Case report

Impingement fracture of the posteromedial process of the talus—a case report

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A 48-year-old driver suffered multiple injuries during a road traffic accident in which the van he was driving overturned. His right foot was injured while pressing on the brake pedal. At presentation, in addition to other musculoskeletal injuries, pain and swelling were evident over both medial and lateral aspects of the ankle. Plain radiographs showed a displaced fracture of the posteromedial process of the talus, with a transverse avulsion type fracture of the lateral malleolus and an avulsion fracture of the insertion of the calcaneofibular ligament on the lateral side (Figure 1). Subsequent CT scanning confirmed a rotational displacement of the talar fracture (Figure 2), and, in addition, revealed a minimally displaced fracture of the sustentaculum tali (Figure 3). Through a medial approach, the fracture of the talus was found to involve the medial tubercle alone, reduction being prevented by the subluxed tendon of the flexor hallucis longus. The fracture was reduced and fixed by a Herbert screw (Figure 4). A split cast to allow early ankle motion was utilised for 6 weeks with no postoperative problems. At 1-year follow-up, the patient had regained a functional, pain-free range of ankle and subtalar joint motion. The measured range of subtalar joint mo-

Figure 1. The right ankle showing a displaced fracture of the posteromedial process of the talus, a transverse fracture of the lateral malleolus and an avulsion of the insertion of the calcaneofibular ligament

Figure 2. CT of the subtalar joint showing rotational displacement of the fractured posteromedial process of the talus, and the avulsed insertion of the calcaneofibular ligament.

Figure 3. CT of the subtalar joint showing a minimally displaced fracture of the sustentaculum tali.

Figure 4. Fixation of the fractured posteromedial process of the talus using a Herbert screw.

tion was 5 degrees of inversion and 8 degrees of eversion, compared to 20 degrees of inversion and 10 degrees of eversion on the contralateral, uninjured side.

Discussion

Although originally described as an avulsion injury during indirect trauma (Cedell 1974), fractures of the posteromedial process of the talus have more recently been associated with direct trauma (Stefko et al. 1994, Wolf and Heckman 1998). The mechanism of injury in these cases was attributed to an avulsion of the posterior talotibial ligament during acute dorsiflexion and pronation (Stefko et al. 1994). An alternative mechanism of pure dorsiflexion occurring during direct trauma has more recently been proposed (Dougall and Ashcroft 1997), in which associated fractures of the sustentaculum tali and lateral malleolus were noted. In our case, injuries consistent with an avulsion mechanism occurred on the lateral side, but the CT images suggest that the medial injuries were caused by impingement of the sustentaculum tali on the posterior process of the talus occurring mainly during supination. The associated injury to the lateral collateral ligament complex allowed sufficient inversion to force the sustentaculum tali onto the posterior process of the talus, which resulted in the impingement fracture pattern we have described. The documented incidence of isolated bone bruising in the posteromedial aspect of the talus following lateral collateral ligament injuries of the ankle (Nishimura et al 1996) would appear to support this theory.

Although a successful outcome has been described in treating these injuries nonoperatively (Kim et al. 1996), the amount of articular surface involved is generally believed to require operative reduction and stabilisation (Kanbe et al. 1995, Dougall and Ashcroft 1997) to prevent continuing pain and the ultimate requirement for excision of the fragment (Cedell 1974, Stefko et al. 1994, Wolf and Heckman 1998). In our case, surgical fixation resulted in a satisfactory outcome.

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