A. Insertional Achilles Tendonitis

1. Incidence
   a. Occurs in 6.5 – 18% of runners/athletes
   b. 9-20% of these have insertional variety
   c. Felt to be overuse injury – mostly runners, but also repetitive jumpers (e.g. basketball, volleyball players)
   d. Can occur at any age, but tends to affect older age group than non-insertional group (avg. = 44 yrs vs. 33 yrs)

2. Pathophysiology
   a. Overuse injury, accumulated impact load
   b. Attritional, degenerative – “osis” changes histologically
   c. “itis” may be present as a result of concomitant RC bursitis but is not primarily responsible for the condition
   d. Chemical irritation and mechanical abrasion may lead to chronic inflammatory response at the heel
   e. “stress enthesopathy” - (Helal)
      - gradual repetitive traction force at insertion point leads to calcification
   f. Tight Achilles, overpronation, cavus configuration, obesity have been implicated to predispose to the above changes
   g. Diagnosis

3. Treatment
   a. Surgical – usually employed after 6-12 months failed conservative treatment
      i. Primary goals
         - Excise RC bursa
         - Resect superior prominence
         - Debride calcitic or diseased portion of tendon insertion
         - Reattach if necessary
      ii. Surgical approach – varied
          - Single medial or lateral
          - Double
          - Inverted Y
          - J or Hockey stick
          - Short transverse
      iii. Central tendon – splitting approach (my preference)
          - Allows direct access to tendon, calcaneus, bursa
          - Good visualization
          - Technically simple
          - No skin bridge

4. Results – Operative findings – intratendinous classification is predominantly central – expands medial or lateral in smaller percentage; extent of disease and tendon involvement much greater in patients >50-55 yrs
      i. 91% satisfactory results
b. Schepsis, Leach, et al; AJSM, 1987 – 71% good

c. Schepsis, et al.; AJSM, 1994 – 86% good

d. Yodlowski, et al. AJSM ’02 – lateral approach, 90% complete or substantial relief; 10% no worse

e. Calder, Saxby FAI’03 – central tendon approach – 2 avulsions in 48 patients. Rest were improved

ii. Most with good pain relief, return to weight bearing and activity in 2-3 months, but some still had lengthy recovery times up to 1 year

iii. Older patients (>55) still had difficulty with residual pain, problems with shoewear, return to prior activity level 1-2 ear recovery time or more

- 93% satisfaction – RC bursitis
- 74% satisfaction – IAT
- Patients with calcification were older, had longer recovery, more pain and shoe wear restrictions
- IAT group had 41% complications

5. Conclusions

a. Good alternative

b. Not panacea; pain persists in some to varying degree

c. Use only in younger patients

6. Reasons for failure

a. Wrong procedure
   a. See below
   b. If too much resection is necessary and no supplementation performed, patient will not do well
   c. More disease=more surgery; you must remove all devitalized tendon and bony impingement or the patient will fail to improve
   d. Inadequate bony decompression
   e. Failure to account for poor bone/tissue quality

b. Wrong patient
   a. Other factors eg. chronic pain, other comorbidities like DM, RA, CTD

b. Wrong surgeon
   a. Can’t discern between a & b above

7. For non-calcific tendinosis and insertional pain, or failed insertional debridement, dorsal closing wedge osteotomy presents another option for treatment

i. Osteotomy – dorsal closing wedge (Keck & Kelly: JBJS, 1965)
   - Goal is to reorient bursal projection by closing it anteriorly
   - Takes longer to heal
   - No guidelines on amount to remove
   - Changes biomechanics at heel cord by altering insertion
   - Results – small numbers but not great; up to 40% complications

8. Older patients, extensive calcification or those with failed prior procedures- treat as chronic Achilles tendon deficiency
a. Tendon transfer
   i. Alternatives for tendon transfer = peroneus brevis, FDL, FHL

b. Preference – FHL my “workhorse”
   i. Greater strength, durability – 2:1 compared to FDL
   ii. Anatomically better – “In phase” muscle (plantar flexor as opposed to PB which everts)
   iii. Axis of contraction most closely approximates Achilles
   iv. Fires in sync with G-S group
   v. Anatomic proximity facilitates less dissection, better approximation
   vi. Avoids need to disturb N-V bundle
   vii. FDL musculotendinous unit compensates for FHL function via vincular attachments

9. Alternatives
   a. Turndown procedure
      a. Tremendous length possible
         i. >5cm is usual indication
      b. Reasonable strength
      c. Stiffness a problem
      d. Bulky, especially at insertional region where coverage may be difficult
      e. Tendency to adhere to surrounding tissue
   b. Free graft
      a. Auto vs Allo
      b. Autograft
         i. Free or attached
         ii. Fascia lata
         iii. Strip of Achilles(Bosworth)
         iv. Per. Brevis
            1. All have been shown to be effective
            2. Limitations include smaller calf circumference, weakness, possible increased dorsiflexion (less efficiency)
      c. Allograft achilles
         i. Good in theory as supply is excellent
         ii. Infection is always concern with allogeneic tissue but so far is theoretical
         iii. Unknown healing capacity
         iv. Unlikely to vascularize
         v. Questionable strength of repair – untested
   c. Other
      a. Dermal prepared graft
         i. Strength is shown to be reasonable
         ii. Concerns re: infection, adherence
      b. Amniotic tissue
         i. Case reports at this point
      c. Scar
i. Relies on posterior compartment power
ii. Good alternative for infected or elderly who may not want/need more procedures

**Bibliography**


NOTES