Orthopaedic Trauma for PAs and NPs
Wednesday, October 17, 2017 (8:00am - 8:25am)
Title of Talk: Fracture Healing
Presenter: John A. Scolaro, MD, MA

I. Introduction

II. Bone architecture
   a. Anatomy
      i. Cortical (lamellar/compact)
      ii. Cancellous (trabecular/spongy)
   b. Periosteum

III. Bone cells
   a. Osteocytes
   b. Osteoblasts
   c. Osteoclasts

IV. Modes of fracture healing
   a. Primary – absolute stability/compression
      i. Cutting cones
      ii. Surgical techniques
         1. Lag screw
         2. Compression plate
         3. Buttress plate
         4. Tension band
   b. Secondary – relative stability
      i. Phases of bone healing – callus
         1. Injury/inflammation/hematoma
         2. Soft callus
         3. Hard callus
         4. Remodeling
      ii. Surgical techniques
         1. Splint/cast
         2. External fixator
         3. IM nail
         4. Bridge plate

V. Factors affection fracture healing
   a. Violation of fixation principles
   b. Vascular/soft tissue injury (trauma or iatrogenic)
   c. Medical/social comorbidities
   d. Infection

VI. Nonunions
   a. Hypertrophic
   b. Oligotrophic
   c. Atrophic

VII. Conclusion