Carcinoma. All of the following about this rare, but aggressive skin cancer is correct except?
- It is symptomatic
 - It expands rapidly
 - Usually occurs in immunosuppressed people
 - Older people are more likely to be affected
 - Excessive exposure to sunlight is a risk factor

Answer: a

13. A 6-year-old child presents with multiple flesh-colored papules on the trunk and extremities. On examination, the lesions are dome-shaped with central umbilication. What is the most likely diagnosis?
- Herpes zoster
 - Molluscum contagiosum
 - Scabies
 - Impetigo

Answer: b

14. A 20-year-old sexually active individual presents with papules and nodules on the genitalia and perineum. The patient is concerned about the risk of developing malignant lesions associated with HPV infection. Which of the following HPV types is most commonly associated with anogenital malignancy?
- HPV-2
 - HPV-6
 - HPV-16

d. HPV-28

Answer: c

15. A 45-year-old man presents with chronic cough, fever, and weight loss. Imaging reveals lung infiltrates consistent with pneumonia. Upon further investigation, characteristic thick-walled unencapsulated yeasts with broad-based buds are observed in sputum samples. What is the most likely diagnosis?

- a. Aspergillosis
- b. Blastomycosis
- c. Coccidioidomycosis
- d. Histoplasmosis

Answer: b

16. A 25-year-old female presents with small nodules along her scalp hair shafts. These nodules are firm and black in color. What is the most likely diagnosis?

- a. White Piedra
- b. Black Piedra
- c. Tinea capitis
- d. Pediculosis capitis

Answer: b

Lecture 05:

1. A Tzanck smear of a scraping obtained from a vesicle on the skin demonstrates multinucleated giant cells with intranuclear inclusions. Multinucleated giant cells with intranuclear inclusions are associated with which of the following viruses?

- a. Varicella-zoster
- b. Coxsackievirus
- c. Molluscum contagiosum
- d. Herpes simplex virus

Answer: d

2. A 55-year-old male develops a vesicular, very painful rash along the T6 dermatome on the right side of his body. His history is significant for immunosuppressive drug therapy for transplantation surgery. Which virus is the most likely etiologic agent of this man's condition?

- a. Herpes simplex virus
- b. Measles virus
- c. Molluscum contagiosum virus
- d. Rubella virus
- e. Varicella-zoster virus

Answer: e

3. A 7-year-old child presents with fever and a widespread rash consisting of crops of lesions at different stages, ranging from macules to papules, vesicles, and crusts. The lesions are described as "dewdrops on rose petals," and there is a centripetal pattern of distribution. What is the most likely diagnosis?

- a. Zoster (shingles)
- b. Eczema
- c. Varicella (chickenpox)

d. Scabies

Answer: c

4. A 14-month-old girl presents with a low-grade fever and rash on her hands and feet. Vesicular lesions were also present on the tongue, palate, and buccal mucosa. The lesions resolved spontaneously within 1 week. What is the most likely etiology of this infection?
- Adenovirus
 - Coxsackievirus
 - Cytomegalovirus
 - Papillomavirus
 - Rotavirus

Answer: b

5. A 15-year-old boy with **acne** is being treated with a topical antimicrobial. Which organism is associated with this disease and with which antimicrobial is he most likely to be treated?
- Malassezia furfur/Ketoconazole
 - Staphylococcus aureus/Cloxacillin
 - Streptococcus pyogenes/Penicillin
 - Trichosporon sp./Clotrimazole
 - Propionibacterium sp./Clindamycin

Answer: e

6. A 35-year-old nurse presents with painful lesions on her fingers, particularly around the nails of her dominant hand. She reports intense itching and regional lymphadenopathy. What is the most likely diagnosis?
- Psoriasis
 - Herpetic whitlow
 - Onychomycosis
 - Paronychia

Answer: b

Lecture 06:

1. A 55-year-old male patient with a prosthetic heart valve undergoes dental extraction without antibiotic prophylaxis. Two weeks later, he develops fever, fatigue, and splinter hemorrhages under his fingernails. What is the most appropriate management for his condition?
- Topical antifungal cream
 - Surgical debridement
 - Intravenous antibiotics
 - Oral antihistamines

Answer: c

2. A 16-year-old adolescent presents to the emergency department with fever, headache, and a diffuse rash. On examination, the patient has erythematous macules, petechiae, with lesions commonly beginning on the trunk and legs. Blood cultures are obtained, and gram-negative diplococci is revealed. What is the most likely diagnosis based on this presentation?
- Meningococemia

- b. Rocky mountain spotted fever
- c. Scarlet fever
- d. Measles

Answer: a

3. A 7-year-old child presents with superficial erosions on the face and extremities covered with honey-colored, adherent thick crusts. There is no history of fever or diarrhea. Regional lymphadenopathy is noted. Which of the following is the most likely diagnosis?
- a. Non-bullous impetigo
 - b. Ecthyma
 - c. Cellulitis
 - d. Psoriasis

Answer: a

4. A newborn has erythema and fissures that started on his face and neck and then were followed by blisters and bullae. What is the causative organism of this condition?
- a. Group A streptococci
 - b. Group B streptococci
 - c. Staphylococcus epidermidis
 - d. Staphylococcus aureus

Answer: d

5. What is the antibiotic of choice for treating primary and secondary syphilis?
- a. Doxycycline
 - b. Azithromycin
 - c. Ceftriaxone
 - d. Benzathine penicillin

Answer: d

6. A 70-year-old neutropenic patient was diagnosed with ecthyma gangrenosum 3 days after he developed a fever of 39°C. Blood cultures drawn the day his fever started grew out overnight a strictly aerobic, Gram-negative rod that was catalase positive and oxidase positive. Which of the following antibiotic regimens would be most appropriate for treating this patient?
- a. Gentamicin + piperacillin/tazobactam
 - b. Vancomycin + metronidazole
 - c. Cefazolin
 - d. Tigecycline
 - e. Oxacillin

Answer: a

Lecture 07:

1. Osteomyelitis is a bone infection usually caused by bacteria, mycobacteria, or fungi. Of the following groups, which group has a lower risk of osteomyelitis?
- a. Adolescents
 - b. Older people
 - c. Those with serious medical conditions

d. Young children

Answer: a

2. In older adults, which bones of the body are most likely to become infected when organisms causing osteomyelitis spread through the bloodstream?
- The ends of arm and leg bones
 - The hip
 - The spine
 - The toes

Answer: c

3. A 12-year-old boy began to limp while playing soccer. He has pain in his right upper thigh and right leg. His temperature is 39 c. X-ray of the femur reveals that the periosteum is eroded. Assuming that this case is managed as an infectious disease, which of the following is the most likely etiologic agent?
- Mycobacterium tuberculosis
 - Salmonella
 - Candida albicans
 - Staphylococcus aureus
 - Streptococcus agalactiae

Answer: d

4. 45-year-old diabetic patient presents to the emergency department with complaints of severe pain and swelling in his left foot for the past week. He reports a recent injury to his foot while working in his garden. On examination, there is erythema, warmth, and tenderness over the dorsum of the foot. Laboratory investigations reveal elevated inflammatory markers. X-ray imaging shows signs suggestive of osteomyelitis. Blood cultures are obtained, and the patient is started on empirical antibiotic therapy. Considering the patient's clinical presentation and the possibility of methicillin-resistant S. aureus (MRSA) infection, which of the following antibiotics is the most appropriate initial choice for treatment?
- Ceftriaxone
 - Amoxicillin
 - Vancomycin
 - Nafcillin

Answer: c

5. A 55-year-old male presents to the emergency department with severe pain and swelling in his right knee. He reports a history of recurrent gout attacks but denies recent trauma to the joint. On examination, the knee is warm, tender to palpation, and exhibits limited range of motion. Laboratory investigations reveal elevated inflammatory markers. A joint aspiration is performed, and synovial fluid analysis is conducted. Given the patient's clinical presentation and the need for differentiation between non-inflammatory, inflammatory, and septic arthritis, which of the following laboratory tests is most essential for confirming the diagnosis of septic arthritis?
- Complete blood count (CBC)
 - Analysis of synovial fluid
 - X-ray of the knee joint
 - Serum uric acid level

Answer: b

6. A 55-year-old man presents to the rheumatology clinic with complaints of severe pain, swelling, and warmth in his right knee for the past 5 days. He denies any recent trauma or infections. On examination, the right knee is erythematous, swollen, and extremely tender to palpation. Joint aspiration is performed, and synovial fluid analysis is conducted. Which of the following characteristics of synovial fluid would be most indicative of septic arthritis in this patient?

- a. Clear appearance with high viscosity
- b. Yellow appearance with nearly equal glucose concentration relative to blood
- c. Yellow to green appearance and elevated leukocyte count with predominance of neutrophils
- d. Yellow appearance with low viscosity and negative culture

Answer: c

7. A 28-year-old sexually active woman presents to the emergency department with complaints of severe joint pain, particularly in her wrists, knees, and ankles, accompanied by swelling and difficulty in moving the affected joints. She reports a recent history of unprotected sexual intercourse. She denies any history of joint problems or recent trauma. Testing for *Neisseria gonorrhoeae* is performed due to the patient's recent sexual activity and symptoms suggestive of gonorrhea. All the following are correct regarding differences between gonococcal and non-gonococcal arthritis except:
- a. Gonococcal arthritis is usually polyarticular while non-gonococcal arthritis is usually monoarticular.
 - b. Mortality rate is higher in non-gonococcal arthritis.
 - c. Joint damage is common in non-gonococcal arthritis, while it is unusual in gonococcal arthritis.
 - d. Inflammation is much more severe in gonococcal arthritis.

Answer: d

Lab lecture:

1. A 5-day postoperative patient develops a high fever. An IV catheter is removed, and culture of the tip reveals Gram-positive cocci believed to be *Staphylococcus aureus*. Which of the following laboratory test results would further support this belief?
- a. Partial hemolysis on blood agar
 - b. Catalase negative
 - c. Coagulase positivity
 - d. Lactose fermentation
 - e. Urea hydrolysis

Answer: c

2. A 12-year-old child presents to the pediatrician's office with complaints of sore throat, fever, and difficulty swallowing for the past two days. On examination, the child appears unwell, with erythema and exudate noted in the pharynx. A throat swab is obtained for further evaluation. Results showed beta hemolysis on sheep blood agar plates, bacitracin sensitivity, and a negative catalase test. What is the most likely organism?
- a. *Streptococcus pyogenes*
 - b. *Streptococcus agalactiae*
 - c. *Staphylococcus aureus*
 - d. *Streptococcus pneumoniae*
 - e. Enterococci

Answer: a

3. A 26-year-old sexually active individual presents to the emergency department with complaints of severe joint pain and swelling in multiple joints, along with fever and chills. The patient reports a recent history of unprotected sexual intercourse. An aspirate was obtained, and further tests were done, revealing Gram-negative diplococci. Which of the following is incorrect about the etiological agent?
- a. It is oxidase positive
 - b. It does not grow on chocolate agar

- c. It grows on Thayer-Martin Media
- d. The inoculated plates should be incubated at 35°C to 37°C in a moist atmosphere enriched with CO₂.

Answer: b

4. An infected burn wound was found to contain gram negative rods in high numbers. When grown in nutrient broth the bacteria formed a greenish dye and a distinctive sweet odor. The most likely pathogen causing the infection is?
- a. Salmonella Typhi
 - b. Pseudomonas aeruginosa
 - C. Escherichia coli
 - d. Streptococcus pyogenes
 - e. Clostridium botulinum

Answer: b

5. What is the medium used to identify species of Candida?
- a. Sabourad-dextrose agar
 - b. 10% KOH
 - c. Mannitol Salt Agar
 - d. CHROMagar

Answer: d

اللَّهُمَّ مَنْ اعْتَرَّ بِكَ فَلَنْ يَذَلَّ ، وَمَنْ اهْتَدَى بِكَ فَلَنْ يُضِلَّ ، وَمَنْ اسْتَكْتَرَّ بِكَ فَلَنْ يَقْلَّ ، وَمَنْ
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