Concomitant Talar Neck Fracture and Achilles Tendon Rupture

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A 56-year-old man fell down 1 m from a ladder and sustained a forced dorsiflexion injury to his right ankle when his foot contacted a lower rung, which resulted in the rare combination of a Hawkins II fracture of the neck of the talus and a concomitant rupture of the Achilles tendon. Clinical examination and diagnostic imaging confirmed the injuries, and surgical fixation of the fracture and repair of the Achilles tendon were achieved by means of a posterior approach. Healing proceeded unremarkably, and, at 18 months postoperatively, the patient had regained full function despite a 5° limitation of subtalar joint range of motion. (The Journal of Foot & Ankle Surgery 46(3):188–191, 2007)

Key words: Achilles tendon rupture, talar neck fracture, talus

Isolated Achilles tendon rupture or talar neck fracture are well-recognized injuries associated with forced foot and ankle dorsiflexion. Three mechanisms of injury have been described for Achilles tendon rupture: weight-bearing forefoot propulsion with the knee extended (53%); sudden, unexpected ankle dorsiflexion, such as occurs when the foot slips into a shallow hole or down a stair step (17%); and violent, forced ankle and foot dorsiflexion, such as occurs with a fall from a height (10%) (1).

The incidence of talus fractures is second in frequency among tarsal bones, accounting for 3.2% of all foot fractures (2), with neck fractures constituting 30% to 45% of all talus fractures (3, 4). Calcaneal fractures are the most common (2). It is speculated that talar neck fractures occur after hyperdorsiflexion of the foot (5). The combination of fracture of the neck of the talus and an Achilles tendon rupture is considered a rare injury, and we are aware of only one such case reported in the literature (6). Although the exact mechanism of injury in that case was not known, the injury occurred secondary to a motor vehicle accident and the patient sustained an undisplaced talar neck fracture along with rupture of the posterolateral tibiotalar and posterior tibiocalcaneal ligaments and the Achilles tendon. The purpose of this article is to report the unusual case of a patient who sustained a displaced fracture of the neck of the talus with concomitant Achilles tendon rupture.

Case Report

A 56-year-old heavy-goods vehicle driver accidentally slipped approximately 1 m while coming down a ladder, resulting in his right forefoot landing on the bottom step and forcefully dorsiflexing his foot and ankle. He presented to the emergency department with pain and swelling localized to the foot and ankle, and an inability to bear weight on the injured extremity. Examination revealed edema and tenderness posteriorly over the Achilles tendon and anteriorly around the ankle joint and hindfoot. Ankle movements were painful, and a palpable gap was noted along the course of the Achilles tendon at the level of the ankle. Thompson's test was positive (7, 8). The patient had no history of any preceding Achilles tendon or hindfoot pathology. Radiographs revealed a Hawkins II fracture (9) of the neck of the talus (Fig 1). A magnetic resonance image scan was obtained, and this confirmed the presence of a ruptured Achilles tendon and a talar neck fracture (Figs 2-4).

In view of the combination of injuries to the patient's right ankle and foot, the decision was made to take the patient to the operating room to primarily stabilize both the

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1067-2516/07/4603-0009$32.00/0

doi:10.1053/j.jfas.2006.12.006

FIGURE 1 Radiographs showing the minimally displaced (Hawkins II) fracture of the neck of talus.

FIGURE 2 T1-weighted sagittal image through the right ankle demonstrating a complete tear of the Achilles tendon 3 cm proximal to its calcaneal insertion.

talus fracture and the Achilles tendon. The Achilles tendon and the posterior aspect of talus were exposed through a posterior approach. Under fluoroscopic image guidance, the fracture of the talus was reduced in a closed fashion by means of forefoot plantarflexion, and temporary fixation was achieved by insertion of a Kirschner wire. The fracture was then stabilized with 2 cannulated, interfragmentary compression screws across the fracture directed from posterior to anterior. The Achilles tendon was then repaired in a standard end-to-end fashion with nonabsorbable Kessler

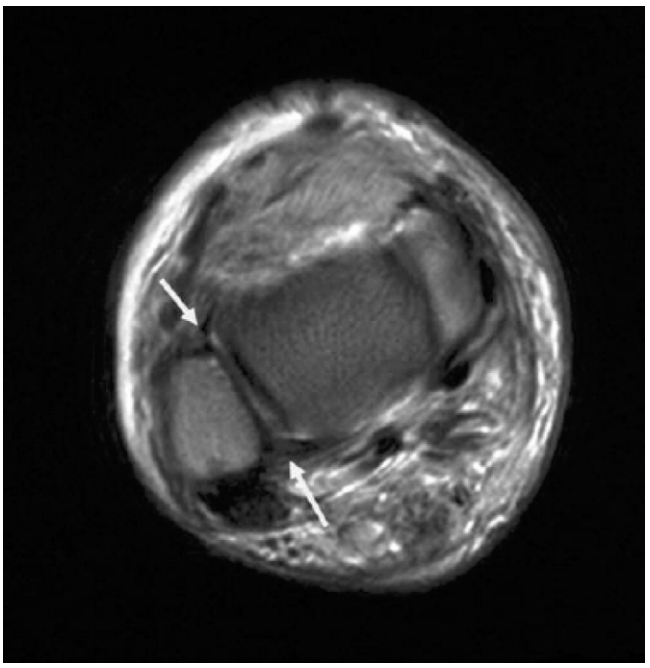

FIGURE 3 Axial T2-weighted image demonstrating (*white arrows*) an intact anterior talofibular and posterior talofibular ligament. The calcaneofibular ligament (not shown in this image) was also intact.

FIGURE 4 Sagittal T1-weighted image demonstrating a minimally displaced oblique hypointense fracture line through the talar neck.

suture and additional interrupted circumferential absorbable stitches. A gravity-position equinus, above-the-knee plaster cast was used to immobilize the right lower extremity. The