

Frist Case Report Of Bosworth Fracture Among Albaha Population

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Abstract

Background: "The Bosworth injury" is referred to as an irreducible ankle-fracture dislocation in which the proximal fibular shaft fragment locks behind the posterior tibial tubercle. This fracture is distinctive in that it often cannot be reduced by closed method. To acquire a good final functioning outcome, making a lot of tries might be detrimental and increase the likelihood of future complications.

Case presentation: A 22-year-old man who had¹ injured his right ankle while playing football was evaluated in the emergency room. Patient was in good health but had limited range of motion and pain in the left ankle. X-ray imaging of the ankle revealed an ankle fracture with fibula posterior to tibia entrapment and burst deltoid ligament. A displaced ankle joint, a distal fibular spiral fracture, and significant soft tissue edema were all seen on the CT image. Patient was treated by open reduction and internal fixation with 9-hole plate size 3.5 was placed and fixed with screws 4 above level of fracture and 3 down with one syndesmosis screw to bone

Conclusion: Orthopedic surgeons have difficulties in both diagnosis and treatment related to the Bosworth fracture. When an ankle fracture or dislocation is irreducible, a strong index of suspicion is necessary.

Keyword: Bosworth Fracture ,open reduction-internal fixation ,surgery ,trauma.

Introduction

Bosworth first documented many examples of fracture-dislocation of the ankle in 1947. This condition is defined by entrapment of the proximal segment of the fibula behind the posterior tubercle of the distal tibia. Supination and external rotation injury patterns commonly cause this condition. There may be a medial or lateral malleolus fracture. Among patients with fractures of the ankle, the frequency of Bosworth fracture-dislocations is 1.62%. Men account for the majority of Bosworth fracture cases, with a mean age of 38.8 years. ^(1,2,5) Even after a thorough radiographic examination, the diagnosis of a Bosworth fracture is frequently missed. Multiple studies that have been published have shown that until the surgical act, it was impossible to see where the proximal fibular shaft fragment was located retrotibially. ⁽²⁻⁴⁾ Repeated attempts at close reduction in these patients have been shown to decrease clinical results over the medium-long term and increase patient pain, as well as tissue and cartilage damage. ⁽⁵⁾ We present a 22-year-old male who had open

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reduction and internal fixation for an ankle fracture-dislocation known as a Bosworth fracture.

Case presentation

A 22-year-old man who had injured his right ankle while playing football was evaluated in the emergency room. Patient was in good health without any previous medical illness, But had limited range of motion and pain in the left ankle. Clinical examination revealed that the patient's vital signs were stable, local examination was no open skin wound, no evidence of vascular injury, and that the foot was warm with normal capillary refill. The ankle was somewhat swollen with intact toe range of motion and there was sever tenderness over ankle joint. Ankle fracture with fibula posterior to tibia entrapment and ruptured deltoid ligament were discovered after performing X-ray imaging of the ankle (Fig.1). A CT scan was then carried out to clarify the anatomy and any potential fractures that could be present. The CT scan showed a distal fibular spiral fracture, an ankle joint that had dislocated, and extensive soft tissue edema (Fig.2). Patient given trial of closed reduction but failed, The choice was taken to proceed with open reduction in order to reduce the danger of articular injury, iatrogenic fracture, or skin disintegration and because it was realized that repeated efforts at closed reduction would probably fail. After spinal anaesthesia Surgery was performed in a supine position, A lateral incision was made over the distal fibula and the fibula was successfully reduced then intrafragment screw was placed and 9-hole plate size 3.5 was placed and fixed with screws 4 above level of fracture and 3 down with one three cortical syndesmosis screw (Fig.3) . The incisions were closed and the patient was placed in a posterior splint. On the first day following surgery, the patient had stable vital signs, was afebrile, and had a normal lower limb neurovascular assessment. Paitent with regural follow up for wound care and healing process, About 13 weeks later, the patient was brought back to the operating room, when the syndesmotic screw was taken out (fig. 4). At the 8-month follow-up , the patient reported having a complete range of motion without any pain, and complete healing of fracture



Fig.1: AP (A) and lateral (B) radiograph showing ankle fracture with fibula posterior to tibia entrapment

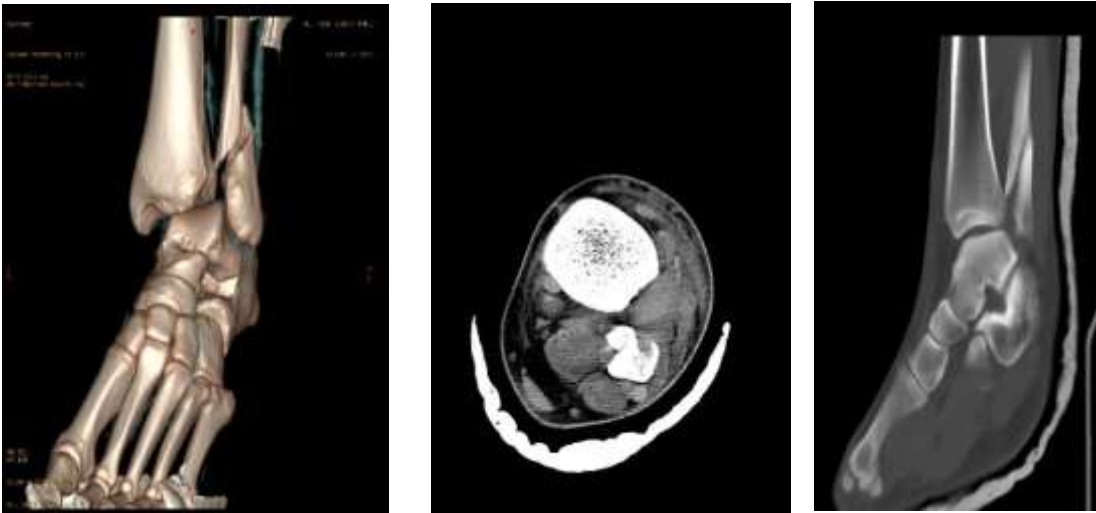


Fig.2: CT scan distal fibular spiral fracture, an ankle joint that had dislocated, and extensive soft tissue edema



Fig.3: AP (A) and lateral (B) radiograph showing 9-hole plate size 3.5 fixed with screws 4 above level of fracture and 3 down with one syndesmosis and interfragmentary screws

Fig.4: AP (A) and lateral (B) radiograph after removing of syndesmotic screw

Discussion

Bosworth lesions are fracture-dislocations of the ankle that are distinguished by the fibula's proximal segment becoming entrapped behind the distal tibia's posterior tubercle. One research found 51 out of 3,140 individuals, or 1.62%, had this form of fracture, making it rare among ankle fractures. Accidental trauma (58.2%), sports-related injuries (18.4%), and motor vehicle incidents (18.4%) are the primary causes of Bosworth fractures and the most typical (75.7%) injury mechanism was supination-external rotation.^(1,5,6,7) The patient in our case had an injury while playing football. Due to the rarity of Bosworth fracture dislocations of the ankle, diagnosis is frequently delayed in treatment or misdiagnosed.

Prior to surgery, additional imaging techniques, such as a CT scan, may understand the mechanism of the fracture-dislocation and planning for operative treatment.⁽⁷⁻⁸⁾ Both were performed in the situation at hand. Ankle fracture with fibula posterior to tibia entrapment and ruptured deltoid ligament were found following ankle X-ray imaging. The dislocated ankle joint, significant soft tissue edema, and a distal fibular spiral fracture were all seen on the CT image. It is crucial to understand that the most majority of Bosworth dislocations cannot be reduced closed and that repeated attempts at closed reduction can lead to additional complications. Internal fixation and open reduction have produced the best results. Stabilization of the distal fibula, which is internally anchored, within the fibular notch of the distal tibia might be an issue. For this reason, it is advised to use one or even two syndesmotic screws.⁽⁸⁻¹²⁾ Open reduction and fixation with a 9-hole plate in size 3.5 were performed on our patient. Fixed with screws four above the level of the fracture, three below, and one syndesmosis screw into the bone. Complications from Bosworth fracture-dislocations are common and include skin necrosis, avascular talus necrosis, ankle osteoarthritis, adhesive capsulitis, and compartment syndrome. The most frequent complication of them is compartment syndrome. Our patient is well and free of complications. X-ray taken intraoperative and was no suspicion of deltoid injury.^(13,16)

Conclusion

Orthopedic surgeons have difficulties in both diagnosis and treatment related to the Bosworth fracture. Usually Bosworth fracture make challenge for diagnose, when an irreducible ankle fracture dislocation occurs in emergency department, there should be a significant degree of suspicion for a Bosworth fracture dislocation.

The decision of operative should be taken with clear planning pre operative and usually imaging like CT scan make the morphology of fracture more clear for surgeon

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