Lecture 1 quiz

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1. Which characteristic describes Streptococcus pyogenes?

- ☐ A. Gram-negative cocci
- ☐ B. Facultative anaerobes
- ☐ C. Produces Alpha hemolysis
- ☐ D. Bacitracin resistant

Answer: Facultative anaerobes (B)

Streptococcus pyogenes are Gram-positive cocci, facultative anaerobes, and Bacitracin sensitive.

2. Which virulence factor of Streptococcus pyogenes is responsible for resisting phagocytosis?

- ☐ A. Hyaluronic acid capsule
- ☐ B. Streptolysins
- ☐ C. Streptokinase
- ☐ D. Fibronectin-binding protein

Answer: Hyaluronic acid capsule (A)

The Hyaluronic acid capsule of Streptococcus pyogenes acts as an immunological mask and resists phagocytosis.

3. What is the function of Streptolysins in Streptococcus pyogenes?

- ☐ A. Inducing fever
- ☐ B. Resisting phagocytosis
- ☐ C. Causing rash in scarlet fever
- ☐ D. Producing Alpha hemolysis

Answer: Inducing fever (A)

Streptolysins are pore-forming cytotoxins that induce hemolysis, leading to complete (Beta) hemolysis by Streptococcus pyogenes.

4. Which factor of Streptococcus pyogenes is responsible for binding to fibronectin?

- ☐ A. M protein

- ☐ B. Hyaluronic acid capsule
- ☐ C. Streptokinase
- ☐ D. LTA

Answer: M protein (A)

The Fibronectin-binding protein (protein F) is a virulence factor of Streptococcus pyogenes responsible for adherence to fibronectin.

5. What differentiates the Streptolysins O and S in Streptococcus pyogenes?

- ☐ A. O is antigenic, while S is not antigenic
- ☐ B. O is responsible for Alpha hemolysis, while S causes Beta hemolysis
- ☐ C. O induces fever, while S resists phagocytosis
- ☐ D. O is O2 stable, while S is O2 labile

Answer: O is antigenic, while S is not antigenic (A)

In Streptococcus pyogenes, Streptolysin O is O2 labile and antigenic, whereas Streptolysin S is the opposite and responsible for Beta-hemolysis.

6. What type of strep causes diseases like pharyngitis and scarlet fever?

- ☐ A. Toxigenic
- ☐ B. Proteolytic
- ☐ C. Immunologic
- ☐ D. Pyogenic

Answer: Pyogenic (D)

Pyogenic strep causes diseases like pharyngitis and scarlet fever.

7. Which toxin is responsible for scarlet fever?

- ☐ A. Enterotoxin
- ☐ B. Endotoxin
- ☐ C. Erythrogenic toxin
- ☐ D. Exfoliative toxin

Answer: Erythrogenic toxin (C)

Scarlet fever is produced by the erythrogenic toxin.

8. What is the characteristic lesion seen in scarlet fever?

- ☐ A. Pustular lesion
- ☐ B. Ulcerative lesion
- ☐ C. Strawberry tongue

- ☐ D. Vesicular lesion

Answer: Strawberry tongue (C)

The 'strawberry' tongue is a characteristic lesion seen in scarlet fever.

9. Which antibody response causes inflammation in rheumatic fever?

- ☐ A. Anti-fungal antibodies
- ☐ B. Autoantibody response to D proteins
- ☐ C. Anti-viral antibodies
- ☐ D. Autoantibody response to M proteins

Answer: Autoantibody response to M proteins (D)

Inflammation in rheumatic fever is caused by an autoantibody response to streptococcal M proteins.

10. Which diagnostic test is NOT useful for identifying streptococcal infections?

- ☐ A. ELISA test
- ☐ B. Gram stain
- ☐ C. Serology (ASO test)
- ☐ D. Antigen detection test

Answer: Gram stain (B)

Gram stain is not useful for identifying streptococcal infections.

11. What type of medium is used for the growth of Corynebacterium diphtheriae?

- ☐ A. Chocolate agar
- ☐ B. MacConkey agar
- ☐ C. Thayer-Martin agar
- ☐ D. Loffler’s serum

Answer: Loffler’s serum (D)

Loffler’s serum is used for the growth of Corynebacterium diphtheriae.

12. What is the main virulence factor of diphtheria?

- ☐ A. Endotoxin
- ☐ B. Hemolysin
- ☐ C. Exoenzyme
- ☐ D. Diphtheria toxin

Answer: Diphtheria toxin (D)

Diphtheria toxin is the main virulence factor responsible for the pathogenesis of diphtheria.

13. Which organ does the toxin of diphtheria primarily affect?

- ☐ A. Kidneys
- ☐ B. Heart
- ☐ C. Lungs
- ☐ D. Liver

Answer: Heart (B)

The diphtheria toxin diffuses into the bloodstream causing toxaemia and affects organs like the heart, leading to irregularities in cardiac rhythm.

14. What clinical manifestation is characteristic of tonsillar diphtheria?

- ☐ A. Joint pain
- ☐ B. Liver failure
- ☐ C. Grayish white pseudomembrane in the throat
- ☐ D. Bronchospasm

Answer: Grayish white pseudomembrane in the throat (C)

Tonsillar diphtheria presents with a grayish white pseudomembrane in the throat due to local necrosis with fibrinous exudate.

15. How is a diagnosis of diphtheria usually confirmed in a clinical setting?

- ☐ A. Physical examination only
- ☐ B. Blood test for specific antibodies
- ☐ C. Direct smears stained with Gram or methylene blue
- ☐ D. Urinalysis

Answer: Direct smears stained with Gram or methylene blue (C)

In a clinical setting, a diagnosis of diphtheria is usually confirmed by direct smears stained with Gram or methylene blue.

16. What type of media are cultures made on for the laboratory diagnosis of diphtheria?

- ☐ A. Loefflers serum and blood tellurite media
- ☐ B. Sabouraud agar
- ☐ C. Chocolate agar
- ☐ D. MacConkey agar

Answer: Loefflers serum and blood tellurite media (A)

Cultures for diphtheria diagnosis are typically done on Loefflers serum and blood tellurite media.