# ANTERIOR ANKLE IMPINGEMENT


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# ANTERIOR ANKLE IMPINGEMENT

**The source of chronic pain on the anterior aspect of the ankle joint due to formation of hypertrophic soft tissue, or due to formation of bone spurs or osteophytes**


Nickname → Footballers' ankle
→ Athletes' ankle

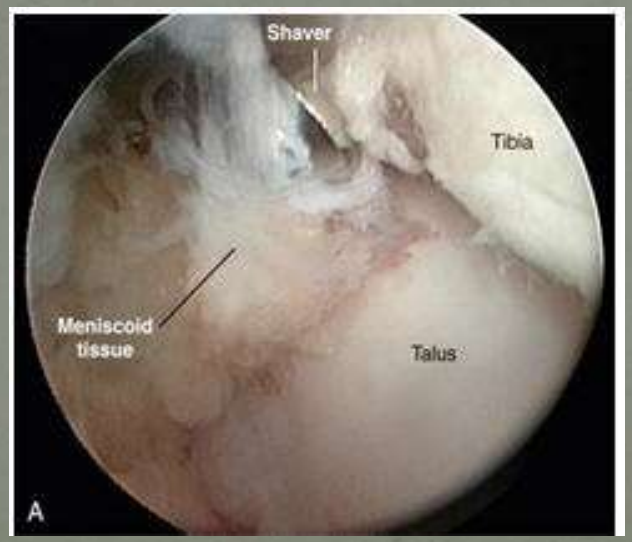
# SOFT TISSUE IMPINGEMENT

**Usually developed after a sprain injury due to synovial or capsular irritation or hypertrophic scar tissue formation**

**Seldom → secondary to infection, rheumatic or degenerative disease**

Epidemiologically : After an ankle sprain ,
20-40% of patients developed chronic pain,
1/3 of them due to impingement

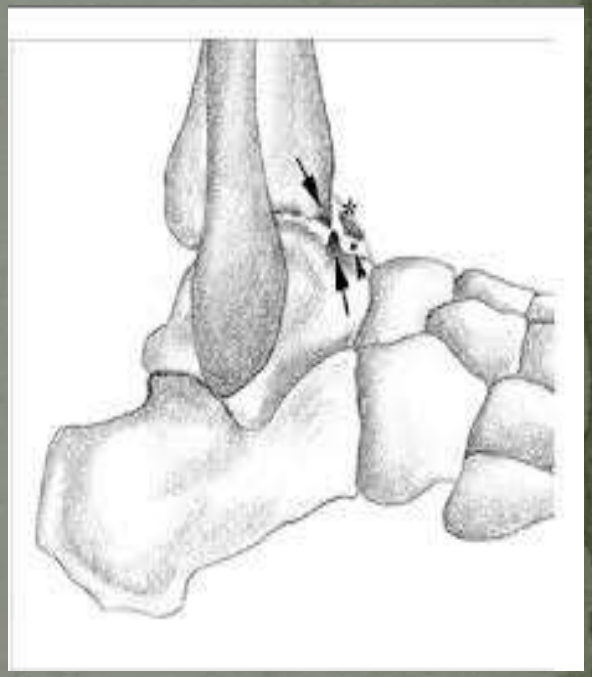
In 1950 Glassman reported of ‘ Meniscoid Lesion’, a
massive hypertrophic connective tissue
on the anterior aspect of ATFL,
seen after sprain injury and chronic pain




# Who get's Anterior ankle Impingement ?

- Typically  athletes in sports involving kicking
- Or by repeated extreme ankle dorsi – and  plantar flexion motion

- Overuse syndrome developed over a time



# Spurs Origin ?

- Unclear
- Similar osteophytes seen with degenerative arthritis

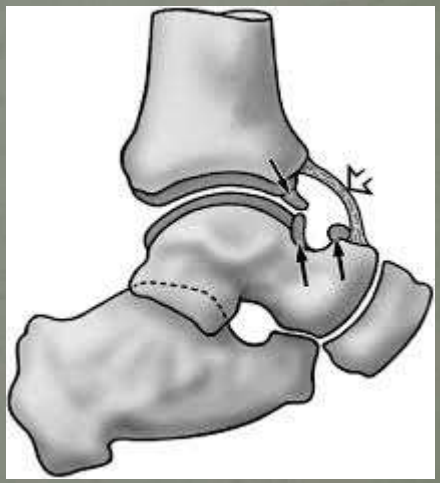
- <u>May be</u> :
- Damage of anterior cartilage due to sprain injury
- Repeated squeezing of capsule on the tibial lip
- Cumulative micro trauma of anterior capsule ?
- Traction injuries of capsule

- Accelerated with multiple ankle sprains and instability


# Origin of Pain ?

- Repetitive squeezing of synovium between the talus and the tibia

- Unclear why some athletes complain of pain and others not, although they have spurs on X-Rays

# Clinical manifestation

- **Bony Impingement :**
- usually anteromedial

- **Soft tissue Impingement:**
- Usually anterolateral

- **Syndesmotic Impingement :**
- After syndesmotic injury

# DIAGNOSIS

Based on History, clinical examination and imaging

- **History:** Athlete with chronic anterior pain getting worse with sports / recurrent swelling/ multiple sprain injuries/ instability

# DIAGNOSIS

**Examination :** 1. Tenderness along then anterior articular margin


2. Possible decreased dorsiflexion
3. Pain with forced dorsiflexion

4.**Impingement Test**: Patient lunges forward maximally with the heel on the floor

**BE WARE OF INSTABILITY !! Must be addressed**

# Imaging :

- **Main stay**→ Standard Mortice and lateral view
  → An oblique view for anteromedial spur

**MRI?** → For Soft tissue Impingement ( may be negative)
→ To exclude other pathology (AVN, Stress #, OCD etc)

# Scranton and McDermott Classification

- Type 1: Tibial Spur less than 3 mm
- Type2 : Tibial Spur more than 3 mm
- Type3 : Significant tibial osteophytes with kissing lesion on the talus
- Type 4: Osteophytes with degenerative joint destruction

Not very useful classification→ no prognostic value

# Van Dijk Classification

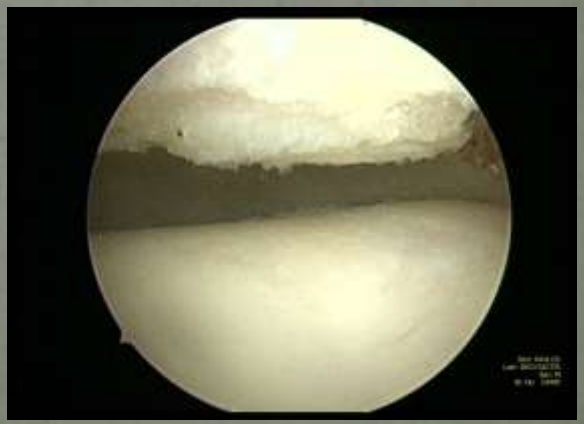
- Grade 0 : Normal joint without subchondral sclerosis
- Grade 1 : Osteophytes without joint space narrowing
- Grade 2 : Joint space narrowing with/or without osteophytes
- Grade 3 : Deformation of joint space

- Also not very useful → more for Osteoarthritis

# TREATMENT

- A. Conservative: (Rest, NSAID, Physio, Steroids?)

- B. Surgical : Gold standard -> **Arthroscopic Removal** of spurs, debridement of soft tissue)



# Ankle Athroscopy Video

Please click the following link to watch the video:

https://www.youtube.com/embed/0eu4FLs-Hyk?rel=0

# LONG TERM OUTCOME

**Systematic Review**

## Arthroscopic Treatment for Anterior Ankle Impingement: A Systematic Review of the Current Literature

Ruben Zwiers, M.Sc., Johannes I. Wiegerinck, M.D., Ph.D., Christopher D. Murawski, B.S., Ethan J. Fraser, M.D., John G. Kennedy, M.D., M.Ch., M.M.Sc., F.R.C.S.(Orth), and C. Niek van Dijk, M.D., Ph.D.

**Purpose:** To provide a comprehensive overview of the clinical outcomes of arthroscopic procedures used as a treatment strategy for anterior ankle impingement. **Methods:** A systematic literature search of the Medline, Embase (Classic), and CINAHL (Cumulative Index to Nursing and Allied Health Literature) databases was performed. Studies that met the following inclusion criteria were reviewed: studies reporting outcomes of arthroscopic treatment for anterior ankle impingement; studies reporting on more than 20 patients; a study population with a minimum age of 18 years; and studies in the English, Dutch, German, Italian, or Spanish language. Two reviewers independently performed data extraction. Extracted data consisted of population characteristics, in addition to both primary and secondary outcome measures. The Downs and Black scale was used to assess the methodologic quality of randomized and nonrandomized studies included in this review. **Results:** Twenty articles were included in this systematic review. Overall, good results were found for arthroscopic treatment in patients with anterior ankle impingement. In the studies that reported patient satisfaction rates, high percentages of good to excellent satisfaction were described (74% to 100%). The percentages of patients who would undergo the same procedure again under the same circumstances were also high (94.3% to 97.5%). Complication rates were low (4.6%), particularly with respect to major complications (1.1%). The high heterogeneity of the included studies made it impossible to compare the results of the studies, including between anterolateral impingement and anteromedial impingement. **Conclusions:** Arthroscopic treatment for anterior ankle impingement appears to provide good outcomes with respect to patient satisfaction and low complication rates. However, on the basis of the findings of this study, no conclusion can be made in terms of the effect of the type of impingement or additional pathology on clinical outcome. **Level of Evidence:** Level IV, systematic review of Level II and IV studies.

# LONG-TERM OUTCOME

- Key factors → A. Presence and severity of Instability
  B. Presence and severity of Chondral lesions / degenerative changes

Instability: The link between instability and Bone Impingement is well known
Adapting respond to increase joint stability

Scranton (2000) found Spur formation in 57% of patient with instability, compare to 17% in normal population

# LONG-TERM OUTCOME

Article

AMERICAN ORTHOPAEDIC FOOT & ANKLE SOCIETY

Foot & Ankle International
2014, Vol. 35(2) 148–155

DOI: 10.1177/1071100713510912
fai.sagepub.com

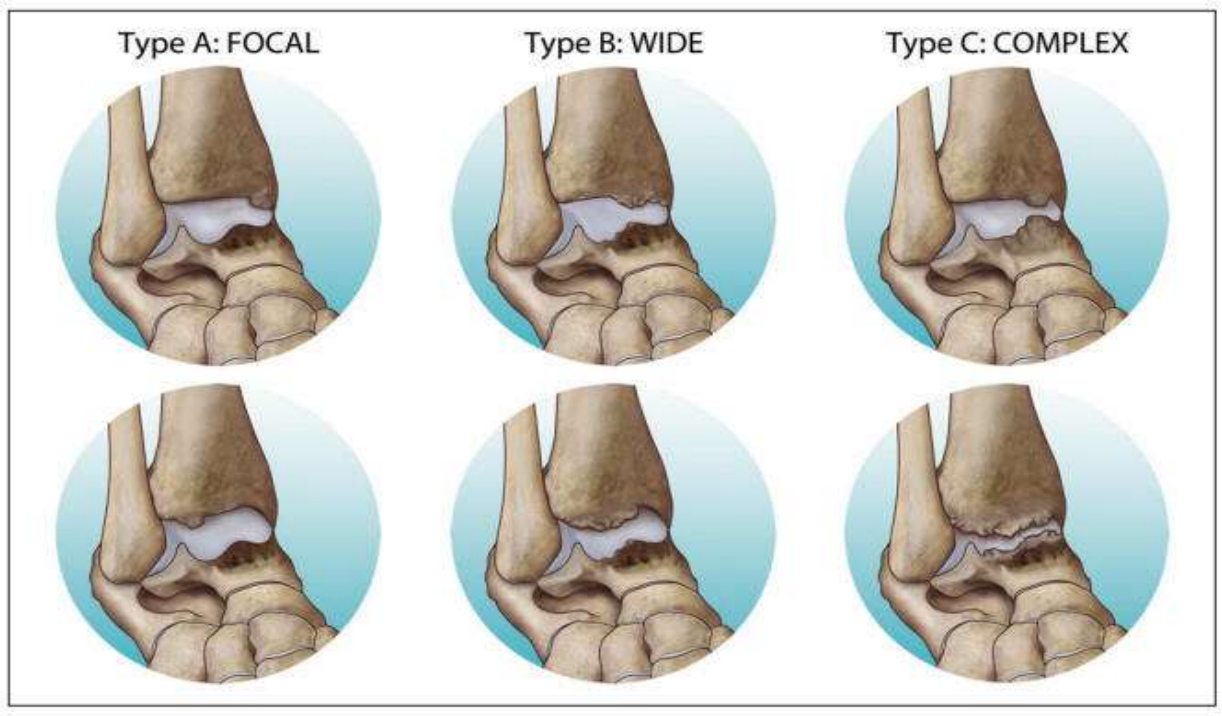
## Arthroscopic Treatment of Ankle Anterior Bony Impingement: The Long-term Clinical Outcome

Alessandro Parma, MD[1], Roberto Buda, MD[1], Francesca Vannini, MD[1], Alberto Ruffilli, MD[1], Marco Cavallo, MD[1], Alberto Ferruzzi, MD[1], and Sandro Giannini, MD[1]

**Conclusion:** Arthroscopic treatment provides overall good results, but the long-term presence of associated conditions such as chondral lesions, advanced age, and previous trauma are relevant as prognostic factors. Based on these results, a new classification for bony impingement syndrome system is proposed.

**Level of Evidence:** Level IV, case series.

# New Proposed Classification By Parma et all concerning articular spurs

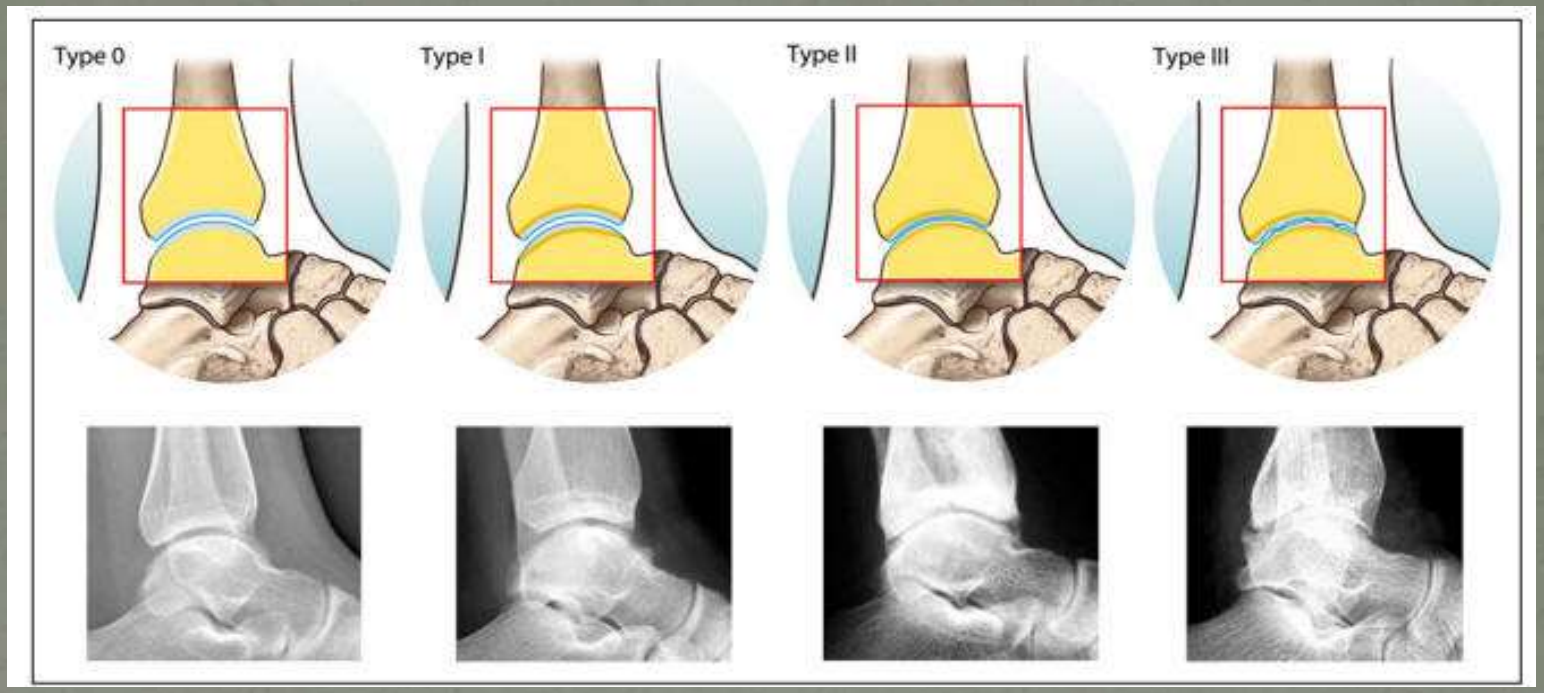



**Type A Focal**: Lesion less than 1/3 of the anterior articular margin (anteromedial/Central/anterolateral )

**Type B Wide**: Lesion from 1/3 to 2/3 of the anterior articular margin (eventual Kissing lesion on talus)

**Type C Complex** : Lesion more than 2/3 of the articular margin

# New Proposed Classification By Parma et all concerning cartilage status




**Type 0** : Normal Joint
**Type 1** : Subchondral sclerosis
**Type 2** : Joint space narrowing
**Type 3** : Deformation of joint space

# New Proposed Classification By Parma et all concerning Spur size and cartilage status

| SPURS | CARTILAGE | | | |
|---|---|---|---|---|
| | 0 | I | II | III |
| A | A0 | AI | AII | AIII |
| B | B0 | BI | BII | BIII |
| C | C0 | CI | CII | CIII |

**Figure 6.** Combined outcome predicting classification system that considers both the size and distribution of the spurs and the general cartilage status.

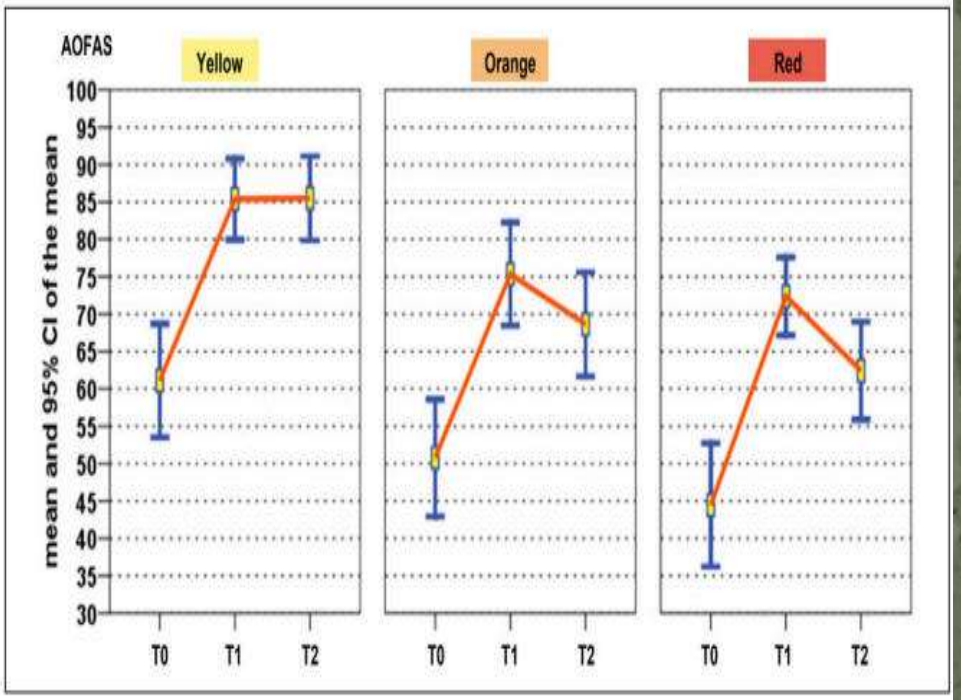



**Figure 7.** Graph showing the distribution of American Orthopaedic Foot and Ankle Society (AOFAS) scores according to the combined outcome predicting classification system that considers both the size and distribution of the spurs and the general cartilage status.

**Prognosis** : Yellow better than orange and better than red color

# POST OPERATIVE REHABILITATION

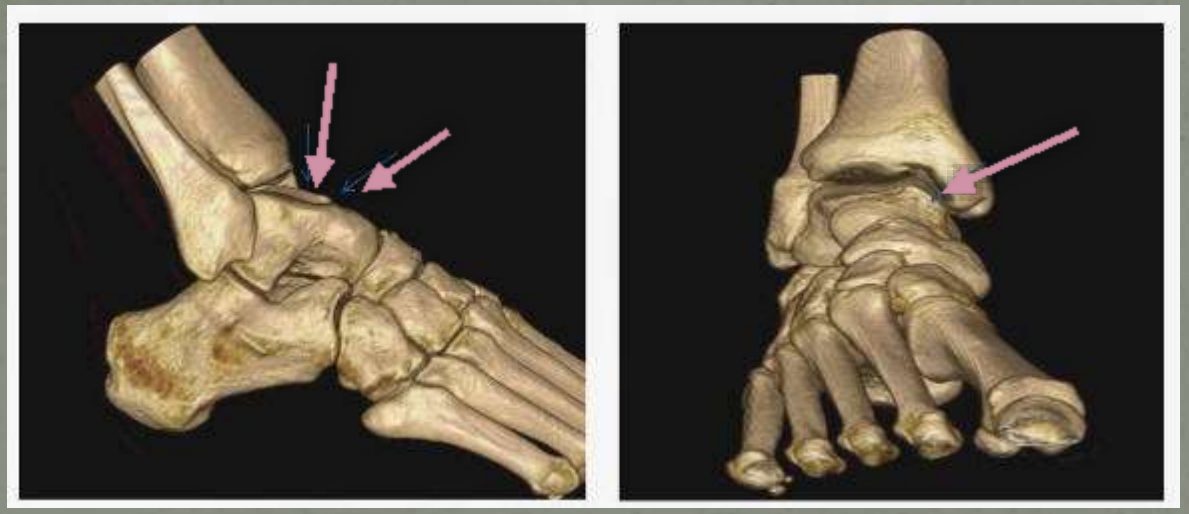
A. Immediately post op→ Mobilization and WB as tolerated

B. Then→ progressive physiotherapy for regain of ROM/ Strengthening/ proprioception

80-90% returns back to sports in 3-6 months

# Cam-type Impingement

## Amendola (2018)

# Similar condition to  Cam- type Hip Impingement

# Osteoplasty to re-shape the talus to fit in to the mortice


early
late


# THANK YOU