ORIGINAL RESEARCH PAPER

Orthopaedics

TOTAL TALAR DISLOCATION WITH HAWKINS TYPE 4 FRACTURE NECK OF TALUS: A CASE REPORT

KEY WORDS:

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INTRODUCTION

The body weight is transferred to the foot by the talus which Is vulnerable to injuries because of absence of muscular attachments the shape of the talus and its strong ligaments supports hold it in the ankle mortise. Total talar dislocation (dislocation of tibia talar, subtalar, talonavicular joints) with or without accompanying fracture is extremely rare type of injury. Total talar dislocation treatment is subject to complications such as avascular necrosis, osteoarthritis and infection due to limited talar blood supply and frequency of open injury its blood supply is provided by dorsalis pedis artery peroneal arteries tarsal canal and sinus arteries and deltoid artery.

CASE REPORT

37-year-old male came to orthopaedic department of MGM medical college with a history of fall of heavy object on left ankle. Patient came to MGM casualty initial x-ray [1] was done which was suggestive of total talar dislocation with fracture neck of talus. Closed reduction trial was given but was not able to reduce. patient was taken in emergency OT after informed written consent. Total talar dislocation with fracture being a rare injury, dual approach with medial malleolar osteotomy was planned. Under tourniquet and under all aseptic precaution first medial approach was taken and in which deltoid ligament was torn at deltoid attachment.so plan of medial osteotomy was cancelled. Posterior body of talus was dislocated out of dome [2] and was compressing on posterior neurovascular structures with displacement of tibialis posterior and flexor hallucius longus tendon into the joint. Tendon were also torn. Body was reduced into dome of talus. Soft tissue structures were cleared. Anterolateral approach to talus was taken by which anterior part of talus was reduced. Anatomical reduction was achieved under C-arm and fixed with CC screw over guider wire. Both tendons were repaired with Ethibond no 2. deltoid ligament was repaired with 5mm suture anchor. Wound closed with Ethilon 2.0. below knee slab was given. Procedure was uneventful. Immediate post-operative x-ray [3] was done. Suture removal was done after 2 weeks.[4]

After 6 weeks slab was removed follow up x-ray [5] was done which was suggestive of uniting fracture with no evidence AVN or collapse. Active and passive mobilisation of ankle physiotherapy was started and partial weight bearing walk with crutches was started.at the end of 3 months [6] patient achieved near total range of motion of ankle and was able to walk without support

6 months post op x-ray [7] suggestive of solid union of fracture site with mild sclerosis of dome of talus but clinically patient is asymptomatic [8].

Image [1]

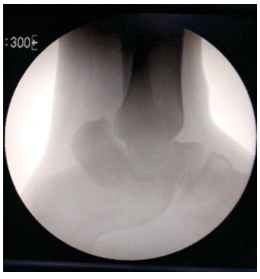

Image [2]

Image [3]

Image [4]

Image [5]

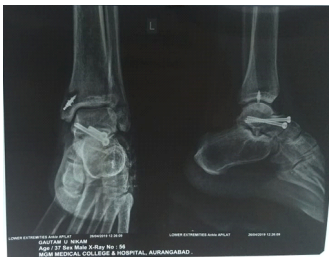

Image [6]

Image [7]

Image [8]

DISCUSSION

Peritalar dislocations have been grouped with subtalar dislocations in the past; however, because the injury involves both the talonavicular and subtalar joints, the term peritalar dislocation is preferable as being more anatomically correct [9]. Just as subtalar dislocations are classified according to the displacement of the calcaneus in relation to the talus, peritalar dislocations are classified according to displacement of the forefoot in relation to the talus. Dislocations about the talus are treated similarly with prompt reduction, closed if possible, and immobilization. Here a previously unreported pattern of total talar dislocation with Hawkins type 4 fracture neck of Talus in a middle-aged man with no medical comorbidities is treated with open reduction and fixation.

Peritalar dislocations involve the tibiotalar, talocalcaneal, and talocalcaneonavicular joints. In that way, they can be viewed as a more thorough dislocation of the talus than subtalar dislocations. Medial subtalar joint dislocations account for approximately 85% of subtalar dislocations and are usually the result of an inversional force, driving the talar head laterally and displacing the hindfoot medially [1,4,11]. Obstruction to closed reduction occurs in anywhere from10% to 30% of subtalar dislocations, classically due to entrapment of the extensor digitorum brevis, extensor retinaculum or obstructing fracture fragments [2,6,8]. In that case, open reduction is required.

Talus fractures account for less than 1% of all fractures, with 50% being of the talar neck. Fractures in which the inferior fracture line propagates in front of the lateral process are considered talar neck fractures. Fractures in which the inferior fracture line propagates behind the lateral process involve the posterior facet of the subtalar joint and are therefore considered talar body fractures [3]. Therefore, talar neck fractures are extra-articular, whereas talar body fractures violate the ankle joint, subtalar joint, or both. Fractures of the talar neck account for approximately 50% of all talus fractures and are classified according

to Hawkins. Hawkin's type IV fractures are described as fracture of the talar neck associated with dislocation of the body from the ankle and subtalar joints with additional dislocation or subluxation of the head of the talus from the talonavicular joint. Peritalar dislocations are classified based on the relation of the forefoot to the talar head with medial dislocation being the most common in closed injuries. Here a case of medial peritalar fracture dislocation of the talar body is presented. This case presents similarly to a Hawkin's IV only the fracture is through the posterior dome of the body instead of through the neck of the talus. Hawkin's classification of talar neck fractures gives insight into future risk of AVN where type IV fractures have a reported 70% to 100% risk. Risk of AVN in talar body fractures has similarly been reported at 88% [12]. Lindvall et al. reported similar complications and outcomes between talar body and talar neck fractures [10]. This case is unique in both the mechanism and the injury pattern itself. Typically, talar body fractures are high energy resulting from motor vehicle accidents or falls from height [9]. In this case, the patient's injury occurred after fall of heavy object on the foot from the height– an approximate height of 20-25 feet.

Although overall dislocations about the talus are rare, most of them are subtalar in nature involving the talocalcaneal and talonavicular joints. It is extremely rare to see total dislocations of the talus but when present are usually associated with a fracture in the hindfoot [5,7].

CONCLUSION

In our opinion, for open TTDs, the closed reduction should be performed first not to jeopardize the remaining vascular supply of the talus if possible. If closed reduction is unsuccessful, open reduction should be performed, as in this case. In terms of life-threatening conditions such as sepsis, talectomy with or without tibiocalcaneal fusion and amputation are the procedures to be undertaken as a last resort. Positive Hawkins sign is a good prognostic factor in terms of AVN, but absence of the sign does not indicate that AVN will likely occur.

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