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Case Report

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Medial swivel dislocation of talonavicular joint due to low energy trauma

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ABSTRACT

Medial swivel variant of talonavicular dislocation is rare. Usually, it is caused by high velocity trauma. They are relatively easier to reduce and are associated with fewer complications than pure dorsal dislocations and sub talar dislocations. We report a case of medial swivel dislocation of talonavicular caused by a low energy trauma, its management and one year follow up result.

Keywords: Talonavicular dislocation, Swivel variant, Subtalar dislocation

INTRODUCTION

Mid tarsal joint dislocations are very rare injuries of the foot and ankle. Most of these injuries are due to major trauma. Incidence is estimated at 3.6/100.000/year.[1] The rigid bony and ligamentous support surrounding the mid tarsal joints are responsible for fracture and dislocation rather than pure dislocation involving these joints.[2] Isolated dislocations of talonavicular joint is caused by severe abduction or adduction injury to the fore foot. Main and Jowett described these injuries in detail and proposed a classification system for talonavicular joint dislocation based on the mechanism of injury.[3] We report a case of medial swivel dislocation of talonavicular joint caused by a low energy trauma, its management and one year follow up result.

CASE REPORT

A 72-year-old female patient presented to the emergency department with history of twisting injury to left foot and ankle following slip and fall at home. Patient complained of pain, oedema and inability to bear weight over left foot. Clinical examination revealed diffuse oedema over left foot and an abrasion over dorsal aspect of mid foot (Figure 1). Neuro vascular status of the foot was intact. She denies any significant past medical history such as diabetes mellitus, inflammatory arthropathy or regular intake of any medications. Anteroposterior and oblique radiograph revealed isolated medial dislocation of talonavicular joint with a compression defect on antero medial aspect of head of talus. Rest of the bones and joints of foot and ankle were normal (Figure 2). There was no radiological evidence of Charcots arthropathy or inflammatory arthritis.

Figure 1: Clinical picture of foot of oedema and medial fullness.

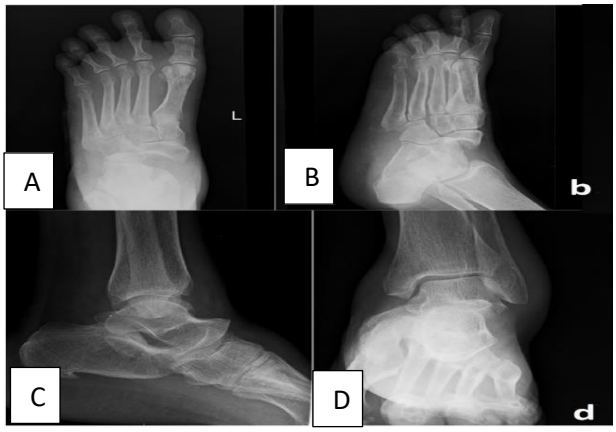

Figure 2: Plain radiograph anteroposterior (A) and oblique (B) view of foot and anteroposterior (C) and lateral (D) view of ankle of medial talonavicular dislocation joint with a compression defect on antero-medial aspect of head of talus. Subtalar and calcaneocuboid joint is normal.

Since there was no clinical evidence of neuro vascular deficit or compartment syndrome, a CT scan was obtained on the same day itself before attempting reduction which revealed a medial talonavicular dislocation. Subtalar and calcaneocuboid joint was normal (Figure 3-5).

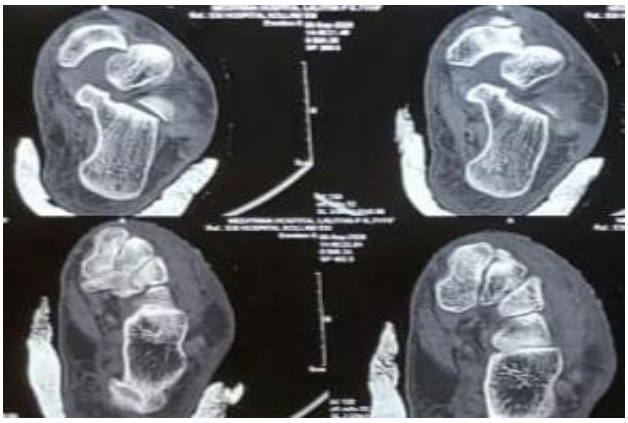

Figure 3: Axial CT cuts of medal talonavicular dislocation.

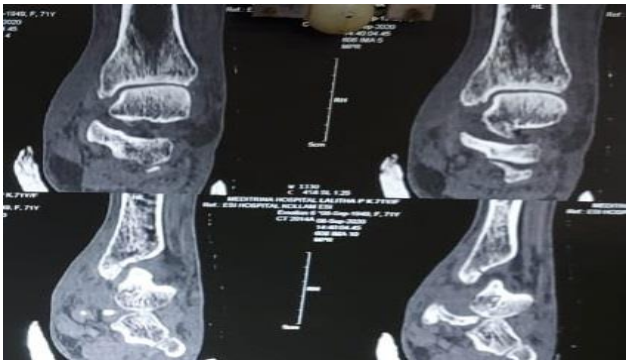

Figure 4: Coronal CT cuts of talonavicular dislocation.

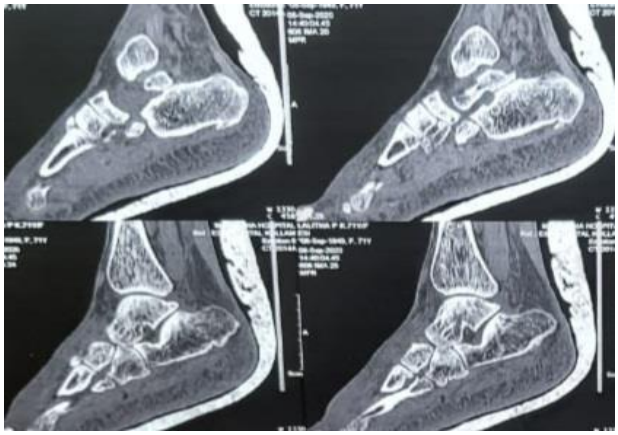

Figure 5: Sagittal CT cuts of intact subtalar joint and dislocated talonavicular joint.

Closed reduction was done under spinal anaesthesia. Reduction was achieved by traction on the forefoot, with the foot held pronated and flexed, and manual pressure on the medially subluxated naviculum. Successful reduction was confirmed under image intensifier. During stress examinations, the reduction remained unstable and hence percutaneous K-wire fixation of the talonavicular joint was done (Figure 6). The patient was placed into a non-weight-bearing cast for 6 weeks. K-wires were removed at 6 weeks and gradual physiotherapy of ankle, subtalar as well as mid-tarsal joints were started. Gradual weight bearing was started at 6 weeks. The patient was followed up at 6 months and one year. At one year follow up patient had full range of movement of ankle, subtalar and mid tarsal joints. There was no radiological evidence of instability or arthritis.

Figure 6: Post-operative radiograph.

DISCUSSION

Mid tarsal joint dislocations are very rare injuries of the foot and ankle. Most of these injuries are due to major trauma. Incidence is estimated at 3.6/100.000/year.[1] Main and Jowett described a classification system based on the direction of deforming force required to cause mid tarsal injuries. It includes: medial forces, longitudinal impact injuries, lateral forces, plantar displacement, crush injuries. Medial and lateral displacements are further

classified into Fracture-sprains, Fracture-subluxations and Swivel dislocations. The incidence of swivel dislocation in their series was 12%.[3] Medial swivel dislocations are more common than lateral swivel dislocations. The patient in our case report sustained a medial swivel dislocation. In swivel dislocations the talonavicular joint dislocates, medially or laterally, and the calcaneum swivels under the talus with the interosseous talocalcaneal ligaments the axis with an intact calcaneocuboid joint. Early diagnosis and prompt reduction are the main stay for good long-term outcome. It minimises the incidence of difficult reduction, compartment syndrome, avascular necrosis of talus and post traumatic arthritis.[4] Different treatment methods have been advocated; including closed reduction/ open reduction with or without internal or external fixation. However, Main and Jowett recommended closed reduction and immobilization of medial swivel dislocations, with or without Kirschner wire fixation.[3] Richter et al advocates that all dislocations at the TNJ be treated with open reduction and internal fixation due to the potential for vascular compromise.[5] Williams et al described closed reduction without the need for percutaneous fixation in a single case report with a low energy mechanism for a medial swivel pattern.[6] In our case dislocation was unstable on stress views hence it was stabilised with percutaneous K-wires. Indications for open reduction includes failure of closed reduction, late presentation, interposing structures (i.e., flexor digitorum longus tendons, extensor digitorum brevis muscle, dorsal pedis artery and fibular nerve) or concurrent fractures.[7] Generally, swivel type dislocations are relatively easier to reduce and are associated with fewer complications than pure dorsal dislocations and sub talar dislocations due to a lesser degree of ligamentous structure involvement and preservation of plantar ligament integrity.[8,9] Early complications include skin necrosis, compartment syndrome, deep infection and neurovascular compromise. The frequency of these complications varies from 0 to 10%.[10] Early diagnosis and prompt intervention is crucial to avoid these complications. Late complications include avascular necrosis of the tarsal bones, osteoporosis, and posttraumatic arthritis.

CONCLUSION

Swivel type of Talonavicular dislocation is a rare injury. Most of them are caused by high velocity trauma in contrast to our case which is caused by low energy trauma. These types of injuries are easier to reduce and are associated with fewer complication compared to subtalar dislocations. Early diagnosis and prompt management is pertinent to achieve good functional outcome.

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