

## SECTION 4: Clinical Problem-Solving (40 Case-Based Questions)

**Case 1:** A 45-year-old male presents with crushing chest pain radiating to his left arm, diaphoresis, and shortness of breath. His ECG shows ST-segment elevation in leads II, III, and aVF.

1. What is the most likely diagnosis?
  - A) Stable angina
  - B) Pulmonary embolism
  - C) Inferior ST-elevation myocardial infarction (STEMI)
  - D) Aortic dissection
2. Which coronary artery is most likely occluded?
  - A) Left anterior descending artery
  - B) Left circumflex artery
  - C) Right coronary artery
  - D) Left main coronary artery

**Case 2:** A 7-year-old girl presents with a sore throat, fever, and a sandpaper-like rash that started on the trunk and spread to the extremities. A throat culture is positive for Group A Streptococcus.

3. What is the most likely diagnosis?
  - A) Viral pharyngitis
  - B) Scarlet fever
  - C) Kawasaki disease
  - D) Measles
4. What is the first-line treatment?
  - A) Azithromycin
  - B) Amoxicillin/Penicillin
  - C) Vancomycin
  - D) Supportive care only

**Case 3:** A 68-year-old female with a history of hypertension presents with sudden onset of the "worst headache of her life." She is afebrile. A CT scan without contrast is initially negative.

5. What is the most concerning diagnosis?
  - A) Tension headache
  - B) Hypertensive urgency
  - C) Subarachnoid hemorrhage
  - D) Bacterial meningitis
  
6. What is the next best diagnostic step if CT is negative?
  - A) MRI brain with contrast
  - B) Lumbar puncture for xanthochromia
  - C) Repeat CT in 24 hours
  - D) Cerebral angiography immediately

**Case 4:** A 22-year-old college student presents with fatigue, sore throat, fever, and cervical lymphadenopathy. Lab work shows an elevated lymphocyte count with atypical lymphocytes.

7. What is the most likely diagnosis?
  - A) Streptococcal pharyngitis
  - B) Infectious mononucleosis (EBV)
  - C) HIV seroconversion illness
  - D) Cytomegalovirus infection
  
8. Which test is used to confirm this diagnosis?
  - A) Throat culture
  - B) Blood culture
  - C) Monospot test (heterophile antibody test)
  - D) CBC with differential only

**Case 5:** A 55-year-old male with a 40-pack-year smoking history presents with hemoptysis, a persistent cough, and unintentional weight loss over 3 months. A chest X-ray shows a hilar mass.

9. What is the most concerning diagnosis?
  - A) Tuberculosis
  - B) Lung cancer
  - C) Pneumonia
  - D) Pulmonary embolism
  
10. What is the next best diagnostic step?
  - A) Sputum culture
  - B) CT-guided biopsy or bronchoscopy
  - C) PET scan
  - D) Start empiric antibiotics

**Case 6:** A 3-year-old boy is brought in with a barking cough that worsens at night. He is afebrile and has mild inspiratory stridor. Symptoms began after a URI.

11. What is the most likely diagnosis?
  - A) Epiglottitis
  - B) Bacterial tracheitis
  - C) Croup (laryngotracheobronchitis)
  - D) Foreign body aspiration
  
12. What is the primary causative organism?
  - A) Haemophilus influenzae
  - B) Parainfluenza virus
  - C) Streptococcus pneumoniae
  - D) RSV

## Answer Key

1. C
2. C
3. B
4. B
5. C
6. B
7. B
8. C
9. B
10. B
11. C
12. B
13. B
14. C
15. B
16. B
17. C
18. C
19. C
20. B
21. B
22. B
23. B
24. B
25. B
26. B

- 27. C
- 28. B
- 29. C
- 30. B
- 31. C
- 32. C
- 33. C
- 34. C
- 35. B
- 36. C
- 37. B
- 38. B
- 39. B
- 40. C