Treatment for the first metatarsal diaphysis comminuted fractures with mini-plate via medial approach

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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 first metatarsal as one part of the foot arch plays very important role in weight-bearing and stress conduction.

The traditional incision is dorsal incision, which has some disadvantages such as aesthetic impact, Soft tissue irritation.

The purpose of this study is to explore the effects and operative methods of the first metatarsal diaphysis comminuted fractures with mini-plate via medial approach.
Methods

- 15 patients of the first metatarsal shaft comminuted fractures were treated from January 2012 to January 2013.
- There were 11 males and 4 females with an average age of 38.6 years (ranged from 27 to 56 years).
- The surgical treatments included medial incision and open reduction internal fixation by mini-plate.
Methods

Pre-op X-ray
Methods

Incision
Methods

Post-op 6 months X-ray
Results

• 12 patients were followed up for 18 months in average (ranged from 12 to 24 months).
• the mean time of bone union was 11.5 weeks (ranged from 10 to 14 weeks).
• AOFAS the hallux metatarsophalangeal-interphalangeal scale, the mean score is 85.2 (ranged from 76 to 96).
Discussion

- The first metatarsal is the biggest metatarsal, which play very important role in weight-bearing.
- The first metatarsal diaphysis comminuted fractures should be treated with mini-plate to recover the position and length for the normal plantar pressure distribution.
Choose of incision

The traditional incision is dorsal incision, which has some disadvantages such as aesthetic impact, soft tissue irritation or nerve injury.

Medial incision can avoid nerve injury, soft tissue irritation and improve the cosmetic results.
Choose of implants

- Fracture treatment; K-wire, screw, mini-plate or external fixation
- Comminuted fracture: mini-plate fixation is more suitable and stable
Conclusion

• Anatomic reduction and stable internal fixation is important for the first metatarsal comminuted fracture, which is the key point for recovery of foot form and foot arch function. And the medial approach could achieve fully exposure and improve the cosmetic results.