

Orthopedics

- 1) A 17 year old male was skateboarding and fell while attempting to jump a flight of stairs. He lands with his upper arm against the edge of a step and hears a crack. At the hospital he is told that he has suffered a fracture of the left humeral shaft. What nerve and artery are at risk in this type of injury?
 - a) Ulnar nerve and axial artery
 - b) Axial nerve and radial artery
 - c) Median nerve and brachial artery
 - d) Radial nerve and brachial artery
 - e) Musculocutaneous nerve and axillary artery
 - f) Posterior interosseous nerve and dorsal scapular artery
- 2) A 23 year old male is playing soccer on a muddy field when he is tackled from the side. He immediately grabs his lower right leg and to his horror feels a bone protruding through the skin. At the hospital he is diagnosed with an open fracture of the right tibia. Which of the following initial antibiotic regimens is appropriate:
 - a) Cefazolin for 24 hours
 - b) Cefazolin for 48 hours
 - c) Cefazolin, gentamicin and penicillin for 72 hours
 - d) Cefazolin and gentamicin for 48 hours
 - e) Gentamicin for 48 hours
- 3) A 45 year old female is picking apples from a tree when she slips and falls from a height of 14 feet, landing on her feet. Her right ankle is very sore after the injury so she proceeds to the local emergency room. According to the Ottawa Ankle Rules, which of the following would be an indication for x-ray imaging of the affected ankle?
 - a) Inability to weight bear immediately after the injury
 - b) Inability to weight bear immediately after the injury and pain in the malleolar zone
 - c) Pain in the malleolar zone and body tenderness over the posterior aspect of the lateral malleolus
 - d) Bony tenderness over the posterior aspect of the medial malleolus
 - e) Bruising over the anterior aspect of the medial malleolus
- 4) A 23 year old male is involved in a multiple vehicle collision during morning rush hour. After arriving to the hospital via ambulance around noon, it is discovered that the gentleman is suffering, among a variety of other minor injuries, from an open fracture of his left distal radius. Upon questioning, it is revealed that this gentleman is quite healthy and taking no medications. He denies any allergies. On physical exam, the open fracture is quite obvious, although the laceration is <2cm. A neurovascular exam is unremarkable for any worrisome findings. At this point, the most important step in management would be:
 - a) Immobilize in a cast and follow-up in 1 week to reassess healing
 - b) Proceed straight to the OR for an I and D, followed by ORIF
 - c) Inquire about tetanus status and respond accordingly
 - d) Administer antibiotics that target gram negative and anaerobic bacteria
 - e) Inquire about tetanus, give antibiotics and book the patient for an intraoperative I and D, and possible ORIF, to be done the following day

- 5) You are the on call orthopedic surgery resident during a stormy winter night. During the evening hours, you are paged to see a 73 year old lady who slipped on a patch of black ice. She is complaining of severe right hip pain and nothing else. Upon questioning, you find out she suffers from hypertension and osteoporosis; moreover, you also discover that she has broken her right distal radius on 2 other occasions û fixed with closed reduction on both occasions. Her osteoporosis is being managed with calcium, vitamin D and an unknown bisphosphonate. Her anti-hypertensive medication is unknown, but she admits that her blood pressure is well controlled. There are no other medications. The history also reveals that she has had an appendectomy and C-section in the past, has no allergies, has never smoked and her last meal was lunch time. On physical examination, her right leg is shortened and in marked external rotation. Her right leg, as well as her other extremities, are neurovascularly intact. The rest of the exam is unremarkable. You send this lovely lady for an X-ray which shows a grade 4 subcapital fracture of her right hip. Her intraoperative treatment would include:
- Hemiarthroplasty of her right hip
 - Total arthroplasty of her right hip
 - Dynamic hip screw
 - Gamma nail
 - ORIF femoral neck
- 6) A 53 year old male suffers an undisplaced fracture of his medial malleolus. It is immobilized with a plaster cast. He has a follow up visit in the fracture clinic in 2 weeks time to assess bone healing. You explain to him the potential complications of this fracture, including all of the following EXCEPT:
- Mal-union
 - Non-union
 - Infection
 - Fat embolism
 - DVT
- 7) An 18 year-old motorcyclist presents in the emergency department following an accident. He has a compound tibia and fibula fracture of the right leg and on examination the right leg has no pulses. Your immediate treatment should be:
- Immediate angiogram
 - Immediate surgery
 - Casting and/or splinting
 - Reduction and splinting
 - X-ray
- 8) Which of the following is the most serious complication of a displaced supracondylar fracture of the humerus?
- Compartment syndrome of the forearm
 - Failure to heal
 - Healing in a non-anatomical position
 - Injury to the median nerve
 - Significantly limited range of elbow motion
- 9) All of the following statements regarding knee injuries are correct EXCEPT:
- Locking of the knee may be due to a torn meniscus
 - Minor tears of the medial collateral ligament can be treated with brief immobilization then range of motion and strengthening exercises
 - Lateral meniscus tears are more common than medial meniscal tears
 - Anterior cruciate ligament tears may give a positive Lachman test
 - A knee dislocation may be associated with major ligament damage
- 10) An 83 year-old man has fallen while walking down stairs. He is brought to the emergency department with a 3-part intertrochanteric hip fracture. Which of the following procedures would you choose to perform?
- Hemiarthroplasty
 - Total hip replacement
 - Multiple pin fixation
 - Bipolar arthroplasty
 - Pin and plate

- 11) A 16 year-old female fell while roller-blading on her outstretched right hand. At a nearby emergency department X-rays confirmed the diagnosis of a closed Colles fracture. The proper reduction technique for this wrist fracture is which of the following:
- a) Slight extension, full pronation, and full ulnar deviation
 - b) Slight flexion, full supination, and full radial deviation
 - c) Slight extension, full supination, and full ulnar deviation
 - d) Slight flexion, full pronation, and full ulnar deviation
 - e) Slight extension, full pronation, and full radial deviation

- 12) Which of the following is least likely to cause avascular necrosis:
- a) Sickle cell disease
 - b) Septic arthritis
 - c) Steroid use
 - d) Constrictive dressings
 - e) Post-traumatic fracture

- 13) A 24 year-old football player severely fractures his ankle while playing in a game and subsequently requires ORIF treatment. Indications for ORIF treatment of an ankle fracture include all of the following EXCEPT:
- a) A fracture-dislocation
 - b) Undisplaced fracture with Grade II ATFL tear
 - c) Trimalleolar fracture
 - d) Unstable talar tilt
 - e) Unable to maintain a closed reduction

- 14) Which of the following radiographic features is most consistent with osteoarthritis of the knee?
- a) Marginal erosions
 - b) Juxta-articular osteopenia (demineralization)
 - c) Loss of articular cartilage with narrowing of the radiologic joint space
 - d) Osteonecrosis (avascular necrosis) of the medial femoral condyle
 - e) Syndesmophyte formation

- 15) All of the following have been associated with posterior shoulder dislocation EXCEPT:
- a) Ethanol
 - b) Electricity
 - c) Exercise
 - d) Epilepsy
 - e) Encephalitis

- 16) Management of an open fracture should always include each of the following EXCEPT:
- a) Assessment of neurovascular status
 - b) Reduction and fixation of fracture
 - c) Irrigation and debridement of wound
 - d) Application of sterile dressing
 - e) Application of topical antibiotics

ANSWERS

1. D
2. C
3. C

4. C
5. B
6. D

7. D
8. A
9. C

10. E
11. D
12. D

13. B
14. C
15. C
16. E