

1. A 96-year-old female arrives at the hospital after falling from a small height, unable to walk due to right hip pain. Radiography reveals an intertrochanteric fracture of the proximal femur. When treating this injury with a Dynamic Hip Screw (DHS), which intra-operative event most significantly increases the risk of treatment failure?

- A. Accidentally passing the guide wire through the femoral head
- B. Achieving a tip apex distance less than 25 mm
- C. Disruption of the lateral femoral wall during surgery
- D. Opting for a side plate with only 2 holes instead of 4 holes
- E. Achieving a reduction with positive medial cortical support

Answer: C

2. According to the 2009 AAOS guidelines for preventing pulmonary embolism in hip and knee replacement patients, individuals should be categorized as "standard" or "elevated" risk for bleeding. Which of the following conditions does NOT qualify as an "elevated" risk for major bleeding?

- A. Prior diagnosis of hemophilia
- B. History of protein C deficiency
- C. Recent gastrointestinal hemorrhage
- D. Recent hemorrhagic stroke
- E. Von Willebrand's disease history

Answer: B

3. Which of the following best describes the phenomenon of stress shielding in orthopedics?

- A. Reduction in the natural load on bone due to rigid implants absorbing force
- B. Creation of an electrochemical gradient between contacting metals in a conductive fluid
- C. Material breakdown due to exposure to an aggressive environment
- D. Surface wear and transfer due to movement between two plates
- E. Bone necrosis resulting from interrupted blood supply

Answer: A

4. A 25-year-old male is admitted after a car accident, intubated in the field with a Glasgow Coma Scale of 3. He has major liver and spleen injuries, unstable pelvis, both tibias fractured with open wounds, a closed fracture in the left forearm, and a femoral shaft fracture on the left. Which clinical measurement is the strongest indicator for risk of death?

- A. End-tidal CO<sub>2</sub> at 47 mmHg
- B. Hematocrit of 18.5%
- C. Pulse rate of 150 bpm
- D. Base excess of -12 mEq/L
- E. Systolic blood pressure at 90/50 mmHg

Answer: D

5. A 46-year-old man suffers a proximal humerus fracture in a vehicle crash and undergoes plate fixation through an extended anterolateral approach. Compared to the deltopectoral approach, which anatomical structure is more likely to be injured?

- A. Musculocutaneous nerve
- B. Posterior humeral circumflex artery

- C. Axillary nerve
- D. Cephalic vein
- E. Anterior humeral circumflex artery

Answer: C

6. All of the following factors are linked to higher risk of refracture after removing forearm plates except:

- A. Comminuted initial fracture
- B. Initial displacement of the fracture
- C. Use of a 3.5 mm dynamic compression plate
- D. Plate removal within one year
- E. Immediate return to activity after plate removal

Answer: C

7. The development of congenital clubfoot (talipes equinovarus) is most closely linked to:

- A. Mutation in the PITX1 gene
- B. Point mutation affecting COLIA-1 gene regulation
- C. EXT gene family alterations
- D. Mutations in COL5A or COL3A genes
- E. Chromosome 24 mutation

Answer: A

8. In children diagnosed with Legg-Calve-Perthes disease, which of the following is NOT associated with a higher likelihood of femoral head deformity and poor outcome?

- A. Less than 50% height maintained in the lateral pillar
- B. Onset at age 5
- C. Lateral displacement of the femoral head
- D. Calcifications outside the epiphysis
- E. V-shaped radiolucency in the lateral epiphysis (Gage sign)

Answer: B

9. A college basketball player undergoes ACL reconstruction with a hamstring tendon graft. One year later, he returns to play but experiences frequent instability and a recent on-court injury with joint swelling and a positive pivot shift. What is the most probable cause?

- A. Choosing the wrong type of graft
- B. Insufficient rehabilitation before returning to sport
- C. Excessive rehabilitation in the first three months post-surgery
- D. Mistake in setting graft tension during surgery
- E. Incorrect positioning of surgical tunnels

Answer: E

10. Which scenario is most appropriate for open shoulder reduction combined with glenoid bone reconstruction?

- A. 25-year-old with a single, recent traumatic shoulder dislocation
- B. 78-year-old with cuff tear arthropathy and superior humeral migration
- C. 24-year-old with chronic instability and a large, engaging Hill-Sachs defect

- D. 30-year-old with an acute fracture-dislocation involving the glenoid rim
- E. 27-year-old with chronic anterior instability and a glenoid shaped like an inverted pear

Answer: E

11. According to Dejour's classification, which radiograph type features a crossing sign, trochlear spur, and double contour?

- a. Type A
- b. Type B
- c. Type C
- d. Type D
- e. Type E

Answer: D

12. Which wrist movement most commonly worsens symptoms in triangular fibrocartilage complex (TFCC) injuries?

- A. Forearm pronation
- B. Forearm supination
- C. Ulnar deviation
- D. Radial deviation
- E. Wrist extension

Answer: C

13. What is the most frequent way benign bone tumors present in children?

- A. Pain
- B. Visible deformity
- C. Pathologic fracture
- D. Detectable mass
- E. Found incidentally on imaging

Answer: E