Abstract: A Fracture of the posterior process of talus is rare. If associated with subtalar and talonavicular subluxation, it is very rare. This case was treated by early open reduction and internal fixation through a posteromedial approach. The aim of this article is to highlight the importance of early internal fixation of this uncommon type of fracture. This rare fracture was previously reported in the year 2000 in Chennai.

Keyword: Open reduction, posterior process, talus.

The aim of the article was to highlight the importance of posterior process of talus fracture which was commonly misdiagnosed as ankle sprain clinically and os trigonum radiologically. The posterior process of talus is comprised of medial and lateral tubercles which are separated by a groove for the flexor hallucis longus tendon. The lateral tubercle is more posterior and serves as an attachment for posterior talofibular ligament. The medial tubercle gives attachment to the posterior third of the deltoid ligament.

Fracture of the posterior process is easily missed if good quality radiographs are not obtained, or not carefully studied. The inferior surface of the posterior process of the talus forms about 25% of the articular facet of the subtalar joint. If the fracture is not anatomically reduced, it will lead to malunion and early degenerative arthritis of both the ankle and subtalar joints.

CASE REPORT: A 40 year old female sustained a fall from the steps and she injured her left ankle. She was not able to recall the position of her ankle at the time of injury. She was presented to the hospital immediately after injury.
On Examination there was swelling around the left ankle and foot and tenderness was present. Deformity was also present. Attempted movements of the ankle and foot were painful and restricted. There was no distal neurovascular deficit.

Radiological examination of the ankle and foot revealed fracture of the posterior process of the talus and talonavicular and subtalar subluxation. Axial CT scan picture of the ankle revealed the two tubercles of the posterior process of talus. Surgery was performed the following day under spinal anaesthesia, with the patient in supine position. Closed reduction attempted, but unstable.

**CRITERIA FOR FIXATION:**

Undisplaced - <1cm size or < 2mm displacement – short leg cast § Displaced - >1cm size or >2mm displacement - ORIF with mini fragment screws § Either by Posteromedial or Posterolateral incision on either side of TA.

Anteromedial incision over the midfoot, talonavicular joint is exposed. Torn capsule & small fracture fragments of the navicular bone are held within the joint. They are removed & reduction acheived & held with K wire. Subtalar subluxation was then reduced & held with another Calcaneotalar K wire. Reduction was good & confirmed with "C" - arm.

Through posteromedial Incision over the posterior process was exposed. Between FDL & neurovascular bundle the fracture was exposed. There were 2 mini fragments. The medial tubercle was very small & was excised. The lateral tubercle was large & it was fixed with mini fragment screw (2mm) after palpating the FHL tendon by moving the great toe, in full dorsiflexion.

An Intraoperative C – arm picture was taken to confirm the reduction of the fracture and position of the screw.

Post operatively, a short leg cast was applied for 4 weeks in maximum dorsiflexion position and then active mobilization of the ankle and was started. Radiographs taken 8 weeks after surgery showed progressive fracture healing. The 2 K wires from the foot were removed. The patient was allowed to bear weight gradually as tolerated.

At 3 months follow up the patient was able to carry out all her normal daily activities. On examination there was minimal restriction of ankle joint and subtalar joint motion. The available range of motion was pain free. Radiographs revealed that the fracture had united without any evidence of avascular necrosis of the talus.

**DISCUSSION:**

Fracture of the tubercles of the talus is a rare injury. It was first described by Cedell in 1974. He described 4 patients. The fracture was caused by indirect trauma and diagnosis was made late. Three of the four patients underwent excision. They all returned to sporting activities.

In 1995 Kanbe described 2 case reports both fractures are displaced and treated with open reduction and internal fixation. In 1996 and 2003 Kim described 5 patients with fracture of the medial tubercle. Two were treated with POP and the other 3 treated with excision.

In 2000 Cohen described a patient with fracture of posteromedial tubercle of the talus. It was treated successfully with internal fixation.

In our case the mechanism of injury was probably forced plantar flexion as the fracture was easily reduced with dorsiflexion of the ankle.

**CONCLUSION:**

A high index of suspicion for hindfoot injury is essential and early operative treatment for a displaced fracture of the posterior process of the talus is the best choice for successful outcome.
REFERENCES:


Lateral view showing talonavicular subluxation & posterior process of talus fracture

Axial CT showing the 2 tubercles AP View showing Subtalar subluxation

Talus &Calcaneus cadaveric specimen Posterior process of talus with 2 tubercles