



FUNCTIONAL OUTCOME FOLLOWING INTRA-ARTICULAR CALCANEAL FRACTURES

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ABSTRACT The calcaneus is the most commonly fractured bone in the foot. Because of the potentially serious sequelae, controversy has persisted with regard to the best method for the treatment of calcaneal fractures. We evaluated the results of surgical treatment of calcaneal fractures.

We studied 32 patients of isolated intra articular calcaneal fractures from November 2012 to November 2014. The Functional Outcome after Calcaneal Fractures was assessed using the Visual Analogue Scale (VAS). Radiological assessment of fractures was performed by plain lateral radiographs and CT scans. Fractures were classified by Essex-lowpresti & sanders classification.

The mean follow up was 36 months with a mean outcome score of 68.4 (52.4% excellent, 18.3% good, 18.3% fair and 11% poor).

Open reduction may be employed to improve significant loss of normal bony alignment, but at medium-term, follow-up has no apparent benefit to functional outcomes or patient-based outcomes.

KEYWORDS : Calcaneum, Fracture, Intra-articular.

Introduction:

The calcaneus is the most commonly fractured bone in the foot, representing approximately 75% of fractures affecting the foot and 1% to 2% of all fractures^[1]. Recovery is often prolonged, and many patients have difficulty returning to their preinjury employment or level of activity. The question of treatment choice still remains open^[2-9]. Because of the potentially serious sequelae, controversy has persisted with regard to the best method for the treatment of calcaneal fractures, with some authors advocating open reduction and internal fixation and others recommending closed treatment.

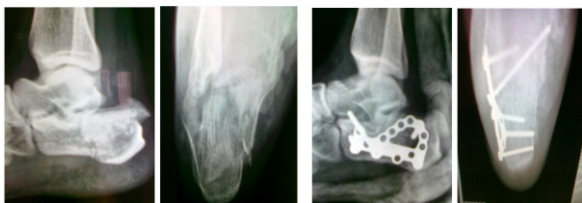
Conservative treatment of displaced intra-articular calcaneal fractures often leads to an abnormal function due to non-reduction of the articular surface(s), shortening and widening of the heel, dorsiflexion of the talus and lateral bulge causing impingement of the peroneal tendons. In this study we evaluated our results of operative treatment of calcaneal fractures.

Material & methods:

We retrospectively studied 32 patients of isolated intra articular calcaneal fractures from November 2012 to November 2014. Four fractures were compound. The Functional Outcome after Calcaneal Fractures were assessed using the Visual Analogue Scale (VAS). Radiological assessment of fractures was performed by plain lateral radiographs and CT scans. The treatment for each fracture was based on clinical and radiological assessment. Fractures were classified by Essex-lowpresti & sanders classification.

Patients with associated limb, pelvis & spine injuries were excluded from the study as they will affect the outcome of the calcaneal fracture. We had 20 joint depression type, 10 tongue type & 2 unclassified type fractures.

23 of the 32 fractures were treated by open reduction and internal fixation with calcaneal plates, and in 9 pts gissane spike was used. Postoperatively patients were immobilized in a below knee plaster for 2 wks.



RESULTS:

The mean age was 36yrs (22-62 yrs). 42 were male & 18 female. The mean follow up was 36 months.

In 32 displaced fractures treated by open reduction and internal fixation the mean outcome score was 72 (61% excellent, 18% good, 11% fair and 10% poor).

24 of the patients in the operative group displayed satisfactory restoration of Bohler's angle and subtalar joint congruity [Fig-1]. None of the operatively treated patients required surgery for malunion or nonunion.

Fig-1: Showing pre-operative X ray with fracture of the calcaneum and post operative X ray with Calcaneal plate and restoration of the Bohler's angle.

We had edge necrosis in 3 pts which healed with dry dressings. Wound dehiscence was seen in 3 pts of which in 2 pts it healed by dressings & 1 pt required fasciocutaneous flap. 4 patients displayed radiographic signs subtalar joint arthritis;

DISCUSSION:

The management of displaced intra-articular calcaneal fractures remains controversial and the question whether operative treatment improves outcome is debatable^[2,3,4,5]. Some of the reasons behind this continued controversy include problems with different classifications, indications for operative treatment and different assessments for clinical and radiological outcomes^[7,8]. Randle et al. in a meta-analysis stated that "there is a trend for surgically treated patients to have better outcomes; however, the strength of evidence for recommending operative treatment is weak"^[10]. In support of Randle et al. Bridgman et al. in his Cochrane review stated that "randomised trials of management of calcaneal fractures are few, small and generally of poor quality. Even where there is some evidence of benefit of operative compared with non-operative treatment, it remains unclear whether the possible advantages of surgery are worth its risks"^[11].

The ideal treatment for any displaced intraarticular fracture is anatomical reduction, stable fixation and early joint mobilisation. Complications resulting from intra-articular calcaneal fractures include malunion, post-traumatic sub-talar osteoarthritis, chronic foot pain, peroneal tendonitis and lateral impingement syndrome. Conservative treatment is reserved for fractures with less than 2mm displacement and those with articular congruency.

CONCLUSION:

Conservative treatment is a safe, effective and cost-efficient treatment modality. Open reduction may be employed to improve significant loss of normal bony alignment, but at medium-term, follow-up has no apparent benefit to functional outcomes or patient-based outcomes. Long term studies are required to evaluate the results accurately.

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