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**Chronic Syndesmosis Instability**

1. Syndesmosis Injuries  
   a. Considerable controversy for appropriate management of both acute and chronic injuries  
      i. Why do we miss so many injuries?  
      ii. Why do these injuries take so long to heal?  
      iii. What is the best method of stabilization?  
      iv. Are we improving our outcomes?  

2. Syndesmosis Anatomy  
   a. Ligamentous Complex with 4 Main Parts  
      i. AITFL  
         1. 35% of Strength – Main Resistance to ER  
      ii. PITFL  
         1. 33% of Overall Strength  
      iii. Transverse Tibiofibular Ligament  
         1. 9% of Strength  
         2. Many consider it to be a part of the PITFL  
      iv. Interosseous Membrane  
         1. 22% of Strength  
         2. Largest of the ligaments  
   b. Cartilaginous Joint  
      i. Variable in Shape  
         1. 75% have concave tibial surface  
         2. Depth varies from 1.0 to 7.5mm  

3. High Ankle Sprain  
   a. Most Common nomenclature  
   b. Highly varies in severity from slight sprain to frank rupture and dislocation
c. Grade I
   i. Slight sprain of ligaments – usually anterior ligaments
   ii. Stable joint
d. Grade II
   i. High degree of variability within this group
   ii. Are they Stable or Unstable?
      1. Patients with positive squeeze test were 9.5x more likely to be unstable
      2. Patients with deltoid tenderness were 11x more likely to be unstable
e. Grade III
   i. Obvious diastasis with frank instability
f. When are they unstable? Do we operate?
      1. Division I Football players from 2004-2009
         a. 14x more likely to occur in games
         b. 31.8 days of missed practice
         c. Only 3% of injuries required surgery
   ii. MRI
      1. Static NOT Dynamic test
      2. Is there evidence of 2 ligaments injured
         a. Greater than 50% of stability lost
   iii. Stress Testing
      1. Dynamic Test
      2. In awake patient, can sometimes be unreliable
      3. Diagnostic EUA
   iv. Surgery
      1. Arthroscopy
      2. Stabilization
         a. Endobutton
         b. Screws?
4. What Happens when they don’t get better?
   a. Diagnosis
      i. Plain Imaging
         1. Is there Displacement?
         2. Displacement of Fibula before widening of medial clear space
      ii. CT Scan
         1. Good tool for evaluating position of fibula in chronic setting
         2. Diastasis of 2mm at the joint level correlated with arthroscopic findings of instability
         3. Measurements – Reliable for diagnosing displacement of fibula within the incisura
            a. Angular
            b. Area
            c. Tibofibular Line
               i. Within 2 mm of Anterior Medial Tibial tubercle indicates a normal ankle
      iii. MRI
         1. Lambda Sign – Highly predictive of syndesmosis injury in the setting of positive physical examination signs
   b. Treatment
      i. Arthroscopic Debridement
         1. Excision of “Meniscoid” Lesion
            a. Hypertrophic Synovial Tissue from IO
2. Ogilvie-Harris et al: Patients with 2mm of Diastasis Improve with Debridement alone
   a. 19 patients with all seeing improvement in pain and function after scope alone
3. Han et al.
   a. MRI is a useful tool for diagnosis
   b. Arthroscopic debridement alone is superior to arthroscopic debridement and screw fixation in patients with minimal displacement
ii. Arthroscopy and Endobutton Stabilization
   1. Allows for flexible restoration of normal anatomy
   2. Micro-motion allows for collagen healing
   3. Technically easier as long as ankle is reduced
iii. Allograft ligament Reconstruction
   1. Peroneus Longus Reconstruction – Grass et al.
      a. Good Pain Relief
      b. Complicated procedure
   2. Hamstring Allograft Reconstruction – Morris et al.
      a. Reconstruction of AITFL and IO
      b. Improvements in outcome scores with pain relief
iv. Arthrodesis
   1. Good outcomes in salvage situation
   2. No radiographic progression of ankle arthritis

C. Post Operative Rehabilitation
   i. Weeks 0-4 – NWB in splint then cast
   ii. Weeks 4-6 – Progression of weight
      1. Active ROM exercises
   iii. Weeks 6-8 – Progress to swimming and/or Anti-gravity treadmill workouts
   iv. Weeks 8-10 – Progression out of boot into a brace
   v. Weeks 10-12 – Initiate Running exercises
vi. Weeks 12-16 - Return to Sport

5. Summary
   a. Advanced imaging is key for appropriate diagnosis
   b. Arthroscopic Debridement
   c. Stabilization of joint through endobutton or allograft reconstructive procedures provides reliable outcomes

References


7. Han SH, Lee JW, Kim S, Suh JS, Choi YR. Chronic tibiofibular syndesmosis injury:


