Ankle Fracture in the Athlete:

Should I scope? What about the Deltoid? Do I have to repair?

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Should I scope the ankle when fixing ankle fractures?

Purpose: Do I need to scope all ankle fractures?

1. If you are proficient with ankle arthroscopy, then scope
2. If not, no study to date has shown clear advantage in outcomes with scope
3. Visualization is 1 advantage
4. Learning curve, Sports MD know scope, Trauma docs do more fractures.
5. Sports F/A scope more ankle fx

PROS
- More extensive and better visualization
- Chondral and fx reduction
- Can treat loose bodies, OCL and soft tissue

CONS
- more time consuming 15-30 min extra
- Technically demanding

Introduction: Ankle fractures in the Athlete

1. 10 to15% of all athletic injuries occur at the ankle joint
2. Ankle fractures result from higher energy sports trauma
3. Fractures require displacement of the joint including dislocation
4. The risk for associated cartilage injury is high with fractures
5. Little has been written re: ankle fractures in the Athlete*
6. High rate of disability possible after ankle frx in the Athlete

What does the Literature say?

1. Thordardson, 9 pts FAI’01 10 control group not scoped
   - 8/9 fractures had chondral injury 89%
   - Compared to fracture tx without scope (n=10)
   - No difference in outcome, scope/no-scope
2. Ferkel, 48 pts Arthroscopy ’02
   - 63% chondral or OCL lesions
   - Treatment of lesion at time of surgery
   - Inc cartilage injury with synd tear
3. Ono, 105 pts Arthroscopy ‘04
   - 20% chondral injuries
   - Shaving and loose body removal
   - Arthroscopic visualization of fx reduction
   - No true outcome eval undertaken
4. Leontaritis, 83 pts JBJS ’09
   - More severe fracture pattern more intra-articular
   - “diagnostic value and better intra-articular fracture pattern and severity, visualize reduction”

- 20%-89% chondral injury with ankle fracture
  - Higher incidence with dislocation w/ fracture

Scope Pictures, can see better than open
How do I scope the ankle with fracture care?

1. Can use leg holder and do scope and fx
   - Unilateral lithotomy leg
2. Can do set up for ankle fracture and then scope
   - Large bump under knee
3. I still use pump, quick scope, min deb, visualization and tx OCL
4. Remove loose bodies, cartilage
5. Standard anterior portals, posterior portals not typically necessary
6. Video

What about the Deltoid? Do I have to repair it with ankle fractures?

1. More interest in fixing now.
2. If not, no study to date has shown clear advantage in outcomes with repair of the deltoid vs cast and non-weight bearing for non-op tx Deltoid
3. Sports F/A doing more 1 repair
4. Trauma literature shows interest in early WB and early ROM
5. Repair may allow more early ROM/WB
6. Must suture deep deltoid before fixing lateral side, access, +/- anchors

A PROS

1. More assurance of healing and stability-poor reconstruction of deltoid if chronic
2. ? Earlier ROM and WB, interest
3. Dec stiffness with early ROM
4. Can visualize medial joint surface
5. Can treat loose bodies, OCL
**CONS**

6. More time consuming, 15-20 min extra
7. Technically demanding for the deep deltoid
8. Must repair deep deltoid before lateral ORIF
9. Another incision

**EXTERNAL ROTATION LIGAMENT INJURY**

1. Hinterman Medial Ankle Instability
   - Stage I- nonoperative
   - Stage II- "Brostrom"
   - Stage III- II tx plus correct pron and PTT adv
   - Stage IV- TN arthrodeses
2. Why Deltoid does bad?
3. MCL knee = ATFL & CFL ankle
4. LCL knee = Deltoid ankle (tension side)
5. Varus knee thrust with ambulation, valgus ankle stress with weight-bearing midstance
6. Pronation of foot/ankle is normal

1. Baird JBJS ‘87 and Stromsoe ‘95 JBJS
   - Not necessary to repair deltoid
   - ?????? Casted?
2. Hsu FAI, Jones JOT, Yu, JFAS all 2015
   - HSU repair super. Deltoid in NFL ankle fractures
   - Jones repair deltoid better than Synd screw in ankle fx
   - Yu multicenter study repair effect way to avoid late instab.
3. Again, if . . . cast may not have advantage
4. If’ want to do early ROM and WB repair may protect for late instability
5. No clear science on approach, F/A sports tending toward repair.

**ANTERIOR DELTOID**

1. **CAN HAVE CONCOMITANT MEDIAL AND LATERAL INSTABILITY BUT NOT COMMON** with ligaments but common with ankle fracture (bony instab laterally)
2. MRI can visualize DELTOID FIBERs medially and determine if rutmure
3. **ANTERIOR DELTOID RESPONSIBLE FOR ER STABILITY**
4. **CAN BE REPAIRED, EVEN IF LATERAL SIDE OK**
5. **EXAM AND MECHANISM OF INJURY IMPORTANT TO HELP DISTINGUISH’**
6. **STRESS XRAYS IF ANY DOUBT**
**BIBLIOGRAPHY**

**Arthroscopy with Ankle fractures:**


**Deltoid Repair with ankle Fractures**
Baird, R and Jackson, ST, Fractures of the dial part of the fibula with associated disruption of the deltoid ligament. Treatment without repair of the deltoid ligament. JBJS Am 69(9):1346-52, 1987


