THE OSTEOCHONDRAL LESIONS OF TALUS IN THE SUBTALAR JOINT FOLLOWING THE INTRA-ARTICULAR CALCANEAL FRACTURES

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CONFLICT TO DISCLOSE

The Osteochondral Lesions of Talus in the Subtalar Joint following the Intra-articular Calcaneal Fractures

- Chayanin Angthong, M.D., Ph.D.
  - I have potential conflicts in this presentation due to: financial supports to attend the meetings from Phoenix Company (Thailand).
  - I have potential conflicts out of this presentation due to: financial supports to attend the meetings from Device Innovation Company (Thailand) and Smith & Nephew Company.

- Suebsagul Nangnual, M.D. has a potential conflict out of this presentation due to: a financial support to attend the meeting from Device Innovation Company (Thailand).
PURPOSE

- **Subtalar arthritis** is caused by many conditions, such as trauma, following calcaneal fracture, failure of the posterior tibial tendon (PTT), isolated instability of the subtalar joint and inflammatory arthritis.

- However, little is known about the osteochondral lesion of the posterior facet of talus (OLPT) following an intraarticular calcaneal fracture.

- This study is to report the prevalence and characteristics of these lesions.
METHODS (1)

- Retrospective study reviewed 34 patients who had the intraarticular calcaneal fractures.
- The CT scan was used to preoperatively evaluate
  1. Fracture type
  2. The presence of OLPT lesion
  3. Area of OLPT lesion
  4. Severity of OLPT lesion following the intraarticular calcaneal fracture.

These data were recorded in accordance with Akiyama mapping system, Sanders, and Ferkel classification.
Osteochondral lesion of the posterior facet of talus (OLPT) following an intraarticular calcaneal fracture

CT mapping of lesions at the posterior facet of talus

Akiyama K et al.
Osteoarthritis and Cartilage 2012*
Ferkel and Sgaglione developed a classification system based on CT:

- Stage I: Intact roof/cartilage with cystic lesion beneath
- Stage IIA: Cystic lesion with communication to the surface
- Stage IIB: Open surface lesion with overlying fragment
- Stage III: Nondisplaced fragment with lucency underneath
- Stage IV: Displaced fragment

RESULTS (1)

- Mean age: 46.7 (21-68) years
- Male 26 persons (76.5%), Female 8 persons (23.5%)
- The most common fracture type was Sanders IV (44.1%).
- The OLPT was found as 94.1% from a total of 34 patients.
RESULTS (2)

- The most common area of OLPT was **anterocentral part (26.5%)** of posterior facet of talar surface in accordance with Akiyama mapping system (figure)*.

- The most common severity of OLPT was **Ferkel grade I (82.4%), p = 0.005**.

- The OLPT was predominantly associated in **Sanders type IV fractures (46.9%; p = 0.155)**

*Akiyama K et al. Osteoarthritis and Cartilage 2012*
DISCUSSIONS (1): ROLE OF LESION ON CALCANEAL SIDE VS ARTHRITIC CHANGES

- Our previous research was performed to prospectively follow up the arthritic changes in 38 patients (mean follow-up 17.4 months).
- 21.1% showed the arthritic progression.
- No significant differences of osteochondral lesion on calcaneal side (18.2% of investigated patients) or quality of reduction among the groups yet.
DISCUSSIONS (2)

- This study demonstrated the **high prevalence of OLPT** following the intra-articular calcaneal fracture (talar side [% lesion] was higher than calcaneal side [% lesion]).

- Most lesions were **mild severity**; however, there was a tendency of the association of lesion occurrence with **higher grade of fracture severity**.

- The OLPT may play an important role in **the formation of post-traumatic osteoarthritis** of subtalar joint. ➔ needs further follow-up study.

- **Initial fracture energy** at traumatic event may play an important role in the formation of arthritis.
CONCLUSION

• The prevalence of OLPT following the intraarticular calcaneal fracture was very high.
• The preoperative evaluation of this lesion is recommended via CT.
• The lesion treatment may be encouraged to be performed during calcaneal fracture fixation for the reduction of post-traumatic osteoarthritis formation.
• Further long term study is necessary to validate the relationship between the OLPT and the development of post-traumatic subtalar arthritis.
REFERENCES

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