

Atypical lesional association (Talus Fracture + Pilon Fracture): A case report

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Abstract

Background: Talus fractures represent 3% to 6% of all foot and ankle fractures and are frequently associated with significant morbidity and poor outcomes. They typically result from high-energy trauma, such as motor vehicle accidents or falls from heights. The combination of talar body and tibial plafond fractures is particularly rare, with few cases reported in the literature.

Case Report: We present the case of a 20-year-old female who sustained a closed injury to her right ankle after a 6-meter fall. Clinical examination revealed swelling, pain, and bruising without skin opening or neurovascular disturbances. Radiographs and a CT scan identified a non-displaced fracture of the tibial plafond, a medial malleolus fracture, and a posterior process talus fracture. The patient underwent closed reduction and internal fixation with percutaneous screws. At six months post-surgery, she exhibited a good functional outcome with minimal residual pain and slight limitations in ankle movement.

Discussion: Talar body fractures commonly result from falls that exert axial compression or shearing forces. Severe cases involve comminution of the ankle and subtalar joints, often accompanied by malleoli fractures. The concomitant fracture of the tibial plafond and talus, as seen in this case, is rare. Managing such injuries is challenging due to high risks of avascular necrosis, subtalar arthritis, and restricted ankle motion. Thorough radiographic and clinical assessments are crucial for effective management, emphasizing the need for careful preoperative planning, precise anatomical reduction, and stable fixation.

Conclusion: This rare case of combined talus body and tibial plafond fractures highlights the importance of comprehensive evaluation and appropriate management to minimize serious complications.

Keywords: Talus; Traumatology; Ankle; Pilon

1. Introduction

Talus fractures account for approximately 3% to 6% of all foot and ankle fractures. They are often associated with significant morbidity and poor outcomes.(1–3) In most cases, talus fractures result from high-energy trauma, such as motor vehicle accidents or falls from a height. (4)The particular combination of talar body and tibial plafond fracture is rare, with only a few cases reported in the literature.(5–8).

We present a case of a patient with a combined injury pattern involving the talus body and tibial plafond, which highlights the importance of a thorough radiographic and clinical assessment to guide appropriate management and avoid potential complications.

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2. Case report

This is a 20-year-old female patient who presented to the emergency department with a closed injury to the right ankle following a fall from a height of 6 meters, landing directly on her right heel. On clinical examination, the right ankle was swollen and painful with minimal palpation and movement, with bruising on the inner side of the ankle, without skin opening or distal neurovascular disturbances (Fig. 1)



Figure 1 Initial clinical appearance

The patient underwent standard anteroposterior and lateral radiographs of the ankle, which showed a non-displaced fracture of the tibial plafond associated with a fracture of the medial malleolus and a fracture of the posterior process of the talus.(Fig. 2) To better assess the injury, a computed tomography (CT) scan of the ankle was performed, which revealed the same fracture lines extending to the articular surface of the tibial plafond with separation but no joint depression. The CT scan also provided a clearer view of the fracture of the posterior process of the talus. (Fig. 3)



Figure 2 Ankle X-rays

The patient underwent closed reduction and internal fixation using percutaneous screw fixation with the aid of a fluoroscope, with two anteroposterior screws for the tibial plafond, one screw for the medial malleolus, and one posteroanterior screw for the talus. (Fig. 4)



Figure 3 Ankle scan



Figure 4 Control x-rays showing the osteosynthesis

At the 6-month follow-up, the functional outcome was considered good, with no residual pain and a slight limitation in ankle flexion and extension (45° plantar flexion and 15° dorsiflexion).

3. Discussion

The most common mechanism leading to a fracture of the talar body is a fall from a height, which can cause either axial compression of the talus between the tibial plafond and the calcaneus or a shearing force in the sagittal or coronal plane. High-velocity axial forces can result in severe comminution of both the ankle and subtalar joints, with multiple fragments being impacted into the articular surfaces. In such crushing talar fractures, the posterior and lateral processes of the talus can also be fractured. This type of injury is often associated with fractures of the malleoli. The concomitant tibial plafond fracture, in addition to the talar body fracture, as seen in this case, is a rare presentation that has been

reported in only a few case reports in the literature.(9,10) The treatment of this combined injury pattern is challenging, and the outcomes are often poor, with high rates of avascular necrosis, subtalar arthritis, and loss of ankle motion.(11–13)

This case highlights the importance of a thorough radiographic and clinical assessment to guide appropriate management and avoid potential complications. Careful preoperative planning, anatomic reduction, and stable fixation are crucial to optimize the chances of a successful outcome.(14)

4. Conclusion

In conclusion, we present a rare case of a combined injury pattern involving the talus body and tibial plafond, which underscores the importance of a comprehensive evaluation and appropriate management to mitigate the risk of serious complications.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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