Surgical treatment for fractures of the medial process of calcaneal tuberosity

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My disclosure is in the Final AOFAS Mobile App.
I have no potential conflicts with this presentation.
Background and objective

The calcaneus is the most frequently fractured tarsal bone. However, extra-articular calcaneal fractures have not been as well studied, especially fractures involving the medial processes of calcaneal tuberosity have been relatively neglected. Although these injuries are often minor, they can result in heel pain and some complications, such as the abnormal gait if not treated appropriately.

The purpose of this study is to investigate the therapeutic outcomes value of open reduction and internal fixation for fractures of the medial process of calcaneal tuberosity.
Methods

- This is a retrospective study of 12 patients (13 feet) with the medial process of calcaneal tuberosity fractures.
- There were 10 males and 2 females with an average age of 30.5 years (range, 20-39 years).
- The surgical treatments included open reduction, and internal fixation by mini-plate or screw. In our cases, Screw fixations was were used in 8 fractures, and mini-plate fixations was were used in 5 fractures.
Methods

Simple fracture with screws fixation
Methods

Comminuted fractures with plate fixation
Results

- Followed-up: 10 cases (84.6%), average 14 months (8~24 months)
- Bone union time: average 11 weeks (8~13 weeks)
- AOFAS ankle-hindfoot score: average 90.4 (84~100)
Discussion

Anatomy of the medial process of the calcaneal tuberosity

- the medial process of calcaneal tuberosity is its bottom lowest point, and its volume is much bigger than the lateral one
Anatomy of the medial process of the calcaneal tuberosity

The complement and stability of the medial process of calcaneal tuberosity, where the abductor hallucis, plantar fascia, and flexor digitorum brevis (FDB) originate, is crucial for weight-bearing function of hindfoot.
The mechanism of fractures

the foot is in a eversion position and then the bottom of tuberosity hit the ground, while the foot is in eversion position. The medial process displace shifted to distant and dorsal sides upwards and forwards by the force of the shear violence and the traction of the plantar fascia and, abductor hallucis.
The importance of the medial process of the calcaneal tuberosity

- The medial process, as the most important component of foot arch, plays a significant role in the major weight-bearing of the hindfoot.
- Only appropriate surgical treatment reduction can keep patients from losing weight-bearing function of hindfoot, the abnormal gait and some discomfort or the sensation of tightness or pain in the base of the heel.

Treatment

- Conservative treatment for minor displacement fracture
- Displacement more than over 1.5cm should be turned to taken the open reduction and internal fixation
- Simple fracture with screws fixation
- Comminuted fractures with plate fixation

Conclusion

- The anatomical reduction and stable fixation are necessary for displaced fracture. Obviously, it is important to choose a suitable method depending on the type of fractures.

- However, this article study is a retrospective research with a small sample, which lacks of the samples and the comparison with the surgery and conservative treatment’s outcomes.