



CASE REPORT ON NEGLACTED SUBTALAR JOINT DISLOCATION.

Dr Nishant Tangadi

Dr Shahish Surame

ABSTRACT

Introduction: Subtalar dislocation is an uncommon lesion in traumatology chiefly when it concerns the lateral form. Surgical treatment is required when a fracture is related or the dislocation is irreducible. Even well treated, these dislocations progress unavoidably to subtalar arthrosis, which stays well tolerated. **Case Report:** A 46-year-old male with irreducible lateral subtalar dislocation caused sustentaculum tali incarceration confirmed on computed tomography (CT). The patient underwent emergent open reduction and internal fixation; the sustentaculum tali was reduced and fixed with a compression screw. At 3 years, "American Orthopaedic Foot and Ankle Society Ankle-hindfoot" score was 86, and the functional result was considered excellent despite a Grade I subtalar osteoarthritis on the ankle X-ray. **Conclusion:** An irreducible subtalar dislocation is exceptionally due to the incarceration of sustentaculum tali. CT is of great interest for good fracture analysis and management planning. Anatomical reduction of the articular surfaces, stable osteosynthesis, sufficient immobilization, and a well-conducted rehabilitation are the only guarantors of a good functional outcome.

KEYWORDS : Ankle, dislocation, fracture, subtalar joint, surgical traumatology.

INTRODUCTION

Subtalar joint is a complex joint in hindfoot formed by the talus superiorly and the calcaneus and navicular inferiorly. Subtalar dislocations are high-mechanism injuries, which are caused by simultaneous dislocation of both talonavicular and talocalcaneal joints, without major fracture of the talus. They are usually classified as medial (most common), lateral, anterior and posterior dislocations, based on the position of foot in relation to talus and the indirect forces that have been applied to cause this significant injury. They are usually diagnosed by X rays, but computed tomography and magnetic resonance imaging can be used to identify associated intra-articular fractures and peri-talar soft tissue injuries respectively.



Classification of subtalar dislocation and associated mechanism of injury.

Direction of dislocation.	Percentage of all subtalar dislocations (%)	Position of foot at time of injury	Mechanism of injury
Medial (Calcaneus is medial to talus)	65 – 85	Plantarflexion	"Acquired club foot", forceful inversion of forefoot, foot locked in supination
Lateral (Calcaneus is lateral to talus)	15 - 35	Plantarflexion	"Acquired flat foot", forceful eversion of forefoot, foot locked in pronation
Posterior	0.8 – 2.5	Hyper-plantarflexion	Shortened foot", force applied to dorsum of foot leading to hyperplantarflexion

Anterior	1	Hyper-dorsiflexion	"Elongated foot", forceful foot supination and ankle dorsiflexion or direct rear impact to posterior heel
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The subtalar joint is a complex joint in the hindfoot with many normal anatomic variations. Considered a synovial joint structurally and a plane joint functionally, it is formed by the talus superiorly and the calcaneus and navicular inferiorly, it is comprised of three articulating surfaces, the anterior facet is a small articulation between the talus head and the anterior calcaneus facet, the middle facet between medial facet of talus and the middle facet of the calcaneus and a large posterior facet between the posterior facet of talus and the posterior facet of the calcaneus. Anatomically it is considered as two separate chambers; an anterior chamber also known as the talocalcaneal navicular joint is formed by the often congruent anterior and middle facets, the floor is formed by the plantar calcaneo-navicular ligament (spring ligament) which has a cartilaginous articular surface. This ligament complex plays a key role in stabilising the talus head, insufficiency can lead to acquired flat foot deformity. The posterior chamber also referred to as the talocalcaneal joint or the anatomical subtalar joint formed by the posterior facet. The differentiation of the subtalar joint into two distinct joints is only rarely preferred by anatomists. From a functional point of view the two joints have a common single axis of motion and neither joint has movement independent of the other, therefore many orthopaedic surgeons consider the talocalcaneonavicular joint and the talocalcaneal joint to be one functional unit.

Case Presentation

A 34 years old male presented to orthopaedic OPD with pain in his left foot and ankle, which worsen on weight bearing, that was progressively worsen for past 1 month. Patient Was Walking With A Stick.

Patient was involved in RTA (2 wheeler went over the patient foot). He stated that he sustained a fracture of left ankle but was unsure of the full extent of injury hence managed it at home with ointment and crepe bandage. Later when the symptoms did not subside patient present to a local doctor with complain of pain and difficulty in bearing weight. Patient was managed conservatively on below knee slab for 3 weeks with oral analgesics. Overtime, he noticed the progressive deformity of the foot and ankle. His mobility worsen and became stick bound.

On examination , the range of motion of the subtalar joint was compared to the normal contralateral right foot . Eversion was diminished , there was some degree of inversion about 15 ° , planterflexion was 30°s and dorsiflexion was 45° . There was no skin necrosis , ulceration soft tissue edema or joint effusion. Distal peripheral pulses were palpable and perfusion was normal. Relevant investigations such as xrays and 3D CT was done.



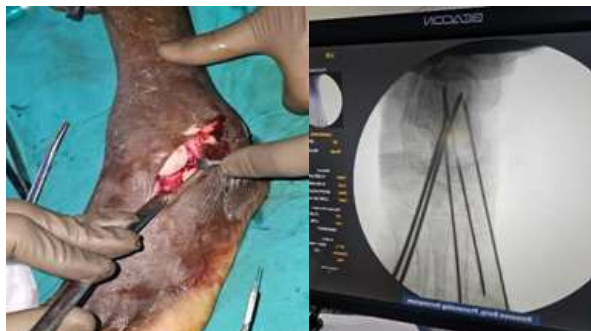
OPERATIVE MANAGEMENT

Patient was moderately built with no Co-morbidities and graded 1 under ASA classification. After discussing the risk and benefits of surgical intervention , an informed consent was obtained to proceed with the procedure.

A tibio -talo-calcaneal arthrodesis with soft tissur release combined with spinal epidural anesthesia was successfully performed. Following the standard operation preparation and application of exsanguinous tourniquet, through an anterior approach the torn retinaculum and capsule that were interposed between the subtalar and ankle joint were resected. The cartilage of the tibio-talar joint was denued with curette and a sharp chisel . Reduction of the joint was accompanied by flexing the knee of the affected leg to relax gastronemius. Gental traction of the foot and heel with simuntaneous countertraction of the lower leg was performed . once disengaged the foot was manipulated into a neutral position. Once reduced we proceeded with pinning via the plantar approach.

Total five 4.5 mm Kwires were inserted .Two k-wire were inserted from the planter aspect through the calcanium into the body of talus. Other three 4.5 mm k wires were inserted from the dorsal aspect of foot from navicular to medial cuniform to head of talus with foot in 90 ° Dorsiflexion. Patient was given below knee slab postoperatively .

Post operatively patient was started on IV antibiotics and Iv analgesics for 5 days. Dressing was done on every 3rd day. Patient was started on Knee ROM, Calf pumps and Toe movements. Patient was discharged and adviced to continue slab for 6 weeks.



POST OPERATIVE XRAYS

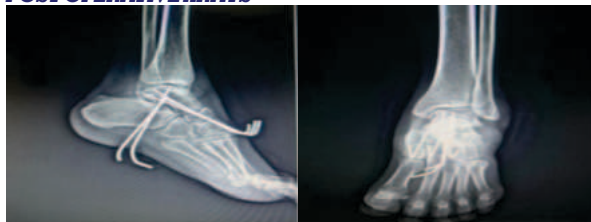


Fig: Ankle Lateral

Fig: Ankle AP

POST OPERATIVE DRESSING DAY 2



Complications And Outcomes

It was traditionally thought that lateral subtalar dislocations have poor outcomes and medial dislocations have excellent outcomes ; however, this view has been challenged. The final outcome depends on several factors, including the severity of the trauma, articular cartilage damage, need for open reduction, prolonged immobilization, and associated foot injuries. Isolated, low-energy dislocations that are stable after closed reduction and are mobilized early can be expected to have an excellent prognosis. However, results can be expected to worsen as the severity of trauma increases. Osteonecrosis of the talus is seen in zero to 10% of closed dislocations and in up to 50% of open dislocations. Posttraumatic arthritis is perhaps the most common complication of subtalar dislocations and invariably involves the STJ .