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Fracture of the Posterior Process of the Talus With Concomitant Subtalar Dislocation

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ABSTRACT

Fracture of the posterior process of the talus with concomitant subtalar dislocation is rare; thus, the mechanism of injury, appropriate treatment, and prognosis are unclear. We report the case of a 50-year-old male with a fracture of the posterior process of the talus with concomitant subtalar dislocation that was recognized early and successfully treated operatively.

The posterior process of the talus consists of the medial and lateral tubercles, which are separated by a groove for the flexor hallucis longus (FHL) tendon. Fractures of the posterior process of the talus are rare and can be easily missed (1–3). Anatomic reduction and stable fixation are imperative, because the posterior process involves both the ankle and the subtalar joints, and these fractures could lead to post-traumatic arthritis, if not recognized and treated properly (2–4). Furthermore, for fractures between the medial and lateral tubercles, malunion can cause tendinitis of the FHL tendon (3). However, it is difficult to obtain accurate reduction because of the close proximity of the neurovascular structures and the narrow surgical field (1,5).

Subtalar dislocation accounts for 1% to 2% of all dislocations and is caused by high-energy injuries, such as a fall from a height or a traffic accident (6–8). In particular, subtalar dislocation associated with fracture of the posterior process of the talus is an extremely rare condition (5,9–11). Therefore, the mechanism of injury, appropriate treatment, and prognosis are unclear.

We present a case of fracture of the posterior process of the talus with concomitant subtalar dislocation that was recognized early and successfully treated operatively.

Case Report

A 50-year-old male construction worker was brought to our emergency room with severe pain and swelling in his right ankle. He had fallen from a height of approximately 10 ft., and the foot had been forced into plantarflexion and inversion during the fall. On physical examination, a prominence of the talar head was observed on the dorsum of the skin. No signs of neurovascular compromise were found. Anteroposterior and lateral radiographs showed a medial subtalar dislocation with a fracture fragment of unknown origin posterior to the talus. With the patient under adequate intravenous sedation, closed reduction with firm manual foot traction and direct digital pressure over the head of the talus was performed (Fig. 1). After reduction, confirmatory computed tomography revealed a comminuted fracture of the posterior process of the talus (Fig. 2).

After discussing the treatment options, we decided to perform open reduction and internal fixation of the posterior process of the talus. The fracture was approached through a posteromedial longitudinal incision placed medial to the medial margin of the Achilles tendon. The FHL muscle and neurovascular bundle were protected by careful medial retraction. During exposure of the fracture of the posterior process of the talus, the medial and lateral tubercle were split and displaced, and several small fragments were observed. Each fragment was reduced and fixed with two 3.0-mm headless compression screws (Synthes, West Chester, PA; Fig. 3).

After surgery, a short leg cast was applied for 6 weeks. Subsequently, active mobilization was started, and partial weightbearing was allowed. At the 6-month follow-up visit, the radiographs showed satisfactory bone healing (Fig. 4). At 13 months after surgery, the patient had returned to sports activities and work at his preinjury levels, and no evidence was seen of secondary osteoarthritis or FHL tendinitis (Fig. 5).

Discussion

Fractures of the talus have traditionally been classified according to the anatomy of the talus, such as the head, neck, and body. Among

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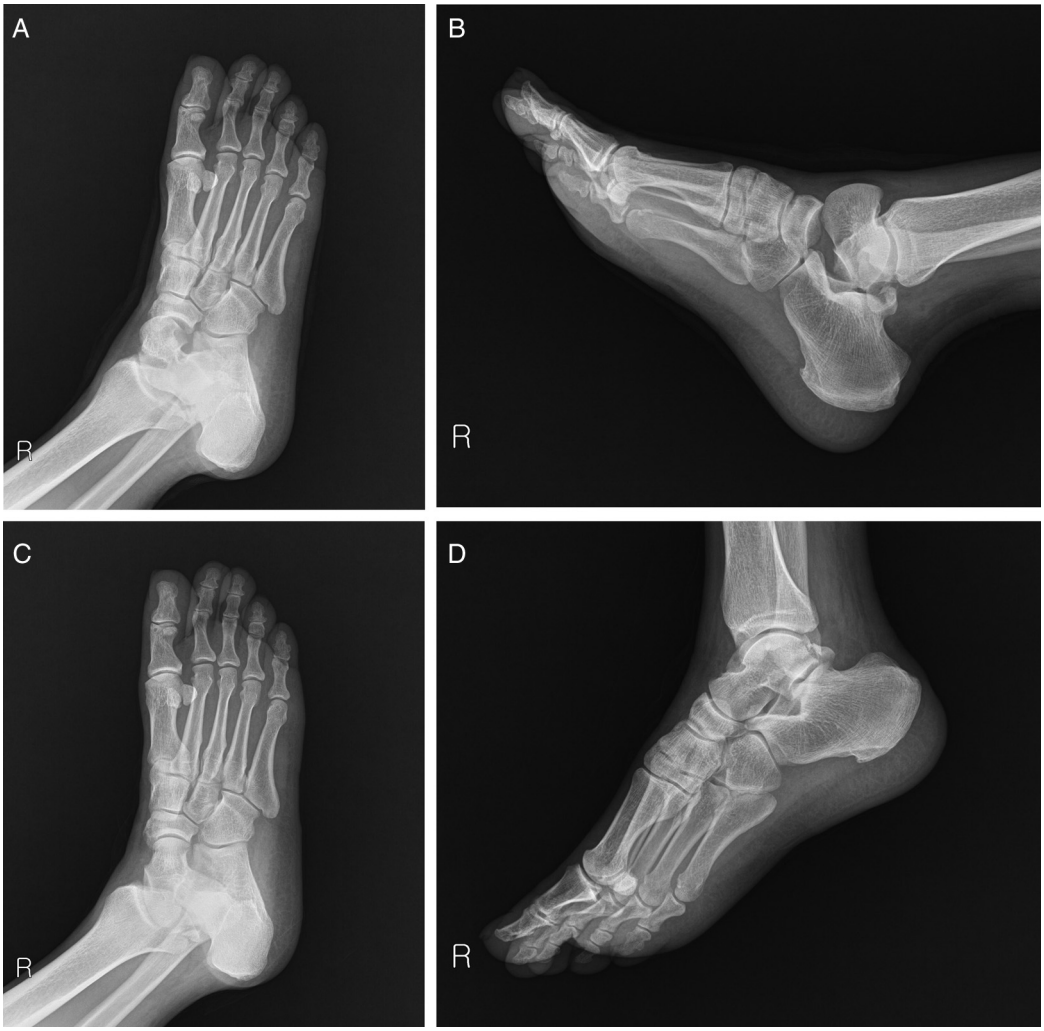

Fig. 1. (*A*) Oblique and (*B*) lateral radiographs taken at the time of injury showing the medial subtalar joint dislocation with a fracture fragment of unknown origin posterior to the talus. (*C* and *D*) Radiographs taken after closed reduction of the subtalar dislocation showing a fracture of the posterior process of the talus.

them, fractures of the talar body comprise 13% to 20% of all talar injuries. Sneppen et al (12) classified fractures of the talar body into 5 groups according to the pattern and location of the fracture. However, a fracture of the posterior process of the talus is not common and might have a different mechanism of injury, although the posterior process of the talus is a posterior part of the talar body. Moreover, subtalar dislocation associated with a fracture of the posterior process of the talus is extremely rare; thus, little is known regarding the

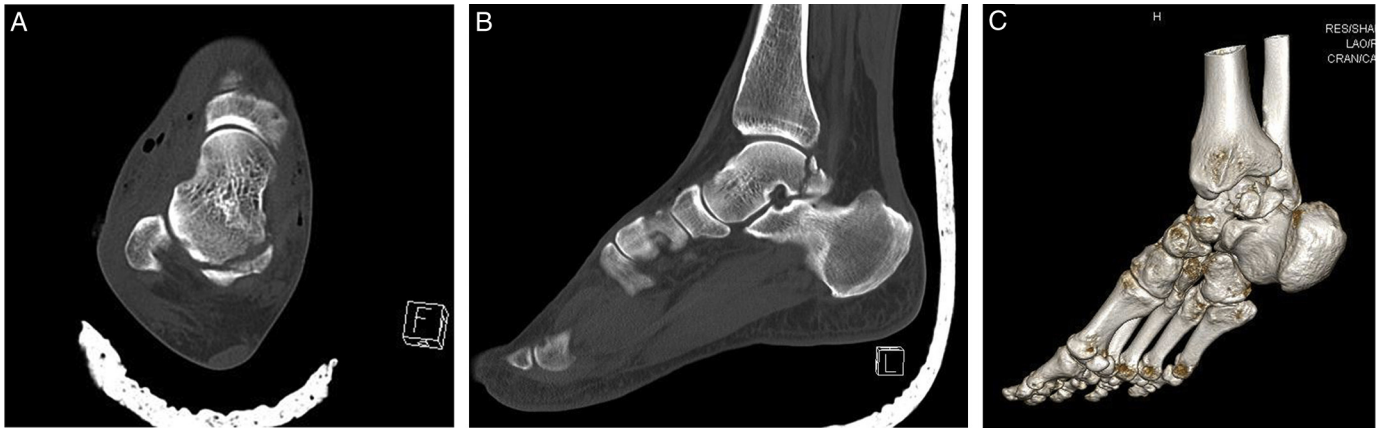

Fig. 2. (*A*) Axial, (*B*) sagittal, and (*C*) 3D reconstruction images of computed tomography scan taken after closed reduction of the subtalar dislocation showing a comminuted fracture of the posterior process of the talus.