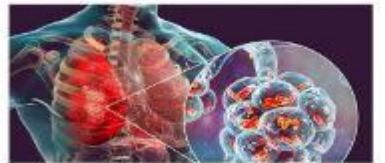


MEDZONE



MICROBIOLOGY

بسم الله الرحمن الرحيم

وَالَّذِينَ يُؤْتُونَ مَا آتَوْا وَقُلُوبُهُمْ وَجَلَةٌ أَنَّهُمْ إِلَىٰ رَبِّهِمْ رَاجِعُونَ ﴿٦١﴾
أُولَٰئِكَ يُسْرِعُونَ فِي الْخَيْرَاتِ وَهُمْ لَهَا سَابِقُونَ ﴿٦٢﴾

Mediated by

MedZone family



أقوى تجميعات للميكرو من أسرة ميد زون (تساعدك في الحل)

<https://drive.google.com/file/d/1iMyEBt21EqzKo-IGRgOzPwqwMAKmetZL/view?usp=drivesdk>

GROUP A STREPTOCOCCI & NORMAL FLORA

1. **The organisms producing alpha-haemolysis on blood agar are:**
 - a) Strept. viridans
 - b) Strept. pyogenes
 - c) Pneumococci
 - d) Enterococci
 - e) a & c
2. **Most specific test for diagnosis of acute glomerulonephritis:**
 - a) CRP
 - b) E.S.R
 - c) Anti-DNase test
 - d) A.S.O. test
3. **Classification of Streptococci depends on:**
 - a) CO₂ requirements
 - b) Biochemical activity
 - c) Hemolytic activity
 - d) Toxin production
4. **β-haemolytic Streptococci are classified according to:**
 - a) Capsule
 - b) Toxin production
 - c) C carbohydrate antigen
 - d) Phage typing
5. **The Lancefield groups of B-haemolytic Streptococci are determined according to:**
 - a) Hemolysin
 - b) Erythrogenic toxin
 - c) M protein
 - d) Cell wall carbohydrate antigen
6. **Which of the following is MOST likely to be responsible for acute tonsillitis?**
 - a) Strept. viridans
 - b) Strept. pneumoniae
 - c) Group A B-haemolytic streptococci
 - d) Group B B-haemolytic streptococci
7. **What may result following acute tonsillitis caused by Strept. pyogenes?**
 - a) Acute epiglottitis
 - b) Impetigo
 - c) Rheumatic fever
 - d) Scarlet fever
8. **The drug of choice to prevent repeated attacks of rheumatic fever is:**
 - a) Long acting penicillin
 - b) Tetracycline

c) Vancomycin

d) Pipracillin

9. Which disease is NOT caused by Strept. pyogenes?

a) Scalded skin syndrome

b) Scarlet fever

c) Erysipelas

d) Impetigo

10. Serotyping of Strept. pyogenes is according to:

a) M protein

b) Capsular antigen

c) C carbohydrate antigen

d) All the above

11. Streptolysin O is:

a) Oxygen-labile

b) Antigenic

c) None of the above

d) All the above

12. On blood agar, Strept. pyogenes produces:

a) Complete hemolysis

b) Incomplete hemolysis

c) No effect on blood

d) Unable to grow on blood agar

13. The most common infection due to group A B-hemolytic Streptococci is:

a) Subacute bacterial endocarditis

b) Acute follicular tonsillitis

c) Food poisoning

d) Surgical wound infection

14. The best test to identify B-hemolytic streptococci isolated from the throat culture of an eleven years-old child is:

a) Optochin sensitivity

b) Sensitivity to bacitracin

c) Coagulase test

d) Catalase test

15. Which one of the following is NOT concerning Strept. pyogenes?

a) Protein A

b) M protein

c) B-hemolysin

d) Polysaccharide group-specific substance

16. Invasive infections caused by Strept. pyogenes include the following EXCEPT:

a) Erysipelas

- b) Scarlet fever
- c) Cellulitis
- d) Puerperal sepsis

17. Which is primarily responsible for the signs and symptoms of scarlet fever?

- a) Erythrogenic toxin
- b) M-protein
- c) Streptokinase
- d) Exfoliative toxin

18. The most severe streptococcal diseases are caused by:

- a) Group B streptococci
- b) Group A streptococci
- c) Pneumococci
- d) Enterococci

19. Gram-positive cocci that occur in chains and produce β -hemolytic colonies on 5% sheep blood agar is MOST likely:

- a) Streptococcus agalactiae
- b) Streptococcus pyogenes
- c) Enterococcus faecalis
- d) Streptococcus pneumoniae

20. The antistreptolysin O titre is raised in infections caused by:

- a) Streptococcus pneumoniae
- b) Streptococcus pyogenes
- c) Streptococcus hofmanni
- d) Streptococcus mutans

21. The symptoms in scarlet fever are due to:

- a) Streptolysin
- b) Coagulase
- c) Erythrogenic toxin
- d) Alpha toxin

22. Which of the following tests indicates the susceptibility to streptococcal pyrogenic exotoxin:

- a) Schick test
- b) Disk test
- c) ASO test
- d) Precipitation test

23. Acute follicular tonsillitis is caused by:

- a) Group B streptococci
- b) Group A streptococci
- c) Pneumococci
- d) Enterococci

24. Cell wall protein of Streptococcus pyogenes cross-reacts with human:

- a) Synovial fluid
- b) Cardiac valves
- c) Myocardium**
- d) Vascular intima

25. The best biochemical reaction to distinguish group A streptococci from other groups is:

- a) Coagulase test
- b) Catalase test
- c) Bacitracin sensitivity test**
- d) Bile solubility test

26. Scarlet fever is caused by:

- a) Pyrogenic exotoxins of Streptococcus pyogenes**
- b) Pneumolysin of Streptococcus pneumoniae
- c) DNase of S. pyogenes
- d) Cytolysins of Enterococcus

27. The Jones criteria are used to diagnose complications related to which organism?

- a) Streptococcus agalactiae
- b) Streptococcus pneumoniae
- c) Streptococcus pyogenes**
- d) Enterococcus faecium

28. The ASO (anti-streptolysin O) titer is used to diagnose:

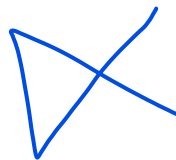
- a) Scarlet fever
- b) Acute rheumatic fever**
- c) Neonatal sepsis
- d) Pneumonia

29. What is the typical shape and arrangement of streptococci?

- a) Clusters of cocci
- b) Chains of cocci**
- c) Diplococci
- d) Bacilli

30. Which of the following is NOT caused by Streptococcus pyogenes?

- a) Erysipelas
- b) Impetigo
- c) Otitis media
- d) Necrotizing fasciitis



31. Streptococcus pneumoniae is optochin:

- a) Resistant
- b) Sensitive**
- c) Variable
- d) None of the above

32. Streptococcus agalactiae is most commonly associated with:

- a) Pharyngitis
- b) Neonatal meningitis**
- c) Rheumatic fever
- d) Scarlet fever

33. The virulence factor responsible for immune system evasion in *Streptococcus pyogenes* is:

- a) Hyaluronic acid capsule
- b) M protein**
- c) Streptolysin O
- d) DNase

34. Which micro-organism is part of the normal flora of the nose?

- a) *Candida albicans*
- b) *Corynebacterium diphtheriae*
- c) *Staphylococcus aureus***
- d) *Streptococcus pyogenes*

35. Which antibiotic can be used for treating methicillin-resistant *Staphylococcus aureus* (MRSA) infections?

- a) Cephalosporin
- b) Oxacillin
- c) Penicillin
- d) Vancomycin**

36. Which bacterial infection can be diagnosed by the rise of the anti-streptolysin O titer?

- a) *Enterococcus faecalis*
- b) *Streptococcus pyogenes***
- c) *Staphylococcus aureus*
- d) *Streptococcus viridans*

37. The following are virulence factors for *S. pyogenes* EXCEPT:

- a) Fibronectin binding protein
- b) M protein
- c) Hyaluronic acid capsule
- d) Fibrinolysin
- e) Coagulase**

38. Which virulence factor is the most important for *Streptococcus pyogenes*?

- a) Streptolysin S.
- b) M Protein**
- c) Protein A.
- d) Streptokinase

39. Which virulence factor is primarily responsible for the signs and symptoms of scarlet fever?

- a) Erythrogenic toxin**
- b) M-protein

c) Pyrogenic toxin

d) Streptokinase

Diphtheria

1. **Corynebacterium diphtheriae is:**
 - a. Gram positive cocci arranged in chains.
 - b. Gram positive bacilli arranged in chains.
 - c. Gram positive bacilli arranged in Chinese letter appearance.
 - d. Gram negative bacilli arranged in Chinese letter appearance.
2. **Diphtheria is caused by:**
 - a. Corynebacterium diphtheriae.
 - b. Corynebacterium Bovis.
 - c. Corynebacterium Jeikeium.
 - d. Corynebacterium equi.
3. **Diphtherial toxin act by:**
 - a. Inhibiting acetylcholine release.
 - b. Increasing level of cAMP.
 - c. Inhibiting protein synthesis.
 - d. Activation of cGMP.
4. **Virulence of Corynebacterium diphtheriae can be detected by:**
 - a. Nagler reaction.
 - b. Schick test.
 - c. Elek's test.
 - d. Dick test.
5. **Diphtheria toxoid is prepared by using:**
 - a. Aldehyde.
 - b. Formalin.
 - c. Phenols.
 - d. None of these.
6. **What is the most important virulence factor of Corynebacterium diphtheriae?**
 - a. Pili.
 - b. Flagella.
 - c. LPS.
 - d. Diphtheriatoxin
7. **Which of the following most accurately describes the therapy available for the prevention and treatment of C. diphtheriae?**
 - a. Antimicrobial therapy for prophylaxis only
 - b. Antimicrobial therapy and prophylaxis, antitoxin, and toxoid (DPT).
 - c. Antitoxin only
 - d. Diphtheria toxoid (DPT) booster vaccination only.
8. **The pathogenicity of C. Diphtheria is due to**
 - a. Invasion

b. Exotoxin

c. A & B

d. D. Endotoxin

9. Diphtheria is treated by:

a. Penicillin

b. Toxoids

c. Anti-toxic serum

d. A & C

e. EA & B

10. What is the mode of transmission of diphtheria?

a. Fecal-oral route

b. Direct skin contact

c. Airborne droplets

d. Vector-borne transmission

11. What is the characteristic lesion seen in diphtheria?

a. Caseating granuloma

b. Bullous impetigo

c. Pseudomembrane formation

d. Vesicular rash

12. Which type of toxin is the diphtheria toxin?

a. Enterotoxin

b. Neurotoxin

c. Cytotoxin

d. Exotoxin

13. Which organ system is primarily affected by diphtheria?

a. Respiratory system

b. Digestive system

c. Nervous system

d. Renal system

14. Which sign is commonly associated with severe diphtheria?

a. Koplik spots

b. Bull neck

c. Strawberry tongue

d. Clubbing of nails

15. What complication arises from systemic spread of the diphtheria toxin?

a. Arthritis

b. Myocarditis

c. Pneumonia

d. Renal failure

16. What is the typical incubation period of diphtheria?

a. 1-2 hours

- b. 2–5 days
- c. 1–2 weeks
- d. 3–6 weeks



17. Which of the following is NOT a common feature of respiratory diphtheria?

- a. Pseudomembrane formation
- b. Stridor
- c. Chronic cough
- d. Difficulty swallowing

18. What is the most definitive test for diagnosing diphtheria?

- a. PCR test for toxin gene
- b. Gram staining of the pseudomembrane
- c. Culture on Loeffler's medium
- d. Rapid antigen test

19. What is the appearance of *Corynebacterium diphtheriae* on Gram stain?

- a. Gram-positive cocci
- b. Gram-negative rods
- c. Gram-positive rods with club-shaped ends
- d. Gram-variable spiral bacteria

20. What is the characteristic arrangement of *Corynebacterium diphtheriae* on microscopy?

- a. Single rods
- b. Chinese letter or palisade arrangement
- c. Chain formation
- d. Diplococci

21. Which medium is commonly used to isolate *Corynebacterium diphtheriae*?

- a. MacConkey agar
- b. Loeffler's serum medium
- c. Chocolate agar
- d. Sabouraud agar

22. What is the first-line treatment for diphtheria?

- a. Azithromycin
- b. Diphtheria antitoxin
- c. Oral corticosteroids
- d. Antipyretics

23. Which antibiotic is used as an adjunct in diphtheria treatment?

- a. Amoxicillin
- b. Erythromycin + penicillin G
- c. Ciprofloxacin
- d. Tetracycline

24. What is the purpose of the diphtheria antitoxin?

- a. Neutralize the bacteria

- b. Prevent toxin production
- c. Neutralize circulating toxin
- d. Enhance immune response

25. What is the recommended vaccine for preventing diphtheria?

- a. Hepatitis B vaccine
- b. DTP (Diphtheria, Tetanus, Pertussis) vaccine
- c. Pneumococcal vaccine
- d. Influenza vaccine

26. At what age is the first dose of the diphtheria vaccine typically given?

- a. Birth
- b. 2 months
- c. 6 months
- d. 1 year

27. What cardiac complication is common in severe diphtheria cases?

- a. Endocarditis
- b. Myocarditis
- c. Pericarditis
- d. Arrhythmia

28. What causes death in untreated diphtheria cases?

- a. Renal failure
- b. Respiratory obstruction and toxin-mediated organ damage
- c. Septicemia
- d. Immune-mediated response

29. What is the primary public health strategy to control diphtheria?

- a. Isolation of cases
- b. Mass antibiotic prophylaxis
- c. Vaccination
- d. Booster immunization in elderly

30. What is a key feature of the WHO Expanded Program on Immunization (EPI) for diphtheria?

- a. Providing universal antitoxin treatment
- b. Administering the vaccine to all infants
- c. Eradicating diphtheria globally
- d. Mandating quarantine for all suspected cases

31. What is the nature of the vaccine given for protection against diphtheria?

- a. Killed organism
- b. Formaldehyde treated toxoid
- c. Live attenuated organism
- d. Capsular polysaccharide

32. An eight-year-old girl presents with low-grade fever, severe toxemia and bull-neck appearance. A grayish white pseudomembrane was seen covering the tonsils and soft

palate. Blood culture was repeatedly negative. Which organism is the likely causative agent?

- a. *Bordetella pertussis*
- b. *Corynebacterium diphtheriae*
- c. *Pseudomonas aeruginosa*
- d. *Streptococcus pneumonia*

33. Which organism causes a disease characterized by pseudo-membrane formation?

- a. *Bordetella pertussis*
- b. *Corynebacterium diphtheriae*
- c. *Hemophilus influenzae*
- d. *Pseudomonas aeruginosa*

34. Active immunization against diphtheria is done using:

- a. Antitoxin
- b. Toxoid
- c. Living attenuated organism
- d. Killed organism
- e. Oral vaccine

35. The toxin of diphtheria has affinity for

- a. Heart muscle
- b. adrenal cells
- c. nerve cells
- d. All of the above

Common cold, croup & epiglottitis

1. Which of the following is the most common causative agent of the common cold?
 - A. Influenza virus
 - B. Rhinovirus
 - C. Adenovirus
 - D. Respiratory syncytial virus
2. What is the primary mode of transmission of the common cold?
 - A. Bloodborne transmission
 - B. Airborne droplets
 - C. Vector-borne transmission
 - D. Fecal-oral transmission
3. Which symptom is least likely associated with the common cold?
 - A. Nasal congestion
 - B. Fever above 39°C (102°F)
 - C. Sore throat
 - D. Sneezing
4. Which of the following is the most effective preventive measure for the common cold?
 - A. Antibiotic use
 - B. Handwashing
 - C. Vaccination
 - D. Antiviral medication
5. What is the most common causative agent of croup in children?
 - A. Parainfluenza virus
 - B. Influenza virus
 - C. Streptococcus pneumoniae
 - D. Rhinovirus
6. What is the hallmark symptom of croup?
 - A. Wheezing
 - B. Barking cough
 - C. Stridor at rest
 - D. Productive cough
7. A child presents with inspiratory stridor, barking cough, and hoarseness. What is the likely diagnosis?
 - A. Croup
 - B. Epiglottitis
 - C. Asthma
 - D. Pertussis
8. Which of the following is the first-line treatment for mild croup?
 - A. Dexamethasone
 - B. Nebulized epinephrine

- C. Antibiotics
- D. Oxygen therapy

9. In severe croup, which intervention is indicated to reduce airway swelling?

- A. Antihistamines
- B. Helium-oxygen mixture
- C. Intramuscular dexamethasone and nebulized epinephrine
- D. Bronchodilators

10. Which of the following imaging findings is classically associated with croup?

- A. Steeple sign
- B. Thumbprint sign
- C. Kerley B lines
- D. Ground-glass opacities

11. What is the primary causative organism of epiglottitis in children in unimmunized populations?

- A. Streptococcus pneumoniae
- B. Haemophilus influenzae type B (Hib)
- C. Mycoplasma pneumoniae
- D. Influenza virus

12. Which symptom is most suggestive of epiglottitis?

- A. Barking cough
- B. Drooling
- C. Runny nose
- D. Productive cough

13. Which of the following is an important immediate intervention for a suspected case of epiglottitis?

- A. Immediate intubation or tracheostomy
- B. Nebulized epinephrine
- C. Administration of oral steroids
- D. Initiation of oral antibiotics

14. Which imaging finding is classically associated with epiglottitis?

- A. Steeple sign
- B. Thumbprint sign
- C. Bat-wing sign
- D. Retropharyngeal swelling

15. Which vaccine significantly reduced the incidence of epiglottitis in children?

- A. Measles-mumps-rubella (MMR) vaccine
- B. Diphtheria-tetanus-pertussis (DTP) vaccine
- C. Haemophilus influenzae type B (Hib) vaccine
- D. Influenza vaccine

16. Which antibiotic regimen is commonly used to treat epiglottitis?

- A. Amoxicillin-clavulanate

B. Ceftriaxone or cefotaxime

C. Azithromycin

D. Ciprofloxacin

17. Which of the following conditions is considered a medical emergency due to the risk of airway obstruction?

A. Common cold

B. Croup

C. Epiglottitis

D. Allergic rhinitis

18. In croup, what is the characteristic sound heard during auscultation?

A. Rhonchi

B. Inspiratory stridor

C. Crackles

D. Pleural rub

19. A child with a fever, hoarseness, and inspiratory stridor responds well to a single dose of dexamethasone. What is the likely diagnosis?

A. Bronchiolitis

B. Epiglottitis

C. Croup

D. Laryngomalacia

20. Which of the following symptoms is more indicative of epiglottitis than croup?

A. Barking cough

B. Drooling and dysphagia

C. Inspiratory stridor

D. Hoarseness

21. What feature distinguishes croup from epiglottitis on clinical presentation?

A. Hoarseness in epiglottitis

B. Barking cough in epiglottitis

C. Stridor only in croup

D. Drooling in epiglottitis

22. Which diagnostic tool is typically avoided in suspected epiglottitis to prevent agitation?

A. Chest X-ray

B. Direct laryngoscopy without preparation

C. Blood culture

D. Throat swab

23. Which of the following laboratory findings is most likely in a case of epiglottitis?

A. Neutrophilic leukocytosis

B. Lymphocytosis

C. Eosinophilia

D. Thrombocytopenia

24. Which of the following conditions is commonly associated with a viral etiology?

- A. Croup**
- B. Epiglottitis
- C. Bacterial pneumonia
- D. Sinusitis

25. In which condition is corticosteroid therapy typically ineffective?

- A. Croup
- B. Epiglottitis
- C. Asthma exacerbation**
- D. Allergic rhinitis

26. A 2-year-old child came to the emergency room with high fever and breathing difficulty. Clinical investigation revealed inflammatory swelling of the epiglottitis. Which of the following organisms is the most likely causative organism?

- A. Hemophilus influenzae**
- B. Hemophilus ducreyi
- C. Hemophilus aegyptius
- D. Bordetella pertussis
- E. Neisseria meningitidis

MYCOBACTERIUM TUBERCULOSIS

1. **Mycobacterium tuberculosis is classified as:**

- A. Gram-positive cocci
- B. Acid-fast bacilli**
- C. Gram-negative rods
- D. Anaerobic bacilli

2. **The cell wall of M. tuberculosis contains:**

- A. Lipopolysaccharide
- B. Mycolic acid**
- C. Peptidoglycan only
- D. Teichoic acid

3. **Which of the following is NOT a characteristic of M. tuberculosis?**

- A. Obligate aerobe
- B. Non-motile
- C. Spore-forming**
- D. Acid-fastness

4. **The primary staining method for M. tuberculosis is:**

- A. Gram stain
- B. Ziehl-Neelsen stain**
- C. Wright-Giemsa stain
- D. Periodic acid-Schiff (PAS)

5. **Which medium is commonly used to culture M. tuberculosis?**

- A. MacConkey agar
- B. Löwenstein-Jensen medium**
- C. Sabouraud dextrose agar
- D. Sheep blood agar

6. **Which cell wall component of MTB is responsible for its acid-fast property?**

- A. Mycolic acid**
- B. Peptidoglycan
- C. Lipopolysaccharides
- D. Lipoteichoic acid

7. **Mycobacterium tuberculosis is classified as:**

- A. Aerobic**
- B. Anaerobic
- C. Facultative anaerobic
- D. Microaerophilic

8. **Which of the following is the primary mode of MTB transmission?**

- A. Fecal-oral route
- B. Vector-borne transmission**

C. Airborne droplets

D. Direct skin contact

9. Which of the following best describes the replication time of *Mycobacterium tuberculosis*?

A. 1-2 hours

B. 18-24 hours

C. 4-6 hours

D. 48-72 hours

10. What is the primary site of MTB infection in most cases?

A. Alveoli of the lungs

B. Intestinal mucosa

C. Kidney tubules

D. Central nervous system

11. Which of the following factors enhances MTB virulence?

A. Urease production

B. Cord factor

C. Exotoxin A

D. Lipid A

12. What type of hypersensitivity reaction is involved in the immune response to MTB?

A. Type I

B. Type II

C. Type III

D. Type IV

13. What type of hypersensitivity reaction is involved in the immune response to MTB?

A. Type I

B. Type II

C. Type III

D. Type IV

14. What is the term for MTB's ability to survive inside macrophages?

A. Facultative intracellular parasitism

B. Obligate intracellular parasitism

C. Extracellular invasion

D. Autophagy inhibition

15. The most common route of transmission of *M. tuberculosis* is:

A. Fecal-oral

B. Sexual contact

C. Inhalation of respiratory droplets

D. Direct skin contact

16. Which population group is at the highest risk for tuberculosis infection?

A. Immunocompetent adults

B. Individuals with HIV/AIDS

- C. Newborn infants
- D. Elderly individuals in low-incidence countries

17. The global burden of tuberculosis is highest in:

- A. North America
- B. Western Europe
- C. Sub-Saharan Africa
- D. Australia

18. The term "latent TB infection" refers to:

- A. Active disease with symptoms
- B. Persistent infection without symptoms
- C. Drug-resistant TB
- D. Recent TB exposure

19. Which of the following factors is NOT associated with an increased risk of TB reactivation?

- A. Diabetes mellitus
- B. HIV infection
- C. Recent vaccination
- D. Chronic kidney disease

20. Which cytokine is most critical for macrophage activation in MTB infection?

- A. IL-4
- B. TNF-alpha
- C. IL-12
- D. IL-2

21. Which of the following describes the initial MTB infection in the lungs?

- A. Ghon focus
- B. Ranke complex
- C. Miliary tuberculosis
- D. Cavitation

22. What is a Ghon complex?

- A. Enlarged hilar lymph nodes
- B. Ghon focus plus lymph node involvement
- C. Fibrotic lung lesions
- D. Caseating granulomas

23. Reactivation tuberculosis most commonly occurs in which part of the lung?

- A. Lower lobes
- B. Middle lobes
- C. Apical regions
- D. Pleura

24. What is the most common symptom of pulmonary tuberculosis?

- A. Cough lasting more than 2 weeks
- B. Severe chest pain

C. Dyspnea

D. Hemoptysis

25. Which of the following is a hallmark finding in a chest X-ray of a patient with active pulmonary tuberculosis?

A. Pleural effusion

B. Reticulonodular opacities

C. Cavitory lesions

D. Ground-glass opacities

26. What type of granuloma is typically seen in tuberculosis?

A. Caseating granuloma

B. Non-caseating granuloma

C. Suppurative granuloma

D. Foreign body granuloma

27. Which extrapulmonary site is most commonly affected by MTB?

A. Liver

B. Kidneys

C. Lymph nodes

D. CNS

28. Tuberculosis of the spine is referred to as:

A. Pott's disease

B. Addison's disease

C. Hansen's disease

D. Reiter's syndrome

29. Miliary tuberculosis refers to:

A. Localized lung involvement

B. Widespread hematogenous dissemination

C. Pleural effusion with MTB

D. Reactivation TB

30. The primary site of infection for M. tuberculosis is:

A. Skin

B. Lymph nodes

C. Lungs

D. Gastrointestinal tract

31. The primary site of infection for M. bovis is:

A. Skin

B. Lymph nodes

C. Lungs

D. Gastrointestinal tract

32. The characteristic granuloma in TB is formed by:

A. Neutrophils

B. Macrophages, T-cells, and giant cells

C. Plasma cells and eosinophils

D. Basophils and mast cells

33. Which cytokine is most important in controlling TB infection?

A. Interleukin-4 (IL-4)

B. Tumor necrosis factor-alpha (TNF- α)

C. Interferon-gamma (IFN- γ)

D. Interleukin-10 (IL-10)

34. The Ghon complex in primary TB includes:

A. Caseating necrosis in the liver and spleen

B. A calcified lung lesion and involved lymph nodes

C. Miliary nodules in the lung

D. Fibrotic scars in the pleura

35. Which phase of TB is most infectious?

A. Latent phase

B. Exudative phase

C. Active disease phase

D. Healing phase

36. The hallmark symptom of pulmonary TB is:

A. Productive cough lasting more than 3 weeks

B. Acute onset of high fever

C. Sudden onset of hemoptysis

D. Chest pain

37. Extrapulmonary TB is LEAST likely to affect:

A. The meninges

B. The kidneys

C. The heart valves

D. The spine

38. The Pott's disease of TB refers to involvement of:

A. Peripheral lymph nodes

B. The spine

C. The gastrointestinal tract

D. The skin

39. A patient presents with weight loss, night sweats, and hemoptysis. What is the most likely diagnosis?

A. Pneumonia

B. Lung cancer

C. Pulmonary tuberculosis

D. Sarcoidosis

40. Which finding on chest X-ray is commonly associated with active pulmonary TB?

A. Bilateral infiltrates

B. Cavitory lesions in the upper lobes

C. Pleural effusion

D. Ground-glass opacities

41. The gold standard for TB diagnosis is:

A. Chest X-ray

B. Tuberculin skin test (TST)

C. Sputum culture

D. Interferon-gamma release assay (IGRA)

42. Acid-fast bacilli on sputum smear indicate:

A. TB infection only

B. Active disease only

C. Both TB and other mycobacterial infections

D. Drug-resistant TB

43. The tuberculin skin test measures:

A. T-cell-mediated immune response to TB antigens

B. Antibody levels against M. tuberculosis

C. Bacterial load in the bloodstream

D. The presence of mycolic acids

44. A positive TST in a healthy individual is indicated by an induration of:

A. ≥ 5 mm

B. ≥ 10 mm

C. ≥ 15 mm

D. ≥ 20 mm

45. Interferon-gamma release assays (IGRAs) are preferred in:

A. Pregnant women

B. Individuals vaccinated with BCG

C. Pediatric patients

D. Immunosuppressed patients

46. Which of the following is the most sensitive test for diagnosing active MTB?

A. Chest X-ray

B. Ziehl-Neelsen staining

C. Sputum culture on Löwenstein-Jensen medium

D. Interferon-gamma release assay (IGRA)

47. Which diagnostic test can rapidly detect MTB and rifampin resistance?

A. GeneXpert MTB/RIF

B. Tuberculin skin test

C. Ziehl-Neelsen staining

D. IGRA

48. How long does it typically take to culture MTB on Löwenstein-Jensen medium?

A. 1-2 days

B. 3-7 days

C. 2-6 weeks

D. 8-12 weeks

49. A tuberculin skin test (TST) with an induration of ≥ 15 mm is considered positive in which population?

A. Healthcare workers

B. Immunocompromised patients

C. Individuals with no risk factors

D. Close contacts of TB patients

50. What is the principle of IGRA tests?

A. Detecting MTB DNA

B. Measuring T-cell release of interferon-gamma

C. Identifying acid-fast bacilli in sputum

D. Measuring antibody response to MTB antigens

51. False-negative TST results are most commonly seen in:

A. Recent MTB infection

B. HIV-positive patients with low CD4 counts

C. Close contacts of TB cases

D. BCG-vaccinated individuals

52. Which feature differentiates IGRA from TST?

A. IGRA is influenced by BCG vaccination

B. IGRA requires live bacteria for diagnosis

C. IGRA is unaffected by prior BCG vaccination

D. IGRA is based on granuloma formation

53. The first-line drugs for TB treatment include all EXCEPT:

A. Rifampin

B. Isoniazid

C. Streptomycin

D. Ethambutol

54. The duration of standard TB treatment is typically:

A. 3 months

B. 16 months

C. 9 months

D. 12 months

55. What is the minimum duration of treatment for active pulmonary tuberculosis?

A. 3 months

B. 6 months

C. 9 months

D. 12 months

56. Which one of the following is characteristic of Mycobacteria?

A. Their cell wall contains high lipid contents.

B. They grow extracellularly.

- C. They are anaerobic
- D. They are spore-forming.

57. **Virulence in mycobacteria is most strongly correlated with:**

- A. Mycotoxin production.
- B. Slow growth
- C. Ability to survive inside macrophages.
- D. Small size of cells

58. **A required component in media used for isolation of mycobacteria is:**

- A. Blood
- B. Lactose
- C. Serum
- D. Whole egg

59. **Treatment of tuberculous disease:**

- A. Is initiated with a single first line chemotherapeutic agent
- B. Usually requires prolonged bed rest and surgery
- C. Is continued until tuberculin test reverts to negative
- D. Always results in negative sputum cultures and clinical cure within 3 weeks
- E. Always necessitates the use of combined, prolonged drug therapy

60. **Which persons are interpreted as tuberculin-positive, if skin induration is 7 mm?**

- A. Diabetic patients
- B. People in endemic areas of tuberculosis
- C. People with past history of tuberculosis
- D. Unvaccinated children younger than 4 years old

61. **As regards the diagnosis of tuberculosis, the following are correct EXCEPT:**

- A. Three morning sputum samples should be examined.
- B. Tuberculin test may give false positive and false negative results.
- C. Detection of acid-fast bacilli in smears provides early presumptive diagnosis.
- D. Liquefaction of tenacious samples is required before culture.
- E. Growth on Lowenstein-Jensen medium appears after 48-72 hours.

62. **Regarding tuberculin test:**

- A. It depends on immediate hypersensitivity.
- B. It depends on presence of sensitized Th2 cells.
- C. A wheal and flare is considered positive.
- D. People vaccinated with BCG give a negative result.

E. It is read after 48-72 hours.

Pertussis (whooping cough)

1. What is the causative agent of pertussis?

- A. Haemophilus influenzae
- B. Bordetella pertussis**
- C. Streptococcus pneumoniae
- D. Mycobacterium tuberculosis

2. Which toxin is primarily responsible for the pathogenesis of pertussis?

- A. Exotoxin
- B. Pertussis toxin**
- C. Endotoxin
- D. Neurotoxin

3. What is the hallmark clinical feature of pertussis?

- A. High-grade fever
- B. Persistent productive cough
- C. Paroxysmal coughing with inspiratory "whoop"**
- D. Hemoptysis

4. Which stage of pertussis is most contagious?

- A. Catarrhal stage**
- B. Paroxysmal stage
- C. Convalescent stage
- D. Incubation stage

5. What type of bacteria is Bordetella pertussis?

- A. Gram-positive coccus
- B. Gram-negative bacillus
- C. Gram-positive bacillus
- D. Gram-negative coccus** bacilli

6. Which vaccine is used to prevent pertussis?

- A. MMR vaccine
- B. DTP or DTaP vaccine**

C. BCG vaccine

D. Hib vaccine

7. What type of immunity does the DTaP vaccine provide?

A. Passive immunity

B. Active immunity

C. Natural immunity

D. Cellular immunity only

8. Which of the following antibiotics is most effective for pertussis?

A. Amoxicillin

B. Erythromycin

C. Metronidazole

D. Ceftriaxone

9. During the catarrhal stage, which symptom predominates?

A. Severe coughing

B. Low-grade fever and rhinorrhea

C. Stridor

D. Cyanosis

10. What is the primary mode of transmission for pertussis?

A. Fecal-oral route

B. Vector-borne transmission

C. Respiratory droplets

D. Bloodborne transmission

11. Which complication is most commonly associated with pertussis in infants?

A. Pneumonia

B. Acute kidney injury

C. Meningitis

D. Myocarditis

12. Which demographic is at the highest risk for severe pertussis?

A. Adolescents

B. Infants under 6 months of age

C. Adults over 65 years old

D. Pregnant women

13. Which diagnostic test confirms pertussis infection?

- A. Gram staining
- B. PCR of nasopharyngeal swab**
- C. Blood culture
- D. Chest X-ray

14. The paroxysmal stage of pertussis typically lasts how long?

- A. 1–2 days
- B. 2–3 weeks**
- C. 4–6 weeks
- D. 2 months

15. Which of the following is NOT a common complication of pertussis?

- A. Bronchiectasis
- B. Rib fractures from severe coughing
- C. Subconjunctival hemorrhages
- D. Hepatic failure**

16. Which toxin of Bordetella pertussis helps it adhere to ciliated respiratory epithelial cells?

- A. Filamentous hemagglutinin**
- B. Adenylate cyclase toxin
- C. Tracheal cytotoxin
- D. Pertactin

17. What is the main function of tracheal cytotoxin in pertussis pathogenesis?

- A. Inhibits protein synthesis
- B. Destroys ciliated epithelial cells**
- C. Causes vasodilation
- D. Blocks neurotransmitter release

18. When is antibiotic therapy most effective in pertussis?

- A. During the paroxysmal stage
- B. During the catarrhal stage**
- C. After the convalescent stage
- D. Only in severe cases

19. What role does adenylate cyclase toxin play in pertussis?

- A. Induces apoptosis of macrophages
 - B. Inhibits phagocytosis and neutrophil function**
 - C. Neutralizes antibodies
 - D. Disrupts tight junctions in epithelial cells
- 

20. What is the key reason pertussis is difficult to diagnose early?

- A. It mimics common cold symptoms**
- B. It presents with high fever early on
- C. It requires invasive tests for confirmation
- D. It is asymptomatic initially

21. Which organ system is primarily affected by pertussis?

- A. Gastrointestinal system
- B. Nervous system
- C. Respiratory system**
- D. Cardiovascular system

22. The inspiratory "whoop" in pertussis occurs due to what?

- A. Laryngeal spasm
 - B. Airflow obstruction during inspiration**
 - C. Collapse of bronchioles
 - D. Inflammation of vocal cords
- 

23. What is the primary site of colonization for Bordetella pertussis in the respiratory tract?

- A. Alveoli
- B. Bronchioles
- C. Nasopharynx and trachea**
- D. Pleural cavity

24. During the colonization stage of pertussis, what is the main mechanism by which Bordetella pertussis adheres to epithelial cells?

- A. Using fimbriae
- B. Production of pertussis toxin
- C. Expression of filamentous hemagglutinin**
- D. Secretion of endotoxins

25. Which of the following best describes the primary goal of *Bordetella pertussis* in the colonization stage?

- A. Triggering a severe immune response
- B. Multiplying on epithelial surfaces without invasion**
- C. Invading deep lung tissues
- D. Releasing large amounts of pertussis toxin immediately

26. What immune response is primarily activated during the colonization stage of pertussis?

- A. Cellular immune response (T-cells)
- B. Humoral immune response (antibodies)
- C. Innate immunity involving neutrophils and macrophages**
- D. Autoimmune response against epithelial cells

27. The toxemic stage of pertussis is primarily mediated by which virulence factor?

- A. Tracheal cytotoxin
- B. Pertussis toxin**
- C. Adenylate cyclase toxin
- D. Hemolysin

28. What is the primary systemic effect of pertussis toxin during the toxemic stage?

- A. Hyperactivation of T-cells
- B. Disruption of G-protein signaling**
- C. Suppression of antibody production
- D. Hemolysis of red blood cells

29. Which feature distinguishes the toxemic stage from the colonization stage in pertussis?

- A. Active bacterial multiplication
- B. Localized inflammation of the respiratory tract
- C. Systemic effects due to circulating toxins**
- D. Increased bacterial load in alveoli

30. What is the key pathological effect of adenylate cyclase toxin during the toxemic stage?

- A. Induces apoptosis in epithelial cells
- B. Inhibits neutrophil and macrophage function by increasing cAMP**
- C. Damages endothelial cells causing vascular leakage
- D. Triggers cytokine storm leading to shock

31. Which statement best characterizes *Bordetella pertussis*?

- A. It produces an erythrogenic toxin as a main virulence factor
- B. It produces a toxin that blocks protein synthesis
- C. It produces a toxin that mediates colonization and tissue damage.
- D. It produces a tracheal cytotoxin that impairs leucocyte chemotaxis.

32. Diagnosis of whooping cough cannot be done by:

- A. Direct gram stain
- B. Nucleic acid detection
- C. Direct fluorescent antibody test
- D. Culture on Bordet-Gengou medium
- E. Culture on charcoal blood agar

33. DTaP is a vaccine developed from a combination of:

- A. Diphtheria toxoid, tetanus toxoid and killed pertussis cells
- B. Tetanus toxoid, killed diphtheria bacilli and pertussis toxoid
- C. Diphtheria toxoid, killed *C. tetani* and pertussis toxoid
- D. Diphtheria toxoid, tetanus toxoid and pertussis toxoid
- E. Killed bacilli of *C. diphtheriae*, *Cl. tetani* and *B. pertussis*

pneumococcal pneumonia

1. Which of the following is the primary causative agent of pneumococcal pneumonia?

- A) *Staphylococcus aureus*
- B) *Streptococcus pneumoniae*
- C) *Haemophilus influenzae*
- D) *Mycoplasma pneumoniae*

2. What is the primary virulence factor of *Streptococcus pneumoniae*?

- A) Exotoxin
- B) Capsule
- C) Pili
- D) Lipopolysaccharide

3. The capsule of *Streptococcus pneumoniae* helps the bacteria evade host defenses by:

- A) Preventing opsonization
- B) Enhancing phagocytosis
- C) Releasing exotoxins
- D) Inhibiting complement activation

4. A hallmark symptom of pneumococcal pneumonia is:

- A) Gradual onset of dry cough
- B) Sudden onset of fever, chills, and productive cough
- C) Painless hemoptysis
- D) Wheezing and stridor

5. Which of the following is a common complication of pneumococcal pneumonia?

- A) Pulmonary embolism
- B) Pleural effusion
- C) Pneumothorax
- D) Atelectasis



6. On auscultation, what finding is most typical of pneumococcal pneumonia?

- A) Wheezing
- B) Crackles (rales)
- C) Stridor
- D) Bronchial breath sounds over affected areas

7. The gold standard for diagnosing pneumococcal pneumonia is:

- A) Blood culture
- B) Sputum Gram stain and culture
- C) Chest X-ray
- D) Polymerase chain reaction (PCR)

8. On Gram stain, *Streptococcus pneumoniae* appears as:

- A) Gram-positive cocci in clusters
- B) Gram-positive cocci in pairs and chains

- C) Gram-negative bacilli
- D) Gram-negative diplococci

9. What is the typical finding on a chest X-ray in pneumococcal pneumonia?

- A) Cavitory lesion
- B) Lobar consolidation
- C) Diffuse interstitial infiltrates
- D) Ground-glass opacities



10. Which of the following laboratory findings is common in pneumococcal pneumonia?

- A) Eosinophilia
- B) Neutrophilic leukocytosis
- C) Lymphopenia
- D) Thrombocytopenia

11. The first-line antibiotic for treating pneumococcal pneumonia in immunocompetent patients is:

- A) Amoxicillin
- B) Azithromycin
- C) Ceftriaxone
- D) Vancomycin

12. In penicillin-resistant *Streptococcus pneumoniae*, which antibiotic is recommended?

- A) Amoxicillin
- B) Linezolid
- C) Vancomycin
- D) Azithromycin

13. Adjunctive therapy for severe pneumococcal pneumonia may include:

- A) Anticoagulants
- B) Corticosteroids
- C) Antifungal agents
- D) Antihistamines



14. The most common age group affected by pneumococcal pneumonia is:

- A) Neonates
- B) School-aged children
- C) Elderly adults
- D) Adolescents

15. Which of the following is a common feature of typical pneumonia?

- A) Gradual onset and mild symptoms
- B) Sudden onset with high fever and productive cough
- C) Diffuse interstitial infiltrates on chest X-ray
- D) Non-specific systemic symptoms

16. The most common causative agent of typical pneumonia is:

- A) *Mycoplasma pneumoniae*
- B) *Streptococcus pneumoniae*

C) *Chlamydophila pneumoniae*

D) *Legionella pneumophila*

17. Which of the following organisms is a common cause of atypical pneumonia?

A) *Streptococcus pneumoniae*

B) *Klebsiella pneumoniae*

C) *Mycoplasma pneumoniae*

D) *Pseudomonas aeruginosa*

18. Chest X-ray findings in atypical pneumonia typically show:

A) Lobar consolidation

B) Interstitial or patchy infiltrates

C) Cavitory lesions

D) Pleural thickening



19. Which symptom is more common in atypical pneumonia compared to typical pneumonia?

A) Severe dyspnea

B) Non-productive cough

C) Rust-colored sputum

D) Sudden onset of high fever

20. The most common route for the development of pneumococcal pneumonia is:

A) Hematogenous spread

B) Aspiration of nasopharyngeal secretions

C) Direct inoculation through trauma

D) Contamination via medical devices

21. What is the primary immune response to *Streptococcus pneumoniae* infection in the lungs?

A) T-cell mediated immunity

B) Antibody-mediated opsonization

C) Eosinophilic infiltration

D) Natural killer cell activation

22. The capsular polysaccharide vaccine (PPSV23) is designed to:

A) Protect against 13 serotypes of *Streptococcus pneumoniae*

B) Protect against 23 serotypes of *Streptococcus pneumoniae*

C) Provide lifelong immunity after a single dose

D) Be effective in children under 2 years of age

23. Which group benefits the most from the PPSV23 vaccine?

A) Infants

B) Adolescents

C) Adults over 65 years of age

D) Pregnant women

24. Why is PPSV23 not effective in children under 2 years of age?

A) Immature immune response to polysaccharides

- B) Limited number of serotypes included
- C) Rapid degradation of the vaccine components
- D) Lack of T-cell independent response

25. What differentiates the conjugated pneumococcal vaccine (PCV13) from PPSV23?

- A) PCV13 contains purified polysaccharides without protein conjugation
- B) PCV13 elicits a T-cell dependent immune response
- C) PCV13 is only effective in adults over 50 years
- D) PCV13 has a shorter duration of immunity

26. What is the vaccination strategy for previously unvaccinated adults ≥65 years of age?

- A) PPSV23 followed by PCV13 after 6 months
- B) PCV13 followed by PPSV23 after 1 year
- C) PPSV23 only, without PCV13
- D) PCV13 only, without PPSV23

27. Pneumococci are:

- A) Gram-negative cocci
- B) Gram-positive bacilli
- C) Motile
- D) Gram-positive diplococci

28. The Quellung test, used for the direct identification of:

- A) Pneumococci
- B) Streptococci
- C) Haemophilus influenzae
- D) Staphylococci

29. Pneumococci are classified according to:

- A) Coagulase production
- B) Cell wall carbohydrate antigen
- C) Capsular polysaccharide
- D) Endopigments production

30. Pneumococci exhibit the following characteristics:

- A) Bile soluble
- B) Optochin sensitive
- C) Inulin fermenter
- D) All of the above

31. Pneumococci can be typed by:

- A) Bile solubility
- B) Agglutination reaction
- C) Capsule swelling reaction
- D) Phage typing

32. The bile solubility test is positive in:

- A) Staphylococcus aureus
- B) Streptococcus viridans

C) **Streptococcus pyogenes**

D) **Pneumococci**

33. **Pneumococci can be differentiated from Streptococcus viridans by:**

A) **Gram's stain**

B) **Catalase test**

C) **Glucose fermentation**

D) **Pathogenicity to mice**

34. **Streptococcus pneumoniae can be distinguished from other α -hemolytic Streptococci by the following EXCEPT:**

A) **Gram stain**

B) **Pathogenicity to mice**

C) **Inulin fermentation**

D) **Bile solubility**

35. **Which bacterial pathogen is a common cause of healthcare-associated pneumonia?**

a) **Coxiella burnetti**

b) **Mycoplasma pneumoniae**

c) **Pseudomonas aeruginosa**

d) **Streptococcus pneumonia**

36. **A 3-year-old girl presents with fever and pain in her right ear. On physical examination, the drum is perforated, and a bloody exudate is seen. Gram's stain of the exudate reveals gram-positive diplococci. Which organism is the most likely?**

a) **Corynebacterium diphtheriae**

b) **Staphylococcus aureus**

c) **Streptococcus pneumoniae**

d) **Streptococcus pyogenes**

37. **Which test is useful to differentiate between Streptococcus pneumoniae and viridians streptococci?**

a) **Alpha hemolysis on blood agar**

b) **Anti-streptolysin O test**

c) **Coagulase test**

d) **Growth inhibition by optochin**

Bacterial causes of pneumonia

(**Pneumococcal pneumonia , H.influenzae , mycoplasma , legionella ,chlamdial , klebsiella & moraxella)**

1. **Which of the following is the most common virulence factor of Streptococcus pneumoniae?**
 - a) Exotoxin A
 - b) Polysaccharide capsule**
 - c) Lipopolysaccharide
 - d) M protein
2. **What type of hemolysis is exhibited by Streptococcus pneumoniae on blood agar?**
 - a) Alpha**
 - b) Beta
 - c) Gamma
 - d) Delta
3. **Which of the following is a key risk factor for pneumococcal pneumonia?**
 - a) Smoking**
 - b) Excessive exercise
 - c) Obesity
 - d) Vegetarian diet
4. **What is the drug of choice for Streptococcus pneumoniae infections?**
 - a) Ceftriaxone**
 - b) Vancomycin
 - c) Penicillin G
 - d) Amoxicillin
5. **Which vaccine is used for the prevention of pneumococcal pneumonia in adults?**
 - a) PCV13**
 - b) MMR
 - c) Hib vaccine
 - d) BCG
6. **Haemophilus influenzae is classified as which type of bacteria?**
 - a) Gram-positive cocci
 - b) Gram-negative cocci
 - c) Gram-negative coccobacilli**
 - d) Gram-positive bacilli
7. **Which serotype of Haemophilus influenzae is most commonly associated with pneumonia?**
 - a) Type a
 - b) Type b**
 - c) Type c
 - d) Type d

8. What is the characteristic growth factor requirement for Haemophilus influenzae?

- a) Vitamin K and hemin
- b) X factor (hemin) and V factor (NAD)**
- c) Iron and calcium
- d) L-cysteine and glucose

9. Which vaccine protects against Haemophilus influenzae type b?

- a) PCV13
- b) Hib vaccine**
- c) Tdap
- d) MenACWY

10. What is the primary antibiotic used to treat Haemophilus influenzae pneumonia?

- a) Penicillin
- b) ceftriaxone**
- c) Vancomycin
- d) Ciprofloxacin

11. Which of the following is a characteristic of Mycoplasma pneumoniae?

- a) Lacks a cell wall**
- b) Gram-negative
- c) Produces endotoxins
- d) Spore-forming

12. What is the most common symptom of Mycoplasma pneumoniae infection?

- a) Severe chest pain
- b) Dry cough**
- c) Hemoptysis
- d) Cyanosis

13. Which antibiotic is effective against Mycoplasma pneumoniae?

- a) Penicillin
- b) Trovafloxacin**
- c) Ceftriaxone
- d) Vancomycin

14. What diagnostic test is most commonly used for Mycoplasma pneumoniae?

- a) PCR**
- b) Gram staining
- c) Acid-fast staining
- d) Latex agglutination

15. Which of the following environments is most associated with Legionella pneumophila?

- a) Soil and vegetation
- b) Contaminated water systems**
- c) Animal reservoirs
- d) Airborne droplets

16. What is the hallmark symptom of Legionnaires' disease?

- a) Watery diarrhea
- b) High fever with bradycardia**
- c) Hemoptysis
- d) Severe chest pain

17. Which medium is required to culture Legionella pneumophila?

- a) Chocolate agar
- b) BCYE (Buffered Charcoal Yeast Extract) agar**
- c) MacConkey agar
- d) Lowenstein-Jensen medium

18. What is the preferred treatment for Legionnaires' disease?

- a) Penicillin
- b) Azithromycin**
- c) Doxycycline
- d) Ceftriaxone

19. Which population is most at risk for Legionnaires' disease?

- a) Healthy children
- b) immunocompromised individuals**
- c) Pregnant women
- d) Young athletes

20. What type of pathogen is Chlamydia pneumoniae?

- a) Gram-positive cocci
- b) Obligate intracellular bacteria**
- c) Gram-negative bacilli
- d) Spore-forming bacteria

21. What is a common clinical feature of Chlamydial pneumonia?

- a) Dry cough with sinusitis**
- b) Productive cough with hemoptysis
- c) Cyanosis
- d) Chest pain with wheezing

22. What is the first-line treatment for Chlamydial pneumonia?

- a) Amoxicillin
- b) Azithromycin**
- c) Ciprofloxacin
- d) Vancomycin

23. Which diagnostic method is commonly used for Chlamydia pneumoniae?

- a) Serology or PCR**
- b) Gram staining
- c) Acid-fast staining
- d) Agglutination test

24. What type of bacteria is *Klebsiella pneumoniae*?

- a) Gram-positive cocci
- b) Gram-negative bacilli**
- c) Acid-fast bacilli
- d) Spore-forming bacteria

25. Which population is most at risk for *Klebsiella pneumoniae*?

- a) Healthy adults
- b) Alcoholics and diabetics**
- c) Pregnant women
- d) Children under 5 years

26. What is the common radiological finding in *Klebsiella pneumoniae*?

- a) Interstitial infiltrates
- b) Cavitory lesions
- c) Pleural effusion
- d) Bilateral ground-glass opacity



27. What type of bacteria is *Moraxella catarrhalis*?

- a) Gram-positive cocci
- b) Gram-negative diplococci
- c) Gram-negative bacilli**
- d) Spore-forming bacteria

28. Which co-morbid condition is commonly associated with *Moraxella catarrhalis pneumoniae*?

- a) Hypertension
- b) Chronic obstructive pulmonary disease (COPD)**
- c) Hyperthyroidism
- d) Epilepsy

29. What is the first-line antibiotic for *Moraxella catarrhalis pneumoniae*?

- a) Amoxicillin-clavulanate**
- b) Penicillin G
- c) Azithromycin
- d) Ciprofloxacin

30. Which diagnostic test is the most sensitive for detecting *Legionella pneumophila*?

- a) Urine antigen test**
- b) Culture on blood agar
- c) Serological test
- d) Skin test

31. Which of the following is a preventive measure for Legionnaires' disease?

- a) Regular handwashing
- b) Proper maintenance of water systems**
- c) Use of insect repellents
- d) Quarantine of infected individuals

32. What is the typical mode of transmission for Chlamydia pneumoniae?

- a) Direct contact with animals
- b) Aerosolized respiratory droplets**
- c) Contaminated food or water
- d) Sexual contact

33. Which of the following is NOT a common symptom of Chlamydial pneumonia?

- a) Pharyngitis
- b) Dry cough
- c) Hemoptysis
- d) Low-grade fever**

34. What is the life cycle stage of Chlamydia that infects host cells?

- a) Reticulate body
- b) Elementary body
- c) Exospore**
- d) Endospore

35. Which of the following complications is associated with Chlamydia pneumoniae?

- a) Reactive arthritis**
- b) Guillain-Barré syndrome
- c) Endocarditis
- d) Hemolytic anemia

36. What is the primary host response to Chlamydia pneumoniae infection?

- a) Antibody-mediated immunity**
- b) Cell-mediated immunity
- c) Complement activation
- d) Eosinophilic infiltration

37. Which laboratory finding is commonly associated with Klebsiella pneumoniae infections?

- a) Positive coagulase test
- b) Thick mucoid colonies**
- c) Beta-hemolysis
- d) Endospore formation

38. What is a common extra-pulmonary manifestation of Klebsiella pneumoniae infection?

- a) atherosclerosis**
- b) Septic arthritis
- c) Meningitis
- d) Pancreatitis

39. What is the most common clinical presentation of Moraxella catarrhalis in children?

- a) Otitis media**
- b) Lobar pneumonia

- c) Bronchiectasis
- d) Pleural effusion

40. A 65-year-old male presents with fever, productive cough, and pleuritic chest pain. A chest X-ray reveals lobar consolidation. Blood culture grows Gram-positive, lancet-shaped diplococci. What is the most likely diagnosis?

- a) Mycoplasma pneumonia
- b) Pneumococcal pneumonia**
- c) Legionnaires' disease
- d) Klebsiella pneumonia

41. A 45-year-old smoker is diagnosed with pneumococcal pneumonia. He has no allergies. What is the most appropriate initial treatment?

- a) Vancomycin**
- b) Amoxicillin
- c) Ciprofloxacin
- d) Doxycycline

42. A 75-year-old woman with a history of COPD presents with fever, chills, and cough. She is vaccinated with PCV13. Which vaccine should be administered next to ensure complete protection against pneumococcus?

- a) Hib vaccine
- b) PPSV23**
- c) Influenza vaccine
- d) Tdap

43. A 45-year-old male presents with a productive cough and fever. Sputum culture grows a Gram-negative coccobacillus that requires X and V factors for growth. What is the best initial antibiotic therapy?

- a) Azithromycin
- b) Amoxicillin-clavulanate
- c) Doxycycline
- d) Ceftriaxone**

44. A 22-year-old college student presents with low-grade fever, dry cough, and bilateral patchy infiltrates on chest X-ray. Sputum culture shows no growth. What is the most likely diagnosis?

- a) Pneumococcal pneumonia
- b) Mycoplasma pneumonia
- c) Klebsiella pneumonia
- d) Legionnaires' disease**

45. A patient with Mycoplasma pneumonia is treated with macrolides. Which lab test can be used to confirm the diagnosis?

- a) PCR**
- b) Gram staining

- c) Blood cultures
- d) Ziehl-Neelsen staining

46. **A hospital outbreak of pneumonia is traced back to the water system. What pathogen is most likely responsible?**

- a) *Streptococcus pneumoniae*
- b) *Legionella pneumophila*
- c) *Haemophilus influenzae*
- d) *Mycoplasma pneumoniae*

47. **What is the most sensitive diagnostic test for *Legionella pneumophila*?**

- a) Urinary antigen test
- b) Sputum Gram stain
- c) Culture on blood agar
- d) Chest X-ray

48. **A patient develops Legionnaires' disease after undergoing a dental procedure. What is the likely mode of transmission?**

- a) Contaminated water aerosols
- b) Person-to-person spread
- c) Direct inhalation of bacterial spores
- d) Fecal-oral route

49. **A young adult with no significant past medical history presents with fatigue, hoarseness, and bilateral infiltrates on chest X-ray. What complication is most commonly associated with *Chlamydia pneumoniae*?**

- a) Reactive arthritis
- b) Myocarditis
- c) Guillain-Barré syndrome
- d) Cerebral abscess



50. **What is a distinguishing feature of *Klebsiella pneumoniae* on MacConkey agar?**

- a) Pink, mucoid colonies due to lactose fermentation
- b) Beta-hemolysis
- c) Metallic sheen
- d) Non-lactose fermenting colonies

51. **A hospital has a *Legionella* outbreak traced to its water system. What is the recommended disinfection strategy?**

- a) Heat water to above 70°C
- b) Add chlorine dioxide
- c) Regular UV sterilization
- d) All of the above



52. **Which statement about *Haemophilus influenzae* is correct?**

- a) Invasive infections are linked to capsulated strains.
- b) Human infections originate from domestic pets.

c) The organism grows on sheep blood agar in 5% CO₂.

d) Haemophilus meningitis is preventable with chloramphenicol.

53. Which of the following does NOT apply to Haemophilus influenzae?

a) It is a Gram-negative coccobacillus.

b) It readily grows on ordinary culture media.

c) Virulent strains are capsulated.

d) It can be identified in CSF using latex agglutination.

54. Which medium is most suitable for isolating Haemophilus influenzae?

a) Sheep blood agar

b) MacConkey agar

c) Chocolate agar

d) Nutrient agar

55. Which statement about Haemophilus ducreyi is INCORRECT?

a) It is a Gram-negative short bacillus.

b) It requires 10% CO₂ for growth.

c) It causes painless genital ulcers.

d) Cefotaxime is an effective treatment option.

56. Which of the following statements about Haemophilus influenzae is FALSE?

a) It causes meningitis in young children.

b) It can grow on simple laboratory media.

c) It can be detected in CSF samples.

d) The capsulated type b strain is highly virulent.

57. Which type of vaccine is used for Haemophilus influenzae type b (Hib) prophylaxis?

a) Live attenuated vaccine

b) Killed vaccine

c) Toxoid vaccine

d) Type b capsular polysaccharide vaccine

58. Haemophilus influenzae requires both X and V factors for growth:

a) True

b) False

59. Which serotype of Haemophilus influenzae is most frequently associated with infections?

- a) a
- b) b**
- c) c
- d) None of the above

60. Which of the following diseases can be caused by Haemophilus influenzae?

- a) Meningitis
- b) Pneumonia
- c) Otitis media
- d) Laryngitis
- e) All of the above**

61. Legionnaire's disease is spread through:

- a) Inhalation of contaminated aerosols
- b) Ingestion of contaminated water**
- c) Direct contact with secretions
- d) Direct contact with infected animals

62. Drug of choice for treatment of legionnaire's disease:

- a) Penicillin
- b) Tetracycline
- c) Erythromycin**
- d) Chloramphenicol

63. Pontiac fever is characterized by all the following except:

- a) Influenza like symptoms
- b) Fatal disease**
- c) Caused by legionella pneumophila
- d) Macrolides are required for treatment

64. Mycoplasma pneumonia:

- a) Resemble gram positive bacteria
- b) Produce typical pneumonia
- c) Sensitive to penicillin
- d) Cannot be treated by penicillin**

65. Regarding chlamydia, EB are:

- a) Replicative form
- b) Active form

c) Infective form

d) Intracellular form

66. Which statement is incorrect regarding *Chlamydia trachomatis*?

a) They are obligatory intra cellular bacteria

b) They have a biphasic life cycle

c) They are infectious via their Reticulate bodies

d) They cause lymphogranuloma venereum

67. Which statement is TRUE regarding genital mycoplasmas?

a) They have a Gram-negative cell wall

b) They contain sterols in the cell membrane

c) They cannot be grown on cell-free media

d) They are sensitive to beta-lactam antibiotics

68. Which statement best describes *Klebsiella* species?

a) *Klebsiella* species are non-capsulated motile Gram-negative bacteria

b) *Klebsiella pneumoniae* may cause hospital acquired pneumonia

c) *Klebsiella ozaenae* is usually associated with rhinoscleroma.

d) *Klebsiella* species are characteristically sensitive to antibiotics

69. A man who raises poultry complains of low-grade fever and dry cough. He was diagnosed radiologically as having pneumonia. What is the most likely diagnosis of his condition?

a) Anthrax

b) Pontiac fever

c) Psittacosis

d) Tuberculosis

70. Infection by which of the following bacteria can be prevented by a capsular polysaccharide vaccine?

a) *Streptococcus pneumoniae*

b) *Corynebacterium diphtheriae*

c) *Pseudomonas aeruginosa*

d) *Moraxella catarrhalis*

71. Which procedure is best used for rapid laboratory diagnosis of Legionnaire's disease

a) Culture of respiratory secretions on BCYE agar

b) Detection of antigen in urine

- c) Detection of rising antibody titer in serum
- d) Gram-stained sputum smear

72. In which character do *Mycoplasma pneumoniae* differ from *Chlamydia pneumoniae*?

- a) They are able to grow on cell-free media
- b) They are able to cause atypical pneumonia.
- c) They cannot be stained with Gram's stain.
- d) They are resistant to beta-lactam antibiotics

73. Legionnaire's disease is a form of:

- a) Food poisoning
- b) Sexually transmitted disease
- c) Atypical bacterial pneumonia
- d) Meningitis
- e) Neonatal infection

74. *Hemophilus influenzae* type b:

- a) Is a Gram-positive rod
- b) Is a common cause of influenza
- c) Can grow alone on blood agar
- d) Has a polysaccharide capsule
- e) Is the most common cause of urinary tract infection

75. The vaccine against *H. influenzae* is:

- a) Live attenuated *H. influenzae*
- b) Killed *H. influenzae*
- c) Toxoid derived from *H. influenzae*
- d) Polysaccharide derived from *H. influenzae*
- e) Polysaccharide derived from *H. influenzae* conjugated to a protein

76. Legionnaire's disease is most rapidly diagnosed by which method?

- a) Cold agglutinin test
- b) Culture of sputum on blood agar
- c) Detection of antigen in urine
- d) Electron microscopy of sputum

77. **A patient complains of fever associated with dry non-productive cough. Investigations reveal a titer of 1:256 of cold agglutinins. Which of the following is the most probable causative microorganism?**
- a) **Streptococcus pneumoniae**
 - b) **Klebsiella pneumoniae**
 - c) **Legionella pneumophila**
 - d) **Mycoplasma pneumoniae**
78. **The following organisms cause primary atypical pneumonia EXCEPT:**
- a) **Chlamydophila pneumoniae**
 - b) **Mycobacterium tuberculosis**
 - c) **Legionella pneumophila**
 - d) **Mycoplasma pneumoniae**
 - e) **Coxiella burnetii**
79. **Which stain is used for detection of inclusion bodies of Chlamydia trachomatis?**
- a) **Giemsa stain**
 - b) **Gram stain**
 - c) **Methylene blue stain**
 - d) **Ziehl-Neelsen stain**
80. **Neisseria meningitidis, Streptococcus pneumoniae, Hemophilus influenzae and Cryptococcus neoformans can all cause meningitis. What is the essential virulence factor that aids meningeal spread by these four organisms?**
- a) **Endotoxin**
 - b) **Exotoxin**
 - c) **IgA protease**
 - d) **Polysaccharide capsule**
81. **Which statement is consistent with Mycoplasma?**
- a) **It can be grown on cell free media**
 - b) **It has a biphasic life cycle**
 - c) **It is susceptible to penicillin.**
 - d) **It stains well by Gram stain**
82. **Rapid diagnosis of Legionnaire's disease can be provided by antigen detection in:**
- a) **Blood**
 - b) **Serum**
 - c) **Stools**

d) Urine

e) CSF

83. Which of the following organisms does not cause atypical pneumonia?

a) Klebsiella pneumoniae

b) Legionella pneumophila

c) Mycoplasma pneumoniae

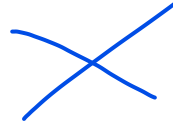
d) Chlamydia psittaci

84. Legionnaire's disease is spread through:

a) Inhalation of contaminated aerosols

b) Direct contact with secretions

c) Direct contact with infected animals



85. Drug of choice for treatment of legionnaire's disease:

a) Penicillin

b) Tetracycline

c) Erythromycin

d) Chloramphenicol

86. Pontiac fever is characterized by all the following except:

a) Influenza like symptoms

b) Fatal disease

c) Caused by legionella pneumophila

d) Macrolides are required for treatment

87. Mycoplasma pneumonia:

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c) Sensitive to penicillin

d) Cannot be treated by penicillin

88. Regarding chlamydia, EB are:

a) Replicative form

b) Active form

c) Infective form

d) Intracellular form

89. What disease is caused by Haemophilus influenzae?

a) Acute bacterial meningitis

b) Flu.

c) Shipping fever.

d) Chancroid.

e) Conjunctivitis.

90. The major virulence factor of Haemophilus influenza type b is:

a) Surface pilli.

b) Surface polysaccharide.

c) Cell wall.

d) Cell membrane.

e) Exotoxin.

91. Which of the following is true of Haemophilus influenzae?

a) Invasive infections are most commonly associated with encapsulated strains.

b) Most invasive infections occur in infants during the neonatal period.

c) Most human infections are acquired from domestic pets

d) The organism can be readily cultured on sheep blood agar in an environment of elevated CO₂.

e) Older adults are rarely at risk for infection with this organism because they typically have a high level of immunity.

92. What is the most important virulence factor for Streptococcus pneumoniae?

a) Toxin production.

b) Adhesion proteins.

c) polysaccharide capsule

d) Invasiveness.

e) Biofilm formation.

93. What is the main component of anti- pneumococcal vaccine?

a) capsular polysaccharide antigens.

b) live attenuated strains.

c) Killed strains.

d) Recombinant DNA.

e) Inactivated toxin.

94. What is Quellung reaction?

a) a bacterial motility test

b) a capsule detection test

- c) a serological antibody detection test
- d) Direct antigen detection test

95. Quellung reaction is usually used for diagnosis of which organism?

- a) Group A Streptococci
- b) Influenza virus
- c) Pneumococci
- d) Saphylococcus aureus

96. Which one of the following organisms causes primary atypical pneumonia in humans?

- a) Mycoplasma hominis
- b) Saphylococcus aureus
- c) Mycoplasma pneumonia
- d) Pneumococci

97. What is the mode of transmission of Legionella pneumophila?

- a) Contact with convalescent carriers.
- b) Contact with infected animals.
- c) Inhalation of airborne droplets from a case.
- d) Inhalation of airborne spores.
- e) Inhalation of contaminated water aerosols.

98. What is the antibiotic that is ineffective against Mycoplasma pneumoniae infection?

- a) Azithromycin
- b) Doxycycline
- c) Erythromycin
- d) Penicillin

99. The following laboratory test can be used efficiently to differentiate Streptococcus pneumoniae from Viridans streptococci:

- a) Bile solubility test
- b) Catalase test
- c) Gram stain
- d) Growth on blood agar

100. All of the following is True about pneumococci Except

- a) G+ve diplococci.
- b) having capsule.

c) grow in MacConkey's agar.

d) grow on serum or blood media.

101. pneumococci are β - haemolytic

a) True.

b) False.

102. Which of the following is True about pneumococci

b) Resistant to bile solubility

c) Resistant to Inuline fermentation

d) Sensitive to Optochin test

e) No capsule

103. The type of pneumococcus is determined by capsular swelling reaction

a) True.

b) False.

104. Moraxella is G+ve diplococci

a) True.

b) False.

105. The virulence factor in pneumococcus is But in C.diphtheria is.....

a) Toxin - capsule

b) capsule - Toxin

106. All of the following is True about pneumococci Except

a) G+ve diplococci.

b) having capsule.

c) grow in MacConkey's agar.

d) grow on serum or blood media.

107. The best culture for haemophilus is

a) ordinary media

b) blood agar

c) chocolate agar

d) chocolate agar with isovitalax

108. Lipooligosaccharides in H.influenza are

- a) Endotoxin
- b) Exotoxin
- c) Antigenic factor
- d) Capsule content

109. Type capsule is the major virulence factor in H.influenza

- a) A
- b) B
- c) C
- d) D

110. The frequent disease caused by H.influenza type b.....

- a) Otitis media
- b) Pneumonia
- c) Acute epiglottitis
- d) Acute sinusitis

111. infection with H.influenza can be treated by.....

- a) Penicillin
- b) Cephalosporin
- c) Rifampin
- d) INH

112. The obligatory intracellular parasitism of chlamydia is due to

- a) Deficiency in metabolic enzymes
- b) Deficiency in P 1 adhesins
- c) Deficiency in Energy producing metabolic pathway
- d) All of the above



113. Mycoplasmas can resist penicillin due to their B-lactamase activity.

- a) true
- b) false

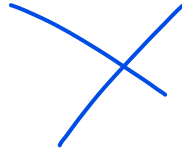
114. pneumonitis of infants is caused by

- a) C. pneumonia
- b) C. trachomatis
- c) C. psittaci
- d) M. pneumonia



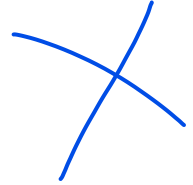
115. is a zoonotic disease affecting primarily birds and can be transmitted to man

- a) Pharyngitis
- b) Psittacosis**
- c) Pneumonitis
- d) Non of the above



116. Concerning parrot fever all of the following is not true except

- a) Sexually transmitted disease
- b) Caused by *C. trachomatis*
- c) Can be transmitted by inhalation of dried bird faeces
- d) Can be Transmitted from mam to man



117. Unlike psittacosis.. in chlamydia pneumonia infection no animal reservoir has been identified.

- a) True**
- b) False

Viral causes of pneumonia

1. Influenza viruses, minor annual variations in the antigenic makeup are called:
 - A) Antigenic drift
 - B) Antigenic shift
 - C) Mutation
 - D) Recombination
2. Which virus infects virtually all children by the age of 2?
 - A) Coronavirus
 - B) Respiratory syncytial virus (RSV)
 - C) Rhinovirus
 - D) Influenza virus
3. The influenza viruses used for vaccine production are currently grown in:
 - A) Petri dishes
 - B) Cell cultures
 - C) Egg embryos
 - D) Test-tube slants
4. Which virus first emerged in Asia in 2003?
 - A) MERS
 - B) RSV
 - C) SARS
 - D) H1N1 flu
5. _____ allow the influenza virus to recognize and attach to body cells before infecting them:
 - A) NA spikes
 - B) HA spikes
 - C) The lipid bilayer
 - D) The protein coat
6. Which statement is CORRECT regarding the diagnosis of COVID-19?
 - A) A decreased CRP, D-dimer, and ferritin are common laboratory findings.
 - B) A decreased lymphocyte count is considered a specific test for diagnosis.
 - C) Direct detection by RT-PCR from a nasopharyngeal swab is the standard method.
 - D) Serology is commonly used to diagnose current COVID-19 infection.
7. Which of the following is NOT a type of COVID-19 vaccine?
 - A) Viral vector
 - B) mRNA
 - C) Live attenuated
 - D) Inactivated
8. What is the standard specimen obtained for the diagnosis of SARS-CoV-2 infection?
 - A) Nasopharyngeal swab

- B) Serum
- C) Sputum
- D) Stool

9. All the following statements about influenza virus neuraminidase (NA) are correct EXCEPT:

- A) NA helps influenza virus to spread on mucosal surfaces.
- B) NA allows viral progeny to be released from infected cells.
- C) NA projects from the viral envelope.
- D) NA is found in type A influenza virus only.**
- E) NA is a glycoprotein

10. Regarding antigenic shift in influenza virus, all the following are true EXCEPT:

- A) It occurs in type A virus only.
- B) Strains generated by antigenic shift can cause pandemics.
- C) The new strains generated are serologically similar to the parent strain.**
- D) It is caused by a major change in surface antigens.
- E) Gene reassortment is responsible for the appearance of new antigens.

11. A paramyxovirus that causes the syndrome known as croup is:

- A) Adenovirus
- B) Influenza virus
- C) Measles virus
- D) Parainfluenza virus**
- E) Respiratory syncytial virus

12. A single-stranded RNA orthomyxovirus, requiring annual vaccination due to antigenic drift and shift, is:

- A) Adenovirus
- B) Influenza virus**
- C) Measles virus
- D) Parainfluenza virus
- E) Respiratory syncytial virus

13. Which of the following is true about the genome of the influenza virus?

- A) Single-stranded positive-sense RNA
- B) Double-stranded DNA
- C) Single-stranded negative-sense RNA segmented genome**
- D) Single-stranded circular RNA

14. What is the role of hemagglutinin (HA) in the influenza virus?

- A) Cleaves neuraminic acid
- B) Facilitates viral entry by binding to sialic acid on host cells**
- C) Promotes viral assembly
- D) Assists in genome replication

15. Antigenic drift in influenza occurs due to:

- A) Reassortment of segmented genome

B) Gradual accumulation of mutations in HA and NA genes

C) Switch from RNA to DNA genome

D) Host immune suppression

16. Antigenic shift is primarily responsible for:

A) Minor seasonal flu outbreaks

B) Emergence of new pandemic strains

C) Resistance to antiviral medications

D) Decreased viral replication efficiency

17. Which subtypes of influenza are known to undergo antigenic shift?

A) Only Influenza A

B) Only Influenza B

C) Both Influenza A and B

D) Influenza A, B, and C equally

18. Influenza virus is primarily transmitted via:

A) Fecal-oral route

B) Vector-borne transmission

C) Respiratory droplets and aerosols

D) Direct contact with contaminated water

19. The most common symptoms of influenza include:

A) High fever, sore throat, and myalgia

B) Vomiting, diarrhea, and abdominal pain

C) Rash, joint pain, and photophobia

D) Chronic cough and weight loss

20. Reye's syndrome is a rare complication of influenza associated with:

A) Bacterial coinfections

B) The use of aspirin in children with viral infections

C) Excessive vaccination

D) Overuse of antiviral medications

21. Influenza vaccines are updated annually to account for:

A) Increasing immune resistance in the population

B) Antigenic drift in circulating strains

C) New antiviral resistance genes

D) Longer vaccine expiration dates

22. A 5-year-old boy presents with sudden onset of high fever (39.5°C), dry cough, sore throat, and body aches. A rapid influenza antigen test is positive. What is the most appropriate initial management?

A) Antibiotics and fever reducers

B) Supportive care and start oseltamivir within 48 hours

C) Hospitalization and oxygen therapy

D) Administer steroids immediately

23. A 10-year-old girl with a 2-day history of flu-like symptoms develops confusion, vomiting, and lethargy. Her parents mention giving her aspirin for fever. What is the most likely diagnosis?

- A) Guillain-Barré syndrome
- B) Reye's syndrome**
- C) Bacterial meningitis
- D) Encephalitis

24. Parainfluenza virus is a common cause of:

- A) Bronchiolitis
- B) Croup
- C) Pneumonia
- D) All of the above**

25. RSV transmission primarily occurs through:

- A) Fecal-oral route
- B) Respiratory droplets and direct contact**
- C) Contaminated water
- D) Insect vectors

26. What is the most common age group affected by severe RSV infection?

- A) Adolescents
- B) Adults
- C) Elderly individuals
- D) Infants under 1 year**

27. Which of the following is a hallmark clinical feature of RSV infection in infants?

- A) Stridor
- B) Barking cough
- C) Wheezing and respiratory distress**
- D) Hemoptysis

28. Parainfluenza virus belongs to which family?

- A) Orthomyxoviridae
- B) Paramyxoviridae**
- C) Coronaviridae
- D) Adenoviridae

29. The primary prevention method for parainfluenza virus is:

- A) Vaccination
- B) Good hand hygiene and infection control measures**
- C) Antiviral prophylaxis
- D) Antibiotics

30. The main structural protein responsible for coronavirus attachment to host cells is:

- A) Envelope (E) protein
- B) Nucleocapsid (N) protein**

C) Spike (S) protein

D) Membrane (M) protein

31. SARS-CoV-2 primarily enters human cells by binding to which receptor?

A) ACE2 receptor

B) CCR5 receptor

C) CD4 receptor

D) TNF receptor

32. Middle East Respiratory Syndrome (MERS) is caused by:

A) Influenza virus

B) RSV

C) A coronavirus

D) An adenovirus

33. Adenoviruses are non-enveloped viruses with what type of genome?

A) Single-stranded RNA

B) Double-stranded DNA

C) Double-stranded RNA

D) Single-stranded DNA

34. The mode of transmission for adenoviruses includes all the following EXCEPT:

A) Respiratory droplets

B) Fecal-oral route

C) Contact with contaminated surfaces

D) Arthropod vectors

35. Adenovirus is most commonly associated with which syndrome in children?

A) Croup

B) Hemorrhagic fever

C) Pharyngoconjunctival fever

D) Measles-like rash

36. Which virus is the most common cause of bronchiolitis and pneumonia in infants?

A) Measles virus

B) Influenza virus

C) Respiratory syncytial virus

D) Epstein Barr virus

37. Which of the following bacteria appear as a "closed safety pin" upon staining?

A) Bacillus anthracis

B) Streptococcus pneumoniae

C) Yersinia pestis

D) Klebsiella pneumonia

38. Regarding antigenic drift of influenza viruses, which statement is CORRECT?

- A) It occurs in influenza viruses type A, B and C.
- B) It is caused by major changes in surface antigens.
- C) It is usually liable to occur every 10 years.
- D) The generated strains can cause pandemics

39. Which statement regarding influenza viruses is CORRECT?

- A) Influenza A H1N1 is the causative agent of avian flu.
- B) Influenza A H5N1 is the causative agent of swine flu.
- C) Type B virus causes influenza only in humans.
- D) Type C influenza virus usually causes pandemics

40. Which of the following is not a type of COVID-19 vaccines?

- A) Viral vector
- B) mRNA
- C) Live attenuated
- D) Inactivated

41. What is the metabolically inert, infective form of chlamydia that can survive extracellularly?

- A) Reticulate body
- B) Virion body
- C) Elementary body
- D) Inclusion body

42. Which one of the following is a characteristic feature of rhinoviruses?

- A) They replicate locally followed by blood invasion.
- B) There are only three antigenic types A, B and C.
- C) The conjunctiva is primarily affected by these viruses.
- D) They are transmitted by the airborne route.

43. All the following statements regarding influenza virus neuraminidase (NA) are correct EXCEPT:

- A) NA helps influenza virus to spread on mucosal surfaces.
- B) NA allows viral progeny to be released from the infected cells.
- C) NA projects from the viral envelope.
- D) NA is found in type A influenza virus only.
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B) Strains generated by antigenic shift can cause pandemics.
C) The new strains generated are serologically similar to the parent strain.
D) It is caused by a major change in surface antigens.
E) Gene reassortment is responsible for appearance of the new antigens.

45. Regarding antigenic drift of influenza viruses, which statement is CORRECT?

- A) It is usually liable to occur every 10 years.
B) It occurs in influenza viruses type A, B and C.
C) It results from gene reassortment.
D) The generated strains can cause pandemics

46. Which of the following is given as an annual vaccination against influenza infection?

- A) Killed virus vaccine
B) Capsular polysaccharide vaccine
C) Influenza virus toxoid
D) Recombinant viral vaccine

47. Repeated infections of common cold could be explained by all of the following EXCEPT:

- A) Multiple antigenic types
B) Nature of infection is superficial
C) Serum antibodies play no significant role
D) Rhinoviruses are slow viruses
E) Immunity is mainly superficial by IgA

48. What is the virus that may cause repeated infections in the same individual in the same season?

- A) Adenovirus
B) Para-influenza virus
C) Rhinovirus
D) SARS-CoV

49. A ten months old infant presenting with fever, cough, and shortness of breath. Chest examination shows retraction of costal margin. Microscopic examination of Cell culture of respiratory specimen shows multinucleate cells. What is the most probable causative agent?

- A) Influenza virus
B) Para-influenza virus

C) Respiratory syncytial virus

D) Rhinovirus

E) SARS-CoV

50. Influenza virus contains hemagglutinin and neuraminidase. What do these represent?

A) Exotoxins produced by the influenza virus

B) Glycoprotein receptors on influenza's target cells

C) Glycoproteins on influenza virus that contribute to virulence

D) Proteins found in the nucleus of influenza virus

51. All of the following statements correctly describe the properties of Influenza A virus EXCEPT:

A) Single stranded RNA virus

B) Have 5 RNA segmented genome

C) A killed vaccine is available annually.

D) Infects humans and animals

52. Avian flu Virus:

✓ **A) Can be transmitted between humans easily**

B) Can be treated by oseltamivir

C) Mortality due to infection by it in Egypt was very Low

D) Usually has 8 segmented positive sense RNA virus

53. Croup in children is mostly caused by:

A) Influenza virus

B) Parainfluenza virus

C) Respiratory syncytial virus

D) Rhinovirus

54. Select the main means by which antigenic shift occurs in influenza A virus.

✓ **A) Low fidelity of DNA dependent DNA polymerase**

B) Low fidelity of RNA dependent RNA polymerase

C) Low fidelity of reverse transcriptase

D) Genetic reassortment between segments of two different Man

E) Recombination between DNA genomes.

55. Antigenic drift and antigenic shift refer to influenza viruses. Which of the following statements describes events that could lead to a new influenza epidemic?

- A) Antigenic drift represents the sudden appearance of new subtypes of HA and/or NA
- B) Antigenic drift represents a gradual change in the HA and/or NA antigens
- C) Antigenic shift represents the sudden appearance of new subtypes of HA and/or NA
- D) Antigenic shift represents a gradual change in the HA and/or NA antigens
- E) Antigenic shift results in the inactivation of interferons

56. Which type of influenza viruses that is responsible for worldwide epidemics?

- A) Type A
- B) Type B
- C) Type C

57. What is the best method to confirm diagnosis of swine flu?

- A) Detection of serum antibodies using ELISA.
- B) Detection of viral antigens in specimens by ELISA.
- C) Detection of viral nucleic acid in clinical specimens by PCR.
- D) Viral isolation from respiratory samples on tissue culture.

58. What is the main composition of influenza injectable vaccine?

- A) Envelop glycoproteins.
- B) Killed strains.
- C) Live attenuated strains.
- D) Purified viral antigens

59. What is the name of the virus causing COVID-19?

- A) MERS-CoV
- B) SARS-Cov2
- C) SARS-Cov

60. What is the genomic structure of coronaviruses?

- A) Double stranded DNA.
- B) RNA (single stranded, negative sense)
- C) RNA (single stranded, positive sense)
- D) Single stranded DNA.

61. Respiratory syncytial virus belongs to which family of viruses?

- A) Orthomyxoviruses
- B) enteroviruses

C) Picornaviruses

D) Paramyxoviruses

62. Adenovirus can directly cause of the following diseases except:

A) Acute febrile pharyngitis

B) Pharyngo-conjunctival fever

C) Pneumonia

D) Acute respiratory disease

63. All of the following viruses can replicate only in respiratory system except:

A) Rhino virus

B) RSV

C) Mumps virus

D) Para influenza virus

64. The main cause of bronchiolitis after one year of age is

A) Streptococcus pneumonia

B) H. influenza

C) RSV

D) Para influenza virus

65. Adenoviruses infect & replicate in all of the following except:

A) Epithelial cells of the pharynx

B) Stomach mucosa

C) Conjunctiva

D) Small intestine

66. Adenovirus has a tendency to become latent in:

A) Adipose tissue

B) GIT

C) Liver tissue tissue

D) Lymphoid tissue

67. The most important cause of common cold is:

A) Rhino virus

B) Adenovirus

C) Para influenza virus

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D) Influenza virus type A

68. The best environment for Rhino virus to grow:

- A) Epithelial cells of the pharynx
- B) Small intestine
- C) Lung parenchyma
- D) Nose**

69 There is a major problem for development of vaccines to Rhino virus, this due to:

- A) Its severe pathogenicity
- B) Serotype multiplicity**
- C) It's ssRNA icosahedral virus
- D) None of the above

69. Ribavirin is the most antiviral agent proved for Rhino virus (.....) T/F

70. One of the features of Paramyxoviruses is all have 2 types glycoprotein spikes (HN & F) (.....) f

71. It's believed that the most pathogenetic Para influenza virus is serotype 4 (.....)

72. The most common disease A associated with Para influenza viruses

- A) Laryngo-tracheobronchitis**
- B) Acute febrile pharyngitis
- C) Acute respiratory disease
- D) Pharyngo-conjunctival fever

73. RSV is transmitted from man to man

- A) Direct contact
- B) Droplet infection**
- C) Feco-oral route
- D) None of the above

74. The strategy in treatment of RSV is

- A) Immunity suppression
- B) Just symptomatic treatment**
- C) Destroy protein envelop
- D) None of the above

75. there is no vaccine proved for influenza virus as their antigens are continuously changed especially type c(.....f.....)

76. In an epidemic area when isolating the causative agent it may be any of the following influenza viruses except

- A) H3 N2
- B) H1N1
- C) HsN3
- D) H2N2

77. The major antigenic changes in influenza viruses is characterized by all of the following except:

- A) Larger period (10-40 years)
- B) Appearance of an entirely new subtype
- C) Result from 2 strains
- D) Occur in any type of influenza

78. The antiviral that is may be approved in treatment influenza is:

- A) Rimantidine
- B) Acyclovir
- C) Zidovudine
- D) Albuferon

79. According to Laboratory diagnosis of Corona viruses, one of the following is not true

- A) Ag detection in cells by ELISA
- B) NA detection in respiratory secretion by RT-PCR
- C) Isolation in culture media
- D) Serology by passive haemagglutination test

80. SARS Cov is the same as Cov in

- A) Can grow easily on tissue culture
- B) It has tropism to LRT
- C) It's no species specific
- D) Large enveloped ssRNA virus

81. There is no proven treatment and no vaccine to SARSCov (....f...)

Fungal causes of pneumonia

1. Several serious fungal infections affect the lower respiratory system primarily because fungi:

- A) Are dimorphic
- B) Are opportunistic
- C) Produce airborne spores**
- D) Produce toxic proteins

2. In which of the following diseases do bird droppings provide nutrients, especially nitrogen, to the fungus?

- A) Histoplasmosis**
- B) Pneumocystis pneumonia
- C) Coccidioidomycosis
- D) Aspergillosis

3. Which fungal pulmonary disease is also known as Valley fever or San Joaquin fever?

- A) Aspergillosis
- B) Coccidioidomycosis**
- C) Pneumocystis pneumonia
- D) Histoplasmosis

4. Which fungus commonly causes cutaneous ulcers and can lead to extensive abscess formation and tissue destruction?

- A) Pneumocystis jirovecii
- B) Histoplasma capsulatum**
- C) Coccidioides immitis
- D) Blastomyces dermatitidis**

5. Histoplasmosis is caused by which organism?

- A) *Aspergillus fumigatus*
- B) *Histoplasma capsulatum***
- C) *Coccidioides immitis*
- D) *Candida albican*

6. *Histoplasma capsulatum* is classified as:

- A) An encapsulated bacterium
- B) A dimorphic fungus**
- C) A single-celled yeast
- D) A helminth

7. The primary mode of transmission for *Histoplasma capsulatum* is:

- A) Direct skin contact
- B) Fecal-oral route
- C) Airborne conidia from bird and bat droppings**
- D) Blood transfusion

8. What is the primary host cell in which *Histoplasma capsulatum* resides in the human body?

- A) Neutrophils
- B) Eosinophils
- C) Macrophages
- D) Epithelial cells

9. Which of the following is a common complication of disseminated histoplasmosis?

- A) Meningitis
- B) Tuberculosis-like lung lesions
- C) Endocarditis
- D) Parasitic cysts

10. Coccidioidomycosis is also referred to as:

- A) Aspergillosis
- B) San Joaquin fever
- C) Thrush
- D) Pneumocystis pneumonia

11. The causative agent of coccidioidomycosis is:

- A) *Coccidioides immitis*
- B) *Histoplasma capsulatum*
- C) *Candida albicans*
- D) *Blastomyces dermatitidis*

12. Which diagnostic test confirms coccidioidomycosis?

- A) Gram staining
- B) Detection of spherules in tissue
- C) Detection of germ tubes
- D) Detection of encapsulated yeast

13. Blastomycosis is caused by:

- A) *Blastomyces dermatitidis*
- B) *Histoplasma capsulatum*
- C) *Coccidioides immitis*
- D) *Candida albicans*

14. The characteristic feature of *Blastomyces dermatitidis* under the microscope is:

- A) Septate hyphae
- B) Broad-based budding yeast
- C) Spherules
- D) Pseudohyphae

15. Which of the following conditions is commonly associated with blastomycosis?

- A) Cutaneous ulcers and abscesses
- B) Allergic bronchopulmonary reaction
- C) Mucosal pseudomembranes
- D) Meningitis

16. *Blastomyces dermatitidis* infections occur primarily through:

- A) Skin wounds

B) Inhalation of conidia

C) Ingestion of spores

D) Insect bites

17. What is the preferred treatment for severe blastomycosis?

A) Fluconazole

B) Amphotericin B

C) Itraconazole

D) Trimethoprim-sulfamethoxazole

18. *Candida albicans* is classified as:

A) A dimorphic fungus

B) A yeast with pseudohyphae

C) A bacterium

D) A protozoan

19. What distinguishes *Candida albicans* from other *Candida* species?

A) Broad-based budding yeast

B) Formation of germ tubes in serum at 37°C

C) Production of airborne conidia

D) Formation of spherules

20. Which of the following clinical conditions is most commonly associated with *Candida albicans*?

A) Valley fever

B) Thrush and systemic candidiasis

C) Granulomatous skin lesions

D) Fungal sinusitis

21. In which type of patients is disseminated *Candida albicans* infection most likely to occur?

A) Healthy adults

B) Immunocompromised individuals

C) Neonates only

D) Individuals with asthma

22. The most effective treatment for systemic candidiasis is:

A) Amphotericin B

B) Trimethoprim-sulfamethoxazole

C) Itraconazole

D) Metronidazole

23. A 45-year-old man presents with fever, cough, and night sweats for the past month. He recently visited a cave system in the Midwest where he came into contact with bird droppings. A chest X-ray shows a granulomatous lesion. A tissue biopsy reveals yeast cells within macrophages.

Which of the following is the most likely diagnosis?

- A) Coccidioidomycosis
- B) Aspergillosis
- C) Histoplasmosis**
- D) Blastomycosis

24. A 34-year-old man presents with fever, productive cough, and painful skin lesions. He has a history of working outdoors in soil-rich areas near water. A biopsy of his skin lesion reveals broad-based budding yeast

Which of the following is the most likely diagnosis?

- A) Aspergillosis
- B) Coccidioidomycosis
- C) Blastomycosis**
- D) Pneumocystis pneumonia

25. A 50-year-old diabetic male presents with fever, chills, and abdominal pain. He has a history of intravenous drug use. Blood cultures reveal *Candida albicans*. His clinical symptoms worsen, and he develops sepsis.

Which of the following factors most likely predisposes this patient to a *Candida* infection?

- A) Diabetes mellitus
- B) Use of broad-spectrum antibiotics
- C) Intravenous drug use
- D) All of the above

25. Which laboratory test is used to differentiate *Candida albicans* from other *Candida* species?

- A) Frei skin test
- B) Germ tube test**
- C) Rapid plasma reagin test
- D) Monospot test

26. Concerning aspergillosis, which statement is CORRECT?

- A) It is caused mainly by *Aspergillus niger*.
- B) It is transmitted by the feco-oral route
- C) It may present as pneumonia
- D) It causes invasive infections in immunocompetent persons**