I. Typical “primary” treatment plan
   a. Syndesmotic injury without fracture
      i. Clinical signs of syndesmotic injury without frank diastasis or instability with stress can be treated nonoperatively
         1. WBAT
            a. SLC helpful for 1-2 weeks
            2. Ankle devices to limit external rotation
            3. 15-step single limb hop test to determine when to return to athletics
      ii. Those with instability on stress testing but no diastasis can be managed with NWB cast for 4 weeks then boot for 2-4 weeks, with serial radiographs
         1. I prefer fixation in athlete – improved rehab and quicker recovery
         2. Arthroscopy/EUA very helpful in identifying subtle cases
            a. Consider for those patients failing to improve with nonop care in 8-12 weeks
      iii. Any diastasis requires reduction and adequate fixation
   iv. Percutaneous vs. open reduction of the syndesmosis
      1. Open if anatomic reduction not obvious
      2. May require medial incision and decompression/repair of deltoid ligament if syndesmotic reduction not possible
         a. Threshold lowering as we identify more “avulsion” injuries benefiting from direct repair to bone
      3. Arthroscopic assisted?
   v. Protect fibula from stress fractures thru syndesmotic screw holes with fibular buttress plate
      1. One-third tubular plate with screws proximal and distal and syndesmotic screws or suture button in center
2. Very helpful in the athlete returning to play

b. Syndesmotic injuries with fractures
   i. Always stress under flouro after fracture(s) fixed
   ii. Have a low threshold to stabilize syndesmosis
   iii. Open reduction of syndesmosis if proximal fibular fracture that is rotated or short and not being fixed - malrotation more common that previously thought
   iv. Open medically/repair deltoid if unable to reduce syndesmosis or medial clear space

v. Controversies of syndesmotic fixation
   1. One study showed no biomechanical advantage of larger screw (3.5 – 4.5mm) (Thompson, FAI, 2000)
   2. Location of screw
      i. 2.0 cm above ankle joint ideal? (McBryde et al, FAI, 1997)
         a. Syndesmosis is a joint – stay out of it!
   3. Compression with ankle in plantarflexion (Toretta, JBJS 2001); can not overtighten
   4. Screw removal
      i. Necessity?
         a. Needleman/Steihl – recommended due to loss of external rotation
         b. Only if 4 cortices and fails to loosen or break
      ii. Timing
         a. 8, 10, 12 weeks?
         b. Ligament injury – needs time
         c. Why remove at all?
            i. OTA literature shows no ill effect of broken syndesmotic screws

5. Option to screw fixation
   i. Suture button
      a. Can place one or two; can use thru plate hole
II. Postop management
   a. Surgeon preference
   ii. Depends on presence of fracture, size of individual, timing of sport
   iii. General program
       1. NWB x 4-6 weeks, then boot
       2. Begin pool rehab when wound sealed – 2 weeks
       3. Sport when symptoms/function allow, based on 15 hop test etc
       4. Remove 4 cortices screw after 12 weeks (or after season)
          a. Advantage of suture button – no removal or evidence of failure
          b. Can fill empty screw hole with a suture button device

III. Why failed repair?
   1. Multiple possibilities
      a. Poor technique
         1. Malreduction of fracture/syndesmosis
      b. Premature removal of syndesmotic fixation
      c. Failure of fixation
      d. Too aggressive postop course/noncompliance
      e. DJD of syndesmotic joint
      f. Posterior malleolar malunion/nonunion
   2. Treatment options
      a. “Early” recurrent/persistent widening
         i. Syndesmotic debridement with joint reduction; arthroscopic and medial gutter debridement included
            1. Screw fixation
               a. Controversy – is grafting and fusing joint better than debridement/reduction alone
                  1. Harper: delayed reduction and screw stabilization successful in 5/6
            ii. Use of “biologic” reconstruction of ligaments has been proposed
               1. Peroneus longus
               2. Extensor tendon
               3. Allograft
      b. “Late” failure
         i. My preference is for a syndesmotic fusion (assuming tibio-talar joint salvageable)
         ii. Olsen et al JBJS 2011
      c. Painful syndesmosis
         i. Attempt injection of syndesmosis under flouro
         ii. Debridement vs. fusion
            1. Fuse if significant degeneration/incongruity of syndesmosis or failed prior reconstruction
Bibliography


Olson K et al: Salvage of chronic instability of the syndesmosis with distal tibiofibular arthrodesis. J Bone Joint Surg 2011; 93, 66-72
