Combined Talar Body And Medial Malleolus Fracture: A Case Report

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Abstract

The combination of ipsilateral talar body and medial malleolus fracture is rare to occur. Radiographs and Computed tomograms are main diagnostic aids. With initial conservative management till swelling subsides, open reduction and adequate internal fixation followed by supervised aggressive physiotherapy gives good functional outcome as in this case.

Introduction

Fracture of talus are uncommon, and include spectrum of injuries that vary in severity (1). Fracture of body of talus occur much less commonly than fracture of the neck of talus, with only infrequent reports in the literature. These injuries are commonly associated with significant soft-tissue injuries and frequently result in osteoarthritis of ankle and subtalar joint. Similarly, fracture of medial malleolus also result in post-traumatic osteoarthritis and ankle instability (2). The particular combination of talar body and medial malleolus fracture that occurred in this case has rarely been documented previously.

Case Report(s)

A 48-year old male sustained an inversion injury to his left ankle after slipping from a motorbike in a roadside accident. After accident he was unable to walk and was taken to our emergency department. His physical examination revealed a grossly swollen left ankle and foot which was painful to any attempts at manipulation. There was no open wounds and the neurovascular status was completely intact.

Plain radiograph of the left ankle showed a displaced sagittal fracture of talar body and medial malleolus fracture(Figure 1). The main fracture line of the talus appeared to be oriented in the sagittal plane. CT scan of the hindfoot and ankle further defined the fracture planes(Figure 2).

After 7 days of bed rest, icepacks, and elevation the patient was taken to operating room where open reduction and internal fixation of both the fractures was done. The poseromedial incision was J-shaped incision at posterior border of the distal tibia, curving below the medial malleolus. The posterior neurovascular bundle was identified and protected by gentle retraction using a rubber sling. The medial malleolar fracture was identified and reflected distally, thus acting as medial malleolar osteotomy for exposure of ankle joint.

Upon arthrotomy, there was posteromedial quadrant fracture of the talar body with displacement of 3 mm. In addition, there was small area of comminution of the central talar dome. Multiple small bony fragments were found in the ankle joint, which was then thoroughly irrigated. The postero-medial quadrant fragment was then reduced and secured with 4 mm partially threaded cannulated screws. The use of screw with a low profile head was buried to prevent any further impingement. The stability of construct was assessed and found to be satisfactory, requiring no further fixation.

The medial malleolar fracture was reduced anatomically and secured with two lag screws(Figure 3). The ankle joint was stable after fixation and dynamic screening confirmed full ankle range of movements. The wound was closed in layers and the patient was mobilised nonweight-bearing postoperatively, with ankle immobilised in a below knee cast. After 6 weeks, the cast was removed and patient was referred for physiotherapy, with gradual initiation of weightbearing. At 3 months follow up, ankle dorsiflexion was 20 degrees and planterflexion was 25 degrees. There was 5-10 degrees eversion and inversion of the subtalar joint. X-ray of ankle at this stage was satisfactory with no evidence of non-union or avascular necrosis of the talar body.

Discussion

Fracture of the talus are rare constituting 3-6% of all foot fracture and talar body fracture compromise 13-23% of talus fractures(4). Thus, fractures of the talar body only represent less than 1% of all fractures(5). Up to 1% of ankle fractures have a simultaneous fracture of the talus.
Talar fractures are potentially devastating injuries due to their inherent risk of long term disability from ankle osteoarthritis and osteonecrosis. The rate of osteonecrosis of the talar body is related to the soft tissue disruption of the tibio-talar joint, energy of injury and vascular damage. With comminuted talar fractures, osteonecrosis rates of 75% have been reported.

Sneppen et al classified fractures of the talar body in the following manner, according to rate of occurrence:

1. Compression fractures.
2. Coronary shearing fractures.
3. Sagittal shearing fractures.
4. Fractures of the posterior tubercle.
5. Fracture of the lateral tubercle.
6. Crush fractures.

They defined fractures in the sagittal plane which occurred as a result of shearing force, as sagittal shearing fracture, but they did not report the rate of occurrence of this fracture independently. Thus we are reporting a case report of combination of fracture of talar body with medial malleolus, an uncommon presentation.

Conclusion

Talar fractures are uncommon and talar body fractures are rarer still. Complications abound in such injury and make it challenging to treat displaced intraarticular injuries. Open reduction and internal fixation in appropriately selected patient can be performed safely with hope of reducing complication/s. Adequate visualisation and preservation of a fragile blood supply necessitate medial malleolar osteotomy. Successful surgical reconstruction can produce a pain free mobile patient with good range of movement.

References

Illustrations

Illustration 1

Figure 1: A-P and lateral radiographs showing ipsilateral talar body and medial malleolus fracture.

FIGURE 1
Illustration 2

FIGURE 2: Computed tomograms showing talar body and medial malleolus fracture.
Illustration 3

FIGURE 3: Post-operative radiographs showing fracture fixation

FIGURE 3
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