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F-15-129

AZRA NAHEED MEDICAL COLLEGE
3rd Year MBBS, Pathology Term Exam
SEQ
Date: 12-4-2017

Term

Marks: 50

Time allowed: 60 minutes

1. A culture of skin lesions from a patient with pyoderma (impetigo) shows numerous colonies surrounded by a zone of beta hemolysis on a blood agar plate. A Gram-stained smear shows gram positive cocci in chains. If you found the catalase test to be negative, which one of the following organisms would you most probably have isolated?

a
a. *Streptococcus pyogenes* ✓
b. *Staphylococcus aureus*
c. *Staphylococcus epidermidis*
d. *Streptococcus pneumoniae*
e. *Streptococcus viridians*

2. The Coagulase test, in which the bacteria cause plasma to clot, is used to distinguish which bacteria?

a. Streptococcus pyogenes from Enterococcus faecalis
b. Streptococcus pyogenes from Staphylococcus aureus
c
c. Staphylococcus aureus from Staphylococcus epidermidis ✓
d. Staphylococcus epidermidis from Neisseria meningitides
e. Staphylococcus aureus from Streptococcus pneumoniae

3. An outbreak of sepsis caused by *Staphylococcus aureus* has occurred in the newborn nursery. You are called upon to investigate. According to your knowledge of the normal flora, what is the most likely source of the organism?

a. Colon
b. Nose ✓
b
c. Throat
d. Vagina
e. Skin

4. Which of the statements about the classification of Streptococci is incorrect:

a. Pneumococci (*Streptococcus pneumoniae*) are alpha-hemolytic and can be serotyped on the basis of their polysaccharides capsules
b. Enterococci are group D streptococci and can be classified by their ability to grow in 6.5% sodium chloride
e
c. Although Pneumococci and the viridans streptococci are alpha-hemolytic, they can be differentiated by the bile solubility test and their susceptibility to optochin
d. Streptococci pyogenes are identified by Lancefield grouping, which is based on the C carbohydrate in the cell wall
e. Streptococcus agalactiae causes rheumatic fever ✓

5. A 60 year old woman is hospitalized following a stroke and a high grade fever with chills. She is catheterized due to urinary incontinence and receives cephalosporins for the treatment of pneumonia. Blood cultures and gram stain show gram positive cocci that were catalase negative and capable of growth in 6.5% sodium chloride. Which of the following is most likely the cause?

a
a. *Enterococcus faecalis* ✓
b. *Staphylococcus aureus*
c. *Staphylococcus epidermidis*
d. *Streptococcus pyogenes*
e. *Viridans streptococci*

6. A grandmother applied cow dung to the umbilical stump of a new born boy. He developed muscular spasms and pronounced arching of the back. What is the typical means of transmission of a toxin produced by this organism, which blocks the release of inhibitory transmitter GABA and glycine?
   a. Eating home canned foods
   b. Fecal oral, travel to foreign country
   c. Infant given honey during first year of life
   d. Puncture wound or road traffic accident
   e. Respiratory, with incomplete vaccination history

d

7. Several postal workers came down with symptoms of dyspnea, cyanosis, and hemoptysis and chest pain. Chest X-ray reveals mediastinal widening. Sputum cultures are negative for all routine respiratory pathogens. Serology correctly identifies the causative agent as bacillus anthracis. Which of the following structures possessed by the causative agent is responsible for transmission of disease?
   a. Elementary body
   b. Endotoxin
   c. Periplasmic space
   d. Reticulate body
   e. Spores

e

8. Four to Five hours after eating fried rice at a restaurant, a 24 year old woman and her husband both developed nausea, vomiting, and diarrhea. Which one of the following organisms is the Most likely to be involved?
   a. Clostridium perfringens
   b. C botulinum
   c. Bacillus cereus
   d. C diphtheriae
   e. L monocytogenes

c

9. A patient complains to his dentist about a draining lesion in his mouth. A gram stain of the pus shows leukocytes, and many branching gram-positive rods. Branched yellow sulfur granules are observed by microscopy. Which of the following is the most likely cause of the disease?
   a. Actinomycetes israelii
   b. Nocardia
   c. G. diphtheria
   d. Propionibacterium acnes
   e. S. aureus

a

10. After extraction of a wisdom tooth, an 18 year old male student is diagnosed with subactue bacterial endocarditis. He has a congenital heart disease that has been under control. Which of the following is the most likely organism causing his infection?
   a. S. aureus
   b. S. epidermidis
   c. S. pneumonia
   d. Streptococcus viridians
   e. E. faecalis

d

11. A patient was hospitalized after an automobile accident. His wounds became infected and treated with tobramycin, carbenicillin, and clindamycin. Five days after antibiotic therapy initiation, patient developed severe diarrhea and enterocolitis. Antibiotic associated diarrhea and the more serious pseudomembranous colitis can be caused by:

a. Clostridium botulinum
b. Clostridium perfringens
c. Clostridium difficile ✓
d. B.cereus
e. B. fragilis

12. A 65 year old male presents with cold like symptoms for at least 3 days. He also has chills, chest pain and productive cough with bloody sputum. Blood agar reveals alpha hemolytic colonies. Quelling test is also positive. Which of the following is the most likely cause?

a. Corynaebacterium
b. Enterobacter spp
c. Hemophilus
d. Streptococcus pneumoniae ✓
e. Klebsiella pneumonia

13. A 15 year old girl develops a sore throat, fever and earache of approximately 1 week duration. Upon examination by her physician an erythematous rash is noted covering most of her body and her tongue appears like a strawberry. Which of the following is most likely the cause?

a. Streptococcus pyogenes ✓
b. Staphylococcus aureus ✗
c. Staphylococcus agalactiae
d. Streptococcus pneumoniae
e. Staphylococcus epidermidis

14. Mr. Hamid brought a canned Tuna fish to prepare burger. After eating this burger he had nausea, vomiting, diarrhea with diplopia, dysphagia, weakness of facial and respiratory muscles (descending paralysis) but no rise in temperature. Symptoms of C. botulinum food poisoning developed 36 hrs after ingestion of burger. These symptoms are consistent with:

a. Invasion of the gut epithelium by C. botulinum
b. Secretion of an enterotoxin
c. Endotoxin shock
d. Ingestion of a neurotoxin causing flaccid paralysis ✓
e. Activation of cyclic AMP

15. A young female presented with signs and symptoms of urinary tract infection. Urine culture revealed Gram positive cocci, showing catalase and coagulase test negative. Which test distinguishes S.epdermidis from Staph saprophiticus?-

a. Catalase test
b. Optochin sensitivity test
c. Coagulase test
d. DNase test.
e. Novobiocin sensitivity test ✓

16. A patient presented with pseudomembranes in the throat leading to respiratory distress. The organism obtained was a Gram positive rod with metachromatic granules. Name the causative agent:

a. *Nocardia*
b. *Actinomyceres israelii*
c. *Bacillus anthracis*
d. *Corynebacterium diphtheriae* ✓
e. *Listeria monocytogenes*

d

17. A young married woman was received in gynae department with history of increased amount of thin, grey-white, fishy vaginal discharge for the last few days. Gram staining revealed clue cells. Whiff test was also positive. Which one of the following is the most likely causative agent?

a. Candida albicans
b. Trichomonas vaginalis
c. *Gardnerella vaginalis* ✓
d. *Lactobacilli*
e. *Gonococci*

c

18. A pre-mature baby boy developed meningitis one week after birth. Mother had history of ingestion of unpasteurized milk and cheese. Gram staining of CSF revealed L-shaped Gram positive rods having tumbling motility. What is the most likely causative agent?

a. *Neisseria meningitidis*
b. *Streptococcus pneumoniae*
c. *Listeria monocytogenes* ✓
d. *Streptococcus agalactiae*
e. *E.coli*

c

19. A patient developed Scarlet fever, characterized by skin rash with sandpaper like texture, strawberry tongue, pallor, and subsequent desquamation. The organism obtained on blood culture was Beta hemolytic, Lancefield group A. What is the causative agent?

a. *S. aureus*
b. *S. pyogenes* ✓
c. *S.epidermiditis*
d. *S. pneumoniae*
e. *viridans group*

b

20. An immune-compromised chronic diabetic patient had to go for amputation of his foot after he developed gas gangrene. The organism isolated from the pus was a gram positive rod, showing double zone of hemolysis on blood agar and positive Nagler's reaction. Pick the causative agent:

a. *Clostridium difficile*
b. *Corynebacterium diphtheriae*
c. *Clostridium perfringens* ✓
d. *Clostridium botilinum*
e. *Bacillus anthracis*

c

21. C. diphtheriae causes diphtheria, a rare disease in the adults in Pakistan. C.diphtheriae is best characterized by which of the following statements?
a. It secretes erythrogenic toxin that causes the characteristic signs of scarlet fever
b. It produces toxin that blocks protein synthesis in an infected cell and carries a lytic bacteriophage that produces the genetic information for toxin production
c. It requires cystiene for growth
d. It secretes exotoxin that has been called verotoxin and Shiga-like toxin
e. It produces at least one toxin consisting of two subunits, A and B, that cause severe spasmodic cough usually in children

22. Tetanus is a disease caused by clostridium tetani. Which of the following statements is not justifying the characteristics of disease?
a. Is due to an infection with a gram- negative spore forming rod
b. The organism produces a powerful endotoxin
c. The toxin prevents the release of inhibitory neurotransmitter
d. *Clostridium tetani* is sensitive to penicillin
e. Risus sardonicus is the typical fascial spasm

23. Which of the following Gram positive rod is weakly acid fast?
a. Clostridium botilinum
b. Actinomycetes israelii
c. Nocardia asteroides
d. Corynebacterium diphtheriae
e. Gardneralla

24. A patient is admitted with severe substernal chest pain of 4 hours duration. Lab tests reveal increased level of the serum creatine kinase. This is most likely due to:
a. Mitochondrial swelling
b. Nuclear lysis
c. Damage of plasma membranes
d. Increased endoplasmic reticulum
e. Increased Golgi activity.

25. You are asked to participate in a research project on myocardial infarctions in a rat model. Which of the following occurs in ischemic cell injury?
a. Efflux of K+ and Na+
b. Influx of K+ and Ca++
c. Influx of K+ and H2O
d. Influx of Na+ and Ca++
e- Influx of Na+ and K+

26. Cell death caused by autolysis is produced by
a. Antibodies
b. Endogenous enzymes
c. Phagocytic leukocytes
d. Bacterial enzymes
e. Anoxia

27. A 10-year-old black man with a known history of sickle cell disease presents to the emergency department complaining of left upper quadrant pain suggestive of a splenic infarct. Microscopic examination of the spleen would most likely reveal
    a. Caseous necrosis
    b. Coagulative necrosis ✓
b   c. Fibrinoid necrosis
    d. Gangrenous necrosis
    e. Liquefactive necrosis

28. You are asked to review an electron micrograph of a section of liver from a chronic alcoholic which of the following is an example of an irreversible injury?
    a. Cellular edema
    b. Chromatin clumping
e   c. Cytoplasmic inclusions
    d. Mitochondrial swelling
    e. Rupture of cell membrane ✓

29. You are asked to review a liver biopsy from a patient with history of alcohol abuse. Which of the following pathologic changes will most likely be present in this case.
    a. Fatty change in liver cells ✓
a   b. Hydropic change of hepatocytes
    c. Karyolysis in myocardial cells
    d. Glycogen deposition in hepatocytes nuclei
    e. lipofuschin deposition

30. The action of putrefactive bacteria on necrotic tissue results in
    a. Coagulation
    b. Infarction
    c. Gangrene ✓
c   d. Embolism
    e. Caseation

31. Dystrophic calcification
    a. Occurs in normal tissues
    b. Is associated with hypercalcaemia
    c. Is seen in vitamin D related disease
d   d. Occurs in atheromatous disease ✓
    e. May be a part of the milk alkali syndrome

32. Regarding hyperplasia which statement is correct?
    a. It is never seen in the same tissue as hypertrophy
    b. it is seen in cardiac muscle in hypoxic patients
c   c. it is limited to cells capable of mitotic division ✓
    d. it is rarely physiologic
    e. complete removal of excess hormone triggers will slow progression but not reverse hyperplastic changes

33. Alterations in normal blood flow and endothelial injury may lead to,
    a. Sickle cell anemia
    b. Cardiomyopathy
    c. Hypersensitivity
d   d. Thrombosis ✓
    e. None of the above

34. A detached intravascular solid, liquid, or gaseous mass that is carried by the blood to a site distant from its point of origin is known as ;
    a. Thrombosis
b   b. Embolism ✓
    c. Infarction
    d. Necrosis
    e. Gangrene

35. Red Infarcts occur in:
    a. Heart
    b. Spleen
d   c. Kidney
    d. Intestine ✓
    e. None of the above

36. A 23 years old man undergoes surgery for the fractures of pelvis after motor vehicle accident. The following day he develops dyspnea, speech difficulties and skin rash .what do u think is the cause.
    a. Air embolism
    b. Amniotic fluid embolism
c   c. Fat embolism ✓
    d. Paradoxical embolism
    e. Thrombotic embolism..

37. During autopsy of 46 years old man who died after motor vehicle accident. 1-2 cm mass was found within branch of left pulmonary artery. Grossly the mass is gelatinous and has a chicken fat appearance and not attached to vessel wall and lines of Zahn are absent. What is the mass actually
    a. Postmortem blood clot ✓
a   b. Post mortem hematoma
    c. Premortem embolic hematoma
    d. Premortem non embolic thrombus.
    e. Premortem embous.

38. Edema of the dependent parts of the body is a prominent feature of
    a. Brain edema
    b. Congestive cardiac failure ✓
b   c. Nephrotic syndrome
    d. Periorbital edema
    e. Pulmonary edema.

39. Anaphylactic shock
a. Is seen after tuberculosis
b. Caused by IgG
c. Cannot lead to death
d. Occurs as a result to reaction to penicillin
e. Takes many days to develop.

40. Approximately 30-60 minutes after being bitten by a "bug", a 26-year-old man noticed a localized swelling and erythema in the affected area. The edema is most likely the result of:
a. Altered plasma oncotic pressure
b. Increased arterial hydrostatic pressure
c. Increased vascular permeability
d. Lymphatic obstruction
e. Increased plasma protein levels.

41. A patient is scheduled to have a chronic abscess incised and drained. What would you expect microscopic examination of the contents of the abscess to most likely show?
a. Lymphocytes and macrophages
b. An area of caseous necrosis
c. Any area of coagulative necrosis
d. Neutrophils, lymphocytes,& plasma cells
e. An acute inflammatory infiltrate of PMNs

42. Which of the following would you expect to find in the alveoli in a patient with pneumococcal pneumonia of 24 hours duration?
a. Serous inflammation
b. Fibrinous inflammation
c. Fibrino-purulent inflammation
d. Suppurative inflammation
e. Serofibrous inflammation

43. A 45-year-old woman has a lung biopsy because of a 1.0 cm lesion seen on a chest x-ray. Histologic examination reveals epithelioid macrophages and lymphocytes around a focus of caseous necrosis. What is the best explanation for this form of necrosis?
a. Granulomatous inflammation
b. Complement fixation
c. Local histamine release
d. PMNs releasing degradative enzymes
e. Suppurative inflammation

44. Which of the following events in acute inflammation occurs first?
a. Chemotaxis
b. Emigration → Fourth step
c. Hemostasis
d. Margination
e. Phagocytosis

45. If the following features of the acute inflammatory reaction were placed in chronological order which would come fourth?
a. Arteriolar contraction
b. Blood flow slows
c. Dilatation of arterioles
d. Emigration of leucocytes from blood vessels
e. Protein-rich fluid escapes from blood vessels

46. Which one of the following ultrastructural features is believed to allow for the increased permeability of the vascular endothelium in acutely inflamed tissue?
a. Cytoplasmic pinocytotic vesicles
b. Gaps in endothelial tight junctions
c. Gaps in basement membrane
d. Increase in number of phagolysosomes
e. No morphological changes

47. Which of the following will impair wound healing
a. Deficiency of Vit-C
b. Excess of glucocorticoids
c. Tissue hypoxia
d. Poor vascular supply
e. All of the above

48. Which of the following substance is produced by action of lipo-oxygenase on arachidonic acid is a potent chemotactic for neutrophils and cause aggregation and adhesion of leukocytes
a. C5a
b. Prostacyclin
c. IL-8
d. Thromboxane A2
e. LTB4

49. An 18 year old man lacerated his left hand and required sutures. The sutures were removed one week later. Wound healing continued but the site became disfigured by a prominent raised scar that developed over the next two months. Which of the following terms best describes the process that occurred during this two months period.
a. Keloid formation
b. Organization
c. Dehisence
d. Resolution
e. Secondary union.

50. In cleaning of the clean wound maximum immediate strength of the wound is reached by:
a. 2-3 days
b. 4-7 days
c. 10-12 days
d. 13-18 days
e. 6months