CHRONIC ANKLE INSTABILITY A PRE-ARTHRITIC CONDITION

Andy Molloy
University Hospital Aintree
Liverpool, UK

Background

- Ankle sprains very common (40% athletic injuries)
- 70 / 100,000 per year
- 3 parts (ATFL, CFL and PTFL)
- 80% ATFL
- 20% ATFL and CFL

Grading after 48 hrs RICE and ROM

Grade	I	II	III
Injured structures	Partial	ATFL	ATFL and CFL
Decreased ROM	<5	5-10	>10
Oedema	Up to 0.5cm	0.5-2cm	>2cm
Stress radiographs	Normal	Normal	>3mm laxity

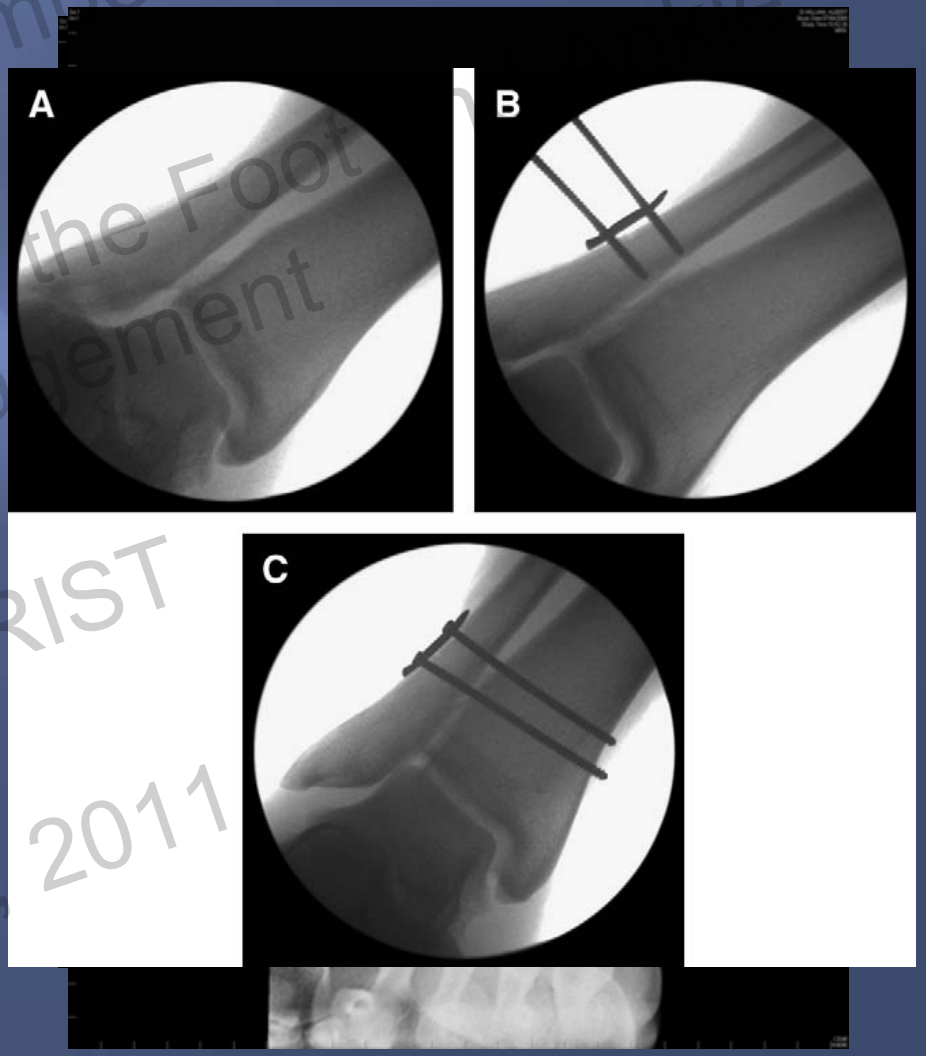
Acute Management

- Functional early immobilisation better than cast (except possibly Grade III)
- 1 week RICE with isometric exercises
- Commence ROM, isokinetic and propioceptive exercises
- Progress to muscle strength and endurance exercises (can be week 5 in grade III)

- @10% can develop chronic instability
- May respond to further functional therapy
- If not do we reconstruct to prevent OA?

Syndesmosis

- Non controversial
- Acute fixation in fractures / isolated
- For chronic reconstruct with screw /tightrope/ allograft reconstruction



Diastasis = increased contact pressures

- **Ramsey**,et al. J Bone Joint Surg 58-A:356-7, 1976
- Tibiotalar contact area
- 1, 2, 4, 6 mm lateral displacement of talus
- 42% reduction in contact area at 1mm

Is this true for lateral instability?

The Outcome of Nonoperated Patients With Chronic Lateral Instability of the Ankle: A 20-Year Follow-up Study

- **Lofvenberg, R. et al: FAI, 1994**
- **Nonoperative treatment of chronically unstable ankle did not lead to significant arthrosis**
- **Further treatment required in 3 of 37 patients (8%)**
- **HOWEVER DID NOT SELECT OUT THOSE THAT HAD FAILED CONSERVATIVE Rx**

Sugimoto K et al JBJS 2009. Chondral injuries with recurrent lateral instability

- 99 chronically unstable ankles underwent arthroscopy. 23 grade 0, 35 grade 1, 24 grade 2, 17 grade 3
- Patient age, the talar tilt angle, and varus inclination of the ankle plafond were significantly associated with more severe chondral changes.

Operative vs Functional treatment of rupture of lateral ankle ligaments

- Pijnenburg et al: JBJS Br 2003
- Prospective randomized
- 8 year followup
- Surgery better with respect to residual pain, instability, recurrent sprains

Harrington JBJS 1979 watson jones procedure at 2-6 years

- 5 with no pre-op arthritic pain asymptomatic
- 17 moderate = 5 asymptomatic, eight improved,3 same 1 worse
- Thought that those with improvement in symptoms showed XR evidence of decreasing OA

- Hoy et al JBJS 1994 looked at similar patients however 70 % had significant painful symptoms

Muijs et al JBJS 2008 13 yr history of Duquennoy technique of lateral ligament reconstruction

- Mean outcome AOFAS 89.7
- Mean talar tilt /anterior draw significantly improved and not significantly different from other ankle
- No sig difference in ROM although inversion decreased mean of 7 degrees
- 13 patients had no progression of OA
- 8 progressed by one grade
- On contralateral ankle 5 of 7 progressed by one grade

Anatomic Technique

- Initial ankle arthroscopy with pt supine, knee over trough and ankle distracted
- Pt then positioned lateral
- Hockey stick incision
- Ligamentous structures triple breasted, augmented by suture anchors (Twinfix, S&N, Memphis, TH, USA)

Research Protocol

- Placed in POP (5/52) post op followed by unlocked ROM walker boot
- Physiotherapist directed rehab protocol
- Anterior drawer assessed pre and post op
- AOFAS scores

Results

- 18 procedures with mean follow up of 25 months
- All employed requiring standing at least 25% of the time
- All keen athletes - sports requiring ankle stability
- All had +ve anterior drawer
- All had ATFL tenderness

Additional pathology

- OA Grade I - II (3)
- Chondral lesions (4) – debridement and microfracture
- Impingement (3) - anterior cheilectomy
- ? Evidence that would have progressed

Results

- Mean duration of symptoms prior to surgery: 70 months (6 - 264)
- Mean follow up 25 months
- All ankles clinically stable on repeated anterior drawer
- All had resumed their normal sporting activities by the 4 months

Conclusions

- Mean pre op AOFAS: 53
- Mean postop AOFAS 11/12 : 98
- Mean post op AOFAS 25/12 : 89

- Current modification yields excellent outcomes with a low complication rate
- Needs further analysis with larger numbers and longer follow-up period to see if any further deterioration

Why should there be deterioration?

- Should ankle dorsal impingement be considered a precursor to OA?
- Can you liken it to grade 0-1 Hallux Rigidus?

Ankle Impingement

- Soft tissue
  - Acute injury → Chronic soft tissue impingement
- Bony
  - ‘Footballers Ankle’

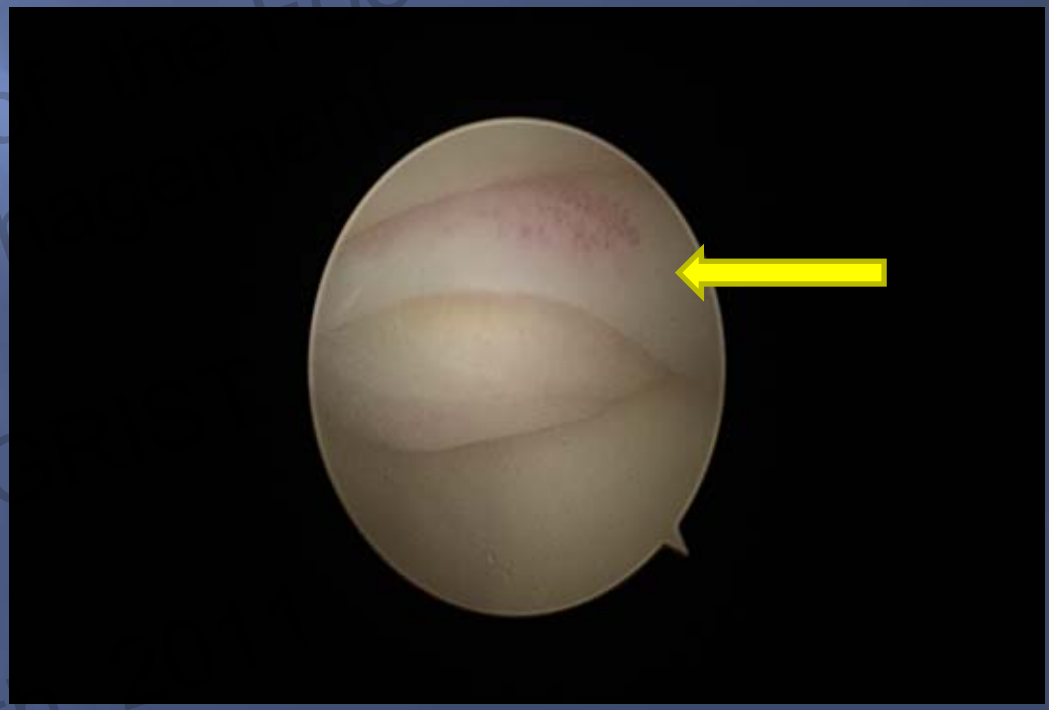
Soft Tissue

- Partial / Complete tear of AITFL
- Hypertrophy and synovitis
- +ve dorsal impingement sign
- Warmth / swelling
- MRI 89% sensitive

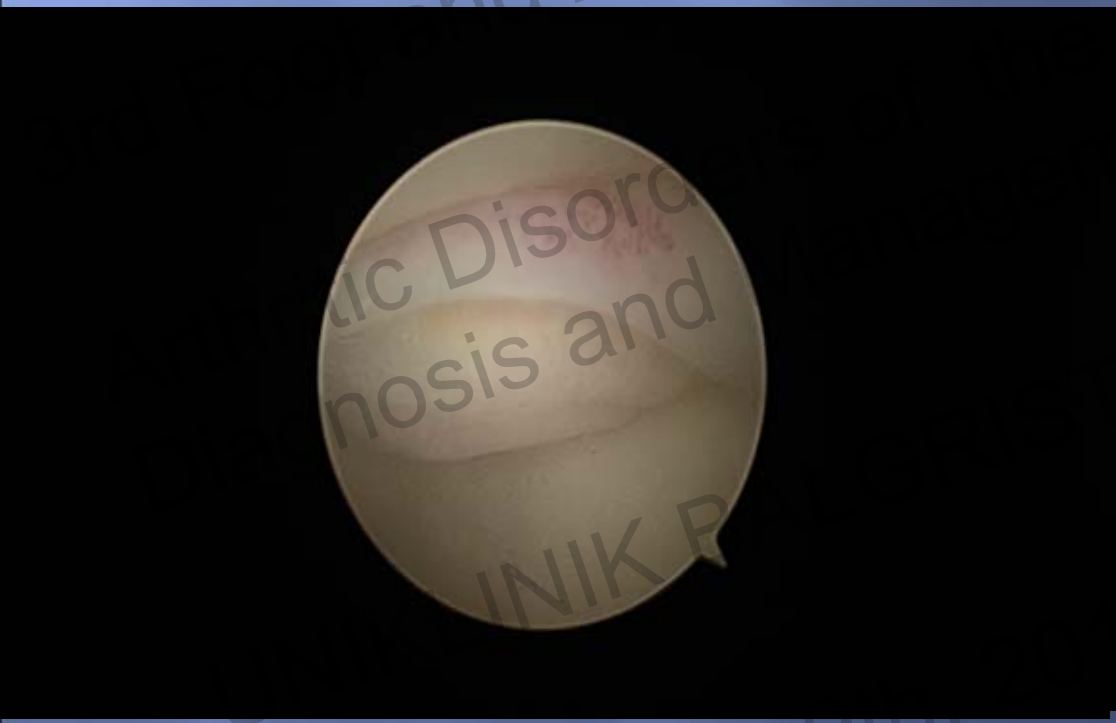
Schaffller et al 2003

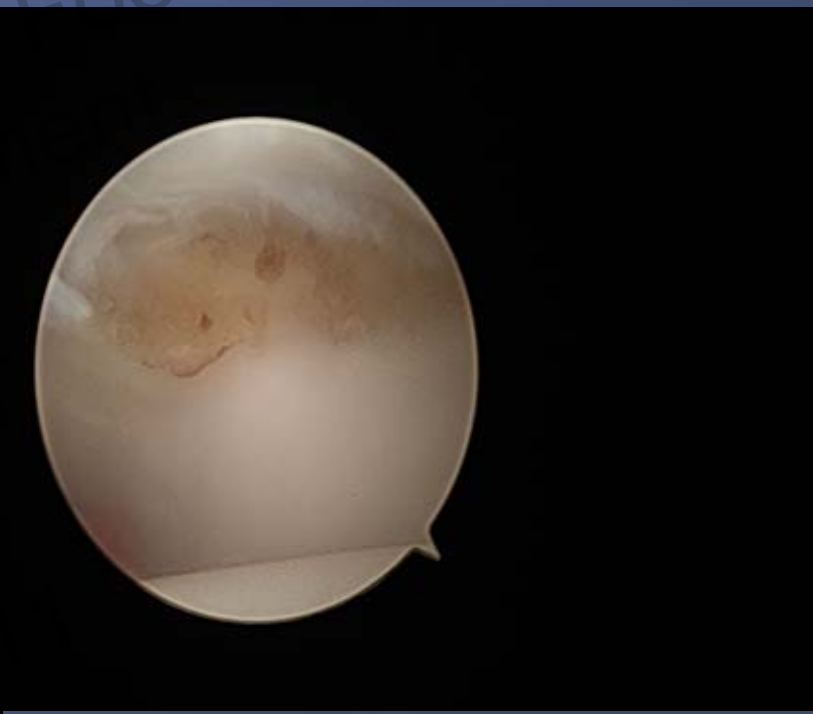
Soft Tissue

- Injury to syndosmosis
- Hypertrophy / synovitis
- Recalcitrant anterolateral pain



Arthroscopic Debridement



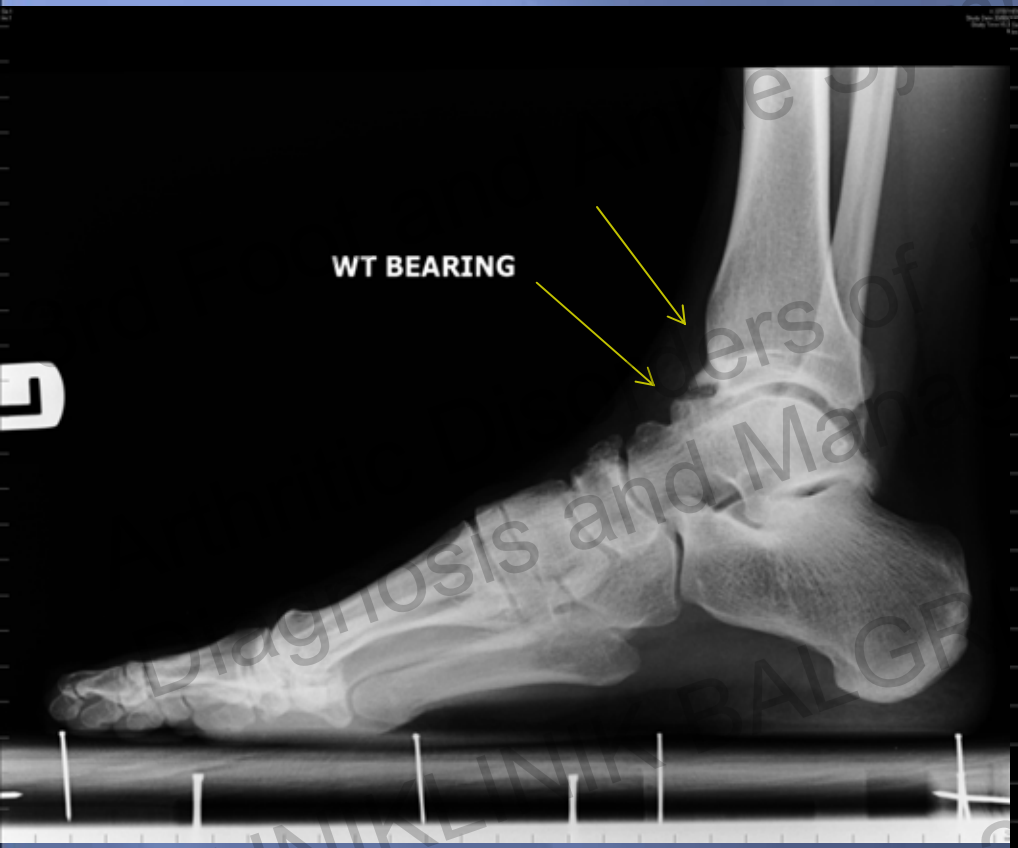


Bony impingement

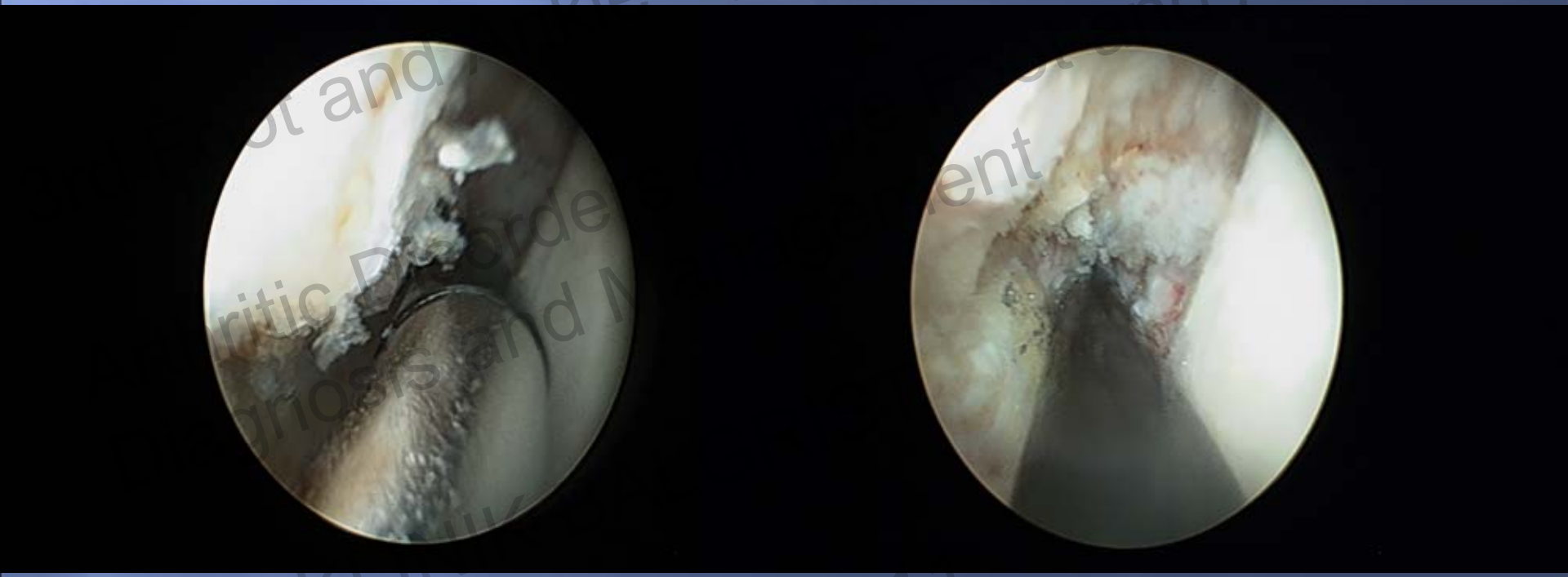
- Anterior spur chielus on distal tibia - MIDLINE
- ‘kissing’ lesion on talus – MEDIAL

Berberian et al 2001

Open Debridement



Arhroscopic



? similarities

Chronic instability treatment paradigm

Grade 0-1 (plus possibly 2)

arthroscopy + anatomic reconstruction +/-chondral procedures + chielectomy

If grade 3 (or poss 2)

TAR

ARTHRODESIS

If associated deformity / OA over ½ plafond

Pagenstert, Hintermann et al FAI 2008

- Chronic instability is a pre-arthritic condition
- Patients need to be counselled adequately with regards to development of OA
- Difficult decision if little instability is present
- Reproducible techniques with low complication rates for its treatment

Thank you