Patella Fractures: Selecting the Best Fixation
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Introduction:
- Patellar fractures represent 1% of all fractures in adults
- Patella is largest sesamoid bone in the body and has the thickest articular cartilage (≤ 5.5 mm)
- Function
  - Increase moment arm of the extensor mechanism by 30%\(^1,2\)
  - Protection of the distal femur
  - Continuity between the quadriceps and tibia

Patellar Fractures:
- Goals of Treatment
  - Restore continuity/function of the extensor mechanism
  - Maximize articular congruity
  - Stable fixation to allow early ROM of the knee
- Mechanism of Injury
  - Indirect Trauma: typically results in transverse fracture
  - Direct Trauma: typically with knee flexed
    - Fracture of the patella in compression
    - Commonly comminuted (55% of surgically tx fractures are comminuted)
- Operative Indications
  - Extensor mechanism/retinacular disruption
  - Articular incongruity (> 2-3 mm step, >2 mm articular gap)

Why Discuss:
- Operative treatment is challenging
- Outcomes not ideal\(^3,4,\)
  - Anterior knee pain
  - Residue strength deficit
  - Residue power deficit
  - Residue endurance deficit
  - Decreased ROM
- Complications associated with operative care

Treatment Options Patellar Fractures: No Single Best Treatment
- Tension Band Constructs\(^5,6,7,8,9,10\) : Effective for simple 2 part fractures
  - Traditional tension band wires
  - Cannulated screws plus tension band wires
- Plating and Screws Constructs\(^11,12,13,14,15\) : Effective for comminuted fractures with large fracture fragments
  - Isolated interfragmentary screw fixation
  - Small/mini-fragment plates and screws
  - Mesh plates
- Inferior Pole Excision and Patellar Tendon Repair: Very Effective for fractures with inferior pole comminution
  - Parital Patellectomy and Tendon Repair\(^16,17\)
References: