

Case report

Three years follow up of open medial sub-talar dislocation of ankle: a case report

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ABSTRACT

Open medial sub-talar dislocation is a rare lesion in traumatology. Even after early treatment, these injuries progress to sub-talar arthrosis. Here we describe a case of 24 years male with open type 3B medial sub-talar dislocation with calcaneum sustentaculum tali fracture following road traffic accident. He underwent emergency wound debridement and internal fixation with K-wires and VAC application. He was on regular monthly follow-up for 6 months and then 6 monthly follow-ups till date. K-wires were removed 8 weeks after surgery and gradual range of movement was started. Partial weight bearing was started at 12 weeks. He was pain free and returned to work after 8 months. At 3 years follow up patient is able to walk without pain, normal painless ROM at ankle. To the best of our knowledge, long term follow-up of patient with these lesions is not reported. Here we present a case with 3 years follow-up showing good results in patient with open sub-talar dislocation after early management with internal fixation with K-wires and VAC dressing.

Keywords: Ankle and foot, Sub-talar dislocation, Open ankle dislocation

INTRODUCTION

Sub-talar dislocation is defined as dislocation of talar distal articulation at talonavicular and talocalcaneal joints. These injuries are rare ranging 1-2% of traumatic foot injuries.¹⁻³ Broca classified sub-talar dislocation into 3 types: (1) medial, (2) lateral, and (3) posterior dislocation, classified on basis of position of foot with respect of talus. The medial dislocation is most common type of dislocation, also called 'acquired clubfoot', with an incidence of 65-85% of all dislocation.¹ These injuries occur as a result of fall from height, road traffic accident, sports activities, and injuries while running/twisting. Most of the injuries are closed injuries approximately 75% and 25% account for open sub-talar dislocation.^{1,3} Open dislocation usually occurs due to high energy trauma. Talus is most commonly fractured bone followed by ankle, calcaneum, and navicular bone in high energy trauma/twisting injury.

CASE REPORT

A 24-year-old male presented to the emergency room with a history of road traffic accident and sustained trauma to his left ankle (Figure 1). He gave a history of road traffic accident while riding a two-wheeler wherein his left foot collided with divider and had a subsequent fall thereafter. The patient complained of severe pain and was unable to bear weight with open wound with exposed bone at left foot. On examination, the left foot was in the inverted and internally rotated position. There was obvious deformity of the ankle, with talus bone protruding on the lateral aspect through a 12×24 cm laceration with exposed tendons. Dorsalis pedis was palpable, and capillary refill was delayed and SpO₂ were normal. No neurovascular deficit was noted. Radiographs of left ankle were taken and the patient was diagnosed to have open type 3B medial sub-talar dislocation with calcaneum sustentaculum tali

fracture. Under spinal anesthesia, thorough wound wash was given. Partial tear of lateral collateral ligament was seen, and no tendon or vascular injury was noted. Wound debridement and reduction was performed with knee flexed with longitudinal traction, inversion, and firm digital pressure over the protruding talus, and a palpable clunk was heard.

Post-reduction, ankle and sub-talar joints were checked for stability and were found to be unstable, following which internal fixation with K-wire was done. Primary skin suturing was performed, and the patient was immobilized in short leg cast along with vac dressing for wound. Post-reduction radiographs and CT scan were taken. Anatomical reduction was achieved, and CT scan showed associated fracture of the calcaneum sustentaculum tali with chip fracture of talus. He was put on non-weight-bearing short leg cast and K-wires were removed at 8 weeks followed by initiating gradual range of movement. Partial weight bearing was started at 12 weeks.

Sutures were removed on post-operative day 14, and wound condition was healthy. Plain radiographs at 3 years follow-up showed no signs of avascular necrosis (AVN) of the talus but arthritic changes in the sub-talar joint. At three-year follow-up, the patient was able to perform active ankle motion without pain. The patient was able to perform routine activities without pain with good functional recovery.



Figure 1: Patient presented to casualty with injury to left foot.



Figure 2: Pre-op X-ray showing medial sub-talar dislocation.



Figure 3: Intra-op wound after thorough wash.



Figure 4: Post-operative X-ray after k-wire fixation.



Figure 5: 3 years follow-up X-ray of left ankle.

DISCUSSION

Peritalar injuries are rare and are rarely missed because of obvious deformity. Low overall incidence, different manifestations, subtle radiographic findings, and distracting injuries can lead to misdiagnosis and late presentation.^{1,3} Subtalar dislocation is noted more often in road traffic accidents than in sports injury because it involves greater velocity of force and higher energy transfer.^{1,3,4} In our case there was obvious laceration with exposed underlying soft tissue indicating high energy trauma.

Medial subtalar dislocation occurs when a forceful inversion injury to the forefoot causes the talus to pivot on the sustentaculum tali, stressing the subtalar and talonavicular joints and causing ligament tears in a specific chronological manner. The sustentaculum tali fracture is a

very rare injury that reflects the violence of the trauma. An irreducible subtalar dislocation is exceptionally due to the incarceration of sustentaculum tali.² CT is of great interest for good fracture analysis and management planning.^{1,4} In our case, a CT scan was performed, which showed associated sustentaculum tali fracture, which was treated conservatively.

Emergency management in the form of urgent reduction should be done under anesthesia to reduce the occurrence of skin, and nerve or blood vessel complications. If there is neglected subtalar dislocation, the gold standard is arthrodesis of the tibia-talus-calcaneum as it ensures satisfactory stability.⁵ In our case, since it was open reduction, manual technique was successful.

The optimal time of immobilization of the ankle and foot remains yet to be decided. In the above case, K-wires were removed 8 weeks after surgery and gradual range of movement was started. Partial weight bearing was started at 12 weeks. He was pain free and returned to work after 8 months. At 3 years follow up patient is able to walk without pain, normal painless ROM at ankle and carrying out all activities of daily living including his vocation without pain.

CONCLUSION

STJD is an extremely rare injury and often poses a treatment dilemma. Early debridement and open reduction of the dislocation can produce good functional outcomes in an open medial subtalar dislocation with sustentaculum tali fracture at 3 years follow-up.

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