AN UNUSUAL CASE OF FRACTURE DISLOCATION NECK OF TALUS

Surg Cdr M BALAKRISHNAN ^{*}, Col VP PATHANIA ⁺,
Flt Lt V KULSHRESTHA [#], Lt Col L SATIJA ^{**}

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Introduction

Fracture and fracture dislocation of the neck of the talus are uncommon. When they occur they are of major importance because of the frequency of complications and long term disability. Anderson in 1919, in his capacity as flight surgeon for the Royal Flying Corps of the Allied forces in the World War I, collected 18 cases of fracture dislocation of the talus and described them as 'Aviators Astragalus'. [1] The anatomy of the fracture dislocation is one of the most important factor in deciding the surgical approach, fixation method, frequency of post operative complications and long term results of treatment.

Because of the rarity of the lesion, few individual surgeons develop enough expertise in an orthopaedic life time to feel totally confident of handling these injuries. And it also seems that we need to further study and evaluate these fractures to arrive to a comprehensive account of their presentation, management and likely long term prognosis [2].

Case Report

A 21-year-old male reported to our hospital 24 hours after meeting with a road traffic accident with complaints of diffuse painful swelling of his left ankle and inability to bear weight. On examination there was diffuse swelling over the left foot. There was no breach of skin. Ankle was extremely tender, there was undue bony prominence below the lateral malleolus and the fore-foot was adducted.

Plain radiography revealed a fracture dislocation of the talus with body of talus well in situ and the head grossly displaced out of the talocalcaneonavicular joint and lying subcutaneous over the lateral aspect of the ankle. (Fig 1 & 2).

To begin with the patient's left lower limb was immobilised in a posterior slab and kept elevated with the help of a Bohler-Braun splint. As soon as the swelling decreased patient was taken up for open reduction and internal fixation. Medial approach was taken to expose the fracture site. It was found that the head of the talus had extruded out of the talocalcaneonavicular joint and was lying on the lateral aspect of the ankle. Then through a lateral approach the head of the talus was brought back into anatomical alignment.

Adequate care was taken not to damage the soft tissue around the head and neck of the talus while reduction. After reduction K-wires were introduced through the anterolateral surface of the neck of the talus passing through the fracture line into the body of the talus. Position of the K-wires was confirmed by a portable radiograph. Using the K-wire as a guide the fracture was fixed with an approximate sized cancellous screw with 16 mm threaded portion. A rigid interfragmentary compression fixation in perfect anatomical alignment at the fracture site was achieved which was confirmed by the radiograph (Fig 3 & 4).

Post operative period was uneventful. After fourteen days of

Figs. 1 & 2 : Shows anatomical pattern of fracture - dislocation as seen by radiograph (anteroposterior and lateral view)

^{*} Associate Professor, ⁺ Professor & Head, [#] Postgraduate Student, Department of Orthopaedics, Armed Forces Medical College, Pune-40.

^{**} Classified Specialist Radiology, Command Hospital (SC), Pune 40.

Figs 3 & 4 : Post operative radiographs showing accurate anatomical alignment and rigid fixation achieved using cancellous screw (antero-posterior and lateral view)

surgery the sutures were removed and operative wound was found healthy and healing well. The patient was reviewed after three months. He had achieved painless almost full range of left ankle movements with minimal stiffness. Plain radiograph showed good signs of bony union with implant in situ. Clinically and radiographically there was no evidence of avascular necrosis.

Discussion

Treatment and prognosis of fracture neck of talus is very much dependent on whether any subluxation or dislocation has occurred of the body of the talus. Hawkins in 1970, published classification of talar neck fractures, which is most widely accepted till today [3]. It provides guidelines for treatment, is prognostic for development of avascular necrosis and likelihood for successful outcome. According to him Group I fractures were nondisplaced, vertical fractures of neck. Avascular necrosis did not occur in these fractures and all of them united well. Group II fractures were associated with subluxation or dislocation of the subtalar joint. The chances of avascular necrosis was 42% but all fractures united well. Group III fractures were associated with both ankle and subtalar joint subluxation or dislocation. Chances of avascular necrosis was 91% and nonunion 11%. [4].

Canale and Kelly described one more anatomical pattern of fracture dislocation of the neck of the talus in which along with extrusion of the body of the talus the head of the talus was also subluxated or dislocated

out of talocalcaneonavicular joint. They called this Type IV fracture dislocation of the neck of talus. [5].

Here we have a case in which the body of the talus is well seated in the ankle and the subtalar joint but the head is extruded out of the talocalcaneonavicular joint and is lying subcutaneously over the lateral aspect of the ankle. (Fig 4) This pattern of fracture dislocation fails to fall exactly into any of the above described types. This unusual case of the fracture dislocation was accurately reduced and rigidly fixed. One important thing to watch was the likelihood of avascular necrosis.

Presumably subluxation or dislocation at subtalar joint damages the main blood supply of the talus, the subtalar vascular sling, thus increasing the chances of avascular necrosis. Associated with this anterior or laterally dislocated foot disrupts the medial blood supply coming through the Deltoid ligament. In this case the body of the talus remained in situ and along with this the forefoot was dislocated medially thus decreasing the chances of damage to the subtalar vascular sling and the medial blood supply reaching through the Deltoid ligament.

Hence in this case of fracture dislocation of the neck of talus managed with perfect anatomical reduction, rigid internal fixation and less likelihood of vascular damage, we saw very good result with good

bony union, no evidence of avascular necrosis and satisfactory functional recovery. This case highlights the unusual occurrence of the fracture dislocation of the neck of talus, which doesn't fall into any of the previously described types and needs to be further evaluated.

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