

Talar Body Fracture Combined with Traumatic Rupture of Anterior Talofibular Ligament and Peroneal Longus Tendon

Kun-Chuang Wang, MD; Yuan-Kun Tu, MD; Chao-Ming Fang, MD; Hsien-Tao Liu, MD;
Steve Wen-Neng Ueng, MD

A rare case of talar body fracture combined with traumatic rupture of the anterior talofibular ligament and peroneal longus tendon is presented and reports in the literature are reviewed. We suggest that the mechanism of the injury was initial plantar flexion and inversion with rupture of anterior talofibular ligament and peroneal longus tendon, followed by forced dorsiflexion with talar body fracture. The treatment consisted of open reduction with internal fixation of the talar body fracture and primary repairs of the ruptured anterior talofibular ligament and peroneal longus tendon. (*Chang Gung Med J* 2004;27:56-60)

Key words: talar body fracture, anterior talofibular ligament, peroneal longus tendon.

Talar body fractures comprise 13% to 23% of talus fractures.⁽¹⁾ Displaced talar body fractures often result in significant morbidity. The rate of avascular necrosis of the talar body is related to the extent of the soft tissue damage of the tibiotalar joint. With dislocation, the incidence of avascular necrosis is 50% while without dislocation, the incidence is 25%.^(1,2) Approximately 50% of patients with talar body fractures have subtalar or tibiotalar post-traumatic arthritis at the follow-up examinations.⁽³⁾ In the literature, a ligament ankle fracture was always combined with dislocation of the talus out of the ankle mortise, a Hawkins type III fracture dislocation, but not associated with talar body fracture.^(4,5) Peroneal tendon injury after ankle trauma is a rare situation that might coincide with severe lateral ankle sprain by extreme plantar flexion and inversion of the ankle joint.⁽⁶⁾

We present a rare case of displaced talar body fracture combined with a ruptured anterior talofibular ligament and peroneus longus tendon. To the best of our knowledge, there has been no such injury reported in the literature.

CASE REPORT

A 40-year-old woman was brought to the emergency room after falling from a height of 10 feet. She felt a popping at the lateral aspect of her right ankle. The patient presented with facial lacerations and difficulty walking due to pain and ecchymosis in her right ankle. Physical examination revealed severe swelling and tenderness over the posterolateral aspect of the right ankle and heel. There was no tenderness over the base of the fifth metatarsal. Ankle dorsiflexion and medial foot plantar flexion were limited, and foot eversion was weaker than normal and was painful. An acute grade-III severe ankle sprain with peroneal tendon injury was suggested. Vascular examination showed the posterior tibial pulsation and dorsalis pedis pulsation were intact. Radiography of the ankle demonstrated a displaced talar body fracture (Fig. 1).

The patient underwent surgery to repair the facial wound and for fracture fixation. A lateral incision was made for fracture stabilization. Both of the lateral ligaments of the ankle and the peroneal ten-

From the Department of Orthopedic Surgery, Chang Gung Memorial Hospital, Taipei.

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Address for reprints: Dr. Kun-Chuang Wang, Department of Orthopedic Surgery, Chang Gung Memorial Hospital, 222, Maijin Rd., Anle Chiu, Keelung, Taiwan 204, R.O.C. Tel.: 886-2-24313131 ext. 2613; Fax: 886-2-24332655; E-mail: kbone@cgmh.org.tw

dons were explored simultaneously (Fig. 2). The talus was reduced and internally fixed with two 3.5 mm cross cancellous screws (Fig. 3). The ruptured anterior talofibular ligament was trimmed and an end to end repair was performed. The calcaneofibular ligament appeared attenuated and was imbricated. During surgery, rupture of the peroneal longus tendon was found near the lateral malleolus. The end of the peroneal tendon was trimmed and repaired pri-

marily with non-absorbable sutures. The peroneal brevis tendon was normal. A short leg cast was applied with the foot in the eversion and equinus positions. The postoperative course was uneventful, and the cast was removed 6 weeks after surgery.

At 12 weeks following surgery, progressive weight bearing ambulation began. Radiographic union was demonstrated on the 20th week postoperatively and full weight-bearing ambulation was per-



Fig. 1 Coronal fracture through the body of the talus.

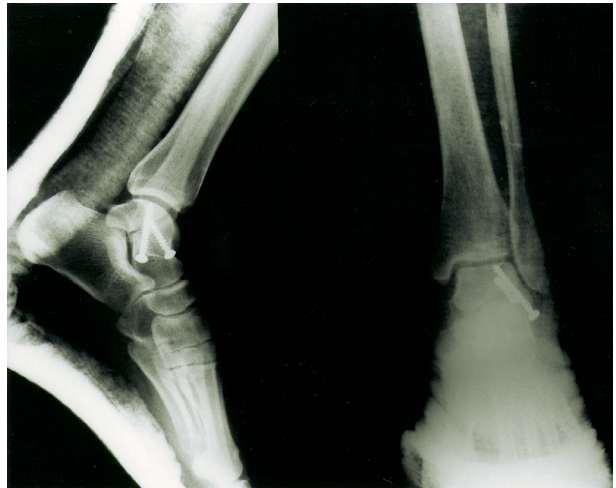


Fig. 3 Postoperative radiographs demonstrate the anatomical reduction and internal fixation with two cross cancellous screws.



Fig. 2 Operative findings show the peroneal longus tendon rupture and the talar body fracture.



Fig. 4 Radiographic union months after the operation.

mitted (Fig. 4). The patient was followed up for 2 years postoperatively. The ankle has remained stable. Range of motion was neutral to 10° dorsiflexion and 30° plantar flexion. Both plantar flexion of the medial foot and stabilization of the first metatarsal revealed a functioning peroneal longus. No avascular necrosis of talus or posttraumatic osteoarthritis of the ankle occurred at the latest follow-up examination.

DISCUSSION

The most common type of ankle sprain involves extreme plantar flexion and inversion of the foot.^(7,8) The anterior talofibular ligament is usually the first ligament to be injured and as the severity of the stress increases, injuries to the calcaneofibular ligament and posterior talofibular ligament follow.⁽⁹⁾ Ankle plantar flexion and inversion are also mechanisms for injury to the peroneal tendons and their retinacula.⁽¹⁰⁾ In 1966, Evans presented a patient who sustained a traumatic rupture of the peroneal longus tendon during a football match.⁽¹¹⁾ In 1993, Bassett and Speer identified eight longitudinal peroneal tendon ruptures which were associated with ankle plantar flexion and inversion injuries.⁽⁶⁾

We here presented a rare case of talar body fracture combined with traumatic rupture of the anterior talofibular ligament and peroneal longus tendon. The peroneal longus functions mainly to bring about the plantar flexion of the medial border of the foot. The peroneal tendon may act as a dynamic ankle stabilizer in the absence of lateral ankle ligaments.⁽¹²⁾ It is possible that the mechanism of injury was plantar flexion and inversion with rupture of anterior talofibular ligament initially, followed by a secondary tear of the peroneal longus tendon. We hypothesized that the talar body fracture was secondary to forcible dorsiflexion from plantar flexion during her fall. Axial compression impact with dorsiflexion was responsible for the talar body coronal shear fracture. The radiograph supported our hypothesis that there was anterior lip impingement on the talar body fracture site.

The goal in the management of displaced talar body fractures is to achieve anatomic reduction and stable internal fixation, thereby decreasing the probability of traumatic osteoarthritis and avascular necrosis.⁽²⁾ At the last follow-up examination, our patient

had acceptable stability and pain-free range of motion of her ankle, and the peroneal longus tendon was functioning well. The treatment of traumatic rupture of the peroneal tendon has rarely been reported in the literature and the diagnosis may be missed or delayed in the differential diagnosis of lateral instability of the ankle.⁽¹³⁾ Clinical detection of foot and ankle abnormalities can be difficult due to pain and swelling. Pain and swelling around the lateral malleolus more commonly imply talofibular or calcaneofibular ligament injury. Swelling or tenderness around the lateral aspect of the ankle and pain or weakness on active foot eversion and medial foot plantar flexion are helpful clinical signs of traumatic rupture of the peroneal longus tendon.⁽¹²⁾ The correct diagnosis was elusive in this patient and was not made until surgical exploration. We have no experience with magnetic resonance imaging in the evaluation of this injury, although it has emerged as a diagnostic tool for soft tissue and bony imaging of the ankle.⁽¹⁴⁾ However, image quality and quantity are limited due to technical factors, a lack of clinical experience, and inadequate follow-up examinations. Nonetheless magnetic resonance imaging should be considered in patients with suggested ankle ligament and tendon injuries to avoid missing diagnoses.

Here we presented a case of talar body fracture combined with traumatic rupture of the anterior talofibular ligament and peroneal longus tendon, who was successfully treated by internal fixation of the talar body fracture and primary repair of the ruptured anterior talofibular ligament and peroneal longus tendon. The possible mechanisms of injury were explored and the necessity of more detailed preoperative studies were highlighted in this reported case.

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距骨骨折合併前踝距腓韌帶及腓長肌肌腱斷裂

王坤全 杜元坤 方朝銘 劉獻道 翁文能

本文報告距骨骨折合併前踝距腓韌帶及腓長肌肌腱斷裂是文獻上首見的病例。受傷的機轉可能是足踝先過度內翻及蹺曲所造成前踝距腓韌帶及腓長肌肌腱斷裂，再接著是足踝過度背屈所造成的距骨骨折的合併傷害；治療上包括手術鋼釘內固定距骨骨折及縫合斷裂的前踝距腓韌帶及腓長肌肌腱。(長庚醫誌 2004;27:56-60)

關鍵字：距骨骨折，前踝距腓韌帶，腓長肌肌腱。

長庚紀念醫院 基隆院區 骨科

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索取抽印本處：王坤全醫師，長庚紀念醫院 骨科。基隆市安樂區麥金路222號。Tel.: (02)24313131轉2613; Fax: (02)24332655; E-mail: kbone@cgmh.org.tw