Management of talar neck non union together with extensive avascular necrosis by excision of necrotic bone, iliac crest autograft and tibiotalocalcaneal arthrodesis using a locked nail through posterior approach

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Disclaimer

No conflicts of interest
Introduction

• Avascular necrosis (AVN) of the talus is a challenging entity to treat

• 75% of cases are posttraumatic

• Presence of non union of a talar neck or body non union with AVN makes the problem more complicated (type IV posttraumatic talar deformity according to Zwipp and Rammelt)
Aim of the study

- Review the results of treatment of cases of non-united fractures of the talar neck associated with extensive AVN by means of excision of all necrotic bone, autograft and tibiotalocalcaneal arthrodesis using an intramedullary locked nail through a posterior approach.
Patients and methods

• Retrospective case series of 12 patients with talar neck non union and extensive AVN

• Eight males (66.7%) and four females (33.3%) with a mean age of 27.75 years (range: 19-38 year)

• No diabetics, three smokers

• All patients were at least six months after the injury with infection excluded clinically and by lab investigations

• The mean follow up duration was 22.7 months (range: 12 to 60 months).
Patients and methods

• In all patients but one, the posterior approach was used

• Primary outcome was solid bony fusion at the level of the ankle and subtalar joints and between the anterior talus and the posterior bone block

• Secondary outcome was the functional improvement using the AOFAS score
Results

- Nine patients (75%) achieved solid bony fusion after a mean of 3.8 months (range: 3-4 months)

- This solid bony fusion was confirmed by CT when plain radiographs suggested bony fusion
Results

• Three patients (25%) failed to achieve union after 6 months

• The first patient underwent regrafting of the ankle through an anterior approach with fixation of the talar head to the posterior bone block by a staple. Three and half months later, full bony union was achieved but the patient developed mild cavus later on.

• This is the only case that needed additional fixation for the anterior part of the talus
Results

- In the second patient, the nail was broken just above the calcaneus.
- Regrafting and anterior plating was done and solid bony union was achieved three months later.
- The third patient underwent regrafting solid fusion was achieved three months later.
Results

• Other complications included mild external rotation in one patient, mild equines in one patient and superficial wound healing problems in one patient.

• Limb length was maintained in all patients.

• The mean AOFAS score was improved from 35.4 preoperatively (range: 14-57) to 76.75 in the last follow up visit (range: 65-86).
Conclusion

• Removal of avascular talus and autogenous graft with tibiotalocalcaneal fusion using a nail is an option in extensive AVN with non union.

• Anterior talus usually does not need additional fixation.
References