Distal Femur and Tibial Plateau Fractures
2018 OTA NP/PA Course
October 17, 2018

Distal Femur Fractures

I. Objectives
   a. Anatomy
   b. Fracture Patterns
   c. Treatment

II. Anatomy
   a. Osteology – extraarticular /intraarticular areas
   b. Trapezoidal in axial plane
      i. 10 degrees lateral
      ii. 25 degrees medial
   c. Notch seen on lateral view behind Blumensaat’s line
   d. Superficial femoral artery to popliteal artery at Hunter’s canal
   e. Sciatic nerve lateral to popliteal vessels

III. Classification
   a. Extraarticular: AO/OTA type 33-A
   b. Partial Articular: AO/OTA type 33-B
   c. Complete Articular: AO/OTA type 33-C
   d. Hoffa fragment – best seen on sagittal CT scan
      i. Can be an isolated fracture a fragment of a C-type injury
      ii. Present in 33% of AO/OTA 33-C injuries
      iii. Lateral femoral condyle (75%) > medial femoral condyle (25%)

IV. Treatment
   a. Emergency Department
      i. Assess pulses
      ii. Long leg splint / knee immobilizer / skeletal traction
      iii. IV antibiotics / tetanus for open fractures
      iv. Emergencies
         1. Distal neurovascular compromise
         2. Compartment syndrome
   b. Operating Room
      i. Anatomic articular reduction and absolute stability
      ii. Functional (length, alignment, rotation) of metaphysis with
          relative or absolute stability
   c. Postoperative
      i. Range of motion within 1-2 weeks
      ii. Quadriceps strengthening
      iii. NWB 8-12 weeks for articular injuries
      iv. NWB 4-6 weeks for extraarticular injuries
Tibial Plateau Fractures

I. Objectives
   a. Anatomy
   b. Soft tissue concerns
   c. Fixation

II. Anatomy
   a. Osteology – extraarticular/intraarticular areas
   b. Lateral joint – convex
   c. Medial joint – concave
   d. Tibial spines

III. Classification
   a. Extraarticular: AO/OTA type 41-A
   b. Partial Articular: AO/OTA type 41-B
   c. Complete Articular: AO/OTA type 41-C
   d. Carefully assess the integrity of the extensor mechanism

IV. Treatment
   a. Emergency Department
      i. Assess pulses
      ii. Long leg splint / knee immobilizer
      iii. IV antibiotics / tetanus for open fractures
      iv. Emergencies
         1. Vascular Injury
         2. Compartment syndrome
   b. Operating Room
      i. Temporizing external fixation for length-unstable injuries or soft tissues not amenable to early fixation
      ii. Anatomic articular reduction and absolute stability
      iii. Functional (length, alignment, rotation) of metaphysis with relative or absolute stability
      iv. Medial and lateral plates for bicolumnar injuries
   c. Postoperative
      i. Range of motion within 1-2 weeks
      ii. Quadriceps strengthening
      iii. NWB 8-12 weeks for articular injuries
      iv. NWB 4-6 weeks for extraarticular injuries