

Rupture of the Peroneus Longus Tendon

The authors report a case of fracture of the os peroneum with diastasis in a 34-year-old woman. This represents one of the few cases of this type of fracture to be reported in the literature. This injury must be included in the differential diagnosis of a sprained ankle, and only careful examination of serial roentgenograms can prevent an incorrect diagnosis.

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Rupture of the long peroneal tendon is uncommon. Abraham reported the first case of traumatic rupture of the peroneal tendon, which was neglected and presented later with development of chronic ankle instability (1). Fracture of the os peroneum is even more uncommon, and only two cases, described by these authors, have been presented in the past (2, 3).

Case Report

A 34-year-old obese female presented with pain along the outer border of the foot after an inversion injury. She felt a "click" followed by considerable pain over the lateral border of the foot. Two weeks prior to this injury she had been treated by her general practitioner for pain over the medial aspect of the forefoot, which was subsequently found to be the result of a stress fracture of the second metatarsal bone. Consequently, she had been walking on the outer border of the foot and sustained an inversion injury.

Upon examination, there was tenderness and edema of the lateral aspect of the foot at the base of the fifth metatarsal. The patient could not actively evert the foot and passive inversion and supination of the foot increased her discomfort. Radiological study of the left foot illustrated a striking change compared with her original roentgenogram (Figs. 1, 2). The bipartite os peroneum was found to be separated by 2 cm., with the proximal fragment located well proximal to the calcaneocuboid joint. Because the clinical findings were consistent with the radiological findings, a diagnosis of fractured os peroneum was made and the foot was immobilized in a below-the-knee cast for a period of 6 weeks. The roentgenogram obtained at 6 weeks revealed

a healed stress fracture of the second metatarsal bone (Fig. 3). There was no further diastasis of the os peroneum. Twelve months after treatment, the patient was asymptomatic and had normal strength in the peronei.

Discussion

The os peroneum is an accessory sesamoid located at the lateral aspect of the calcaneocuboid joint and embedded in the peroneus longus tendon where it angulates around the cuboid to become a deep tendon of the foot. This bone may be bipartite, tripartite, or even quadripartite (4). Stress fractures are not uncommon (5).

A coincidental injury to the peroneal tendon may occur with a lateral ankle sprain (2) or fracture of the calcaneus (3). Bassett and Speer reported their experience in treating eight patients with longitudinal rupture of the peroneal tendons at the tip of the fibula (2). This injury appeared to have occurred in the young athletic patients as a result of plantarflexion-inversion ankle injury. Bassett and Speer recommended repair of the tendon for long-term results.

Fracture of the os peroneum may be confused with ankle sprain. There is generally a rupture of the peroneus longus tendon with this fracture. Tehranzadeh *et al.* reported a 30-year-old runner who had apparently sprained his left foot (6). He presented 2 months after initial injury, and the tear of the peroneal tendon was confirmed at surgery and repaired. At a 22-month follow-up, the patient remained symptom-free. The second case, a 40-year-old woman who sustained a dorsiflexion injury to her left foot while climbing stairs, was reported by Pessina (4). This was treated by cast immobilization for a period of 3 weeks.

In an extensive review, Sobel *et al.* (7) reported treatment of a spectrum of posttraumatic and attritional or overuse conditions causing "plantar lateral foot pain" secondary to an injury to the os peroneum in 10 patients. When patients fail to respond to conservative treatment,

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1067-2516/95/3405-0475\$3.00/0

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Figure 1. Roentgenogram of the right foot, obtained at the initial injury. X-ray was essentially normal, with a bipartite os peroneum. A, anteroposterior; B, oblique.



Figure 2. Roentgenographic examination of the same foot performed 2 weeks later. The os peroneum appeared to be fractured with evident diastasis. A, anteroposterior; B, oblique.

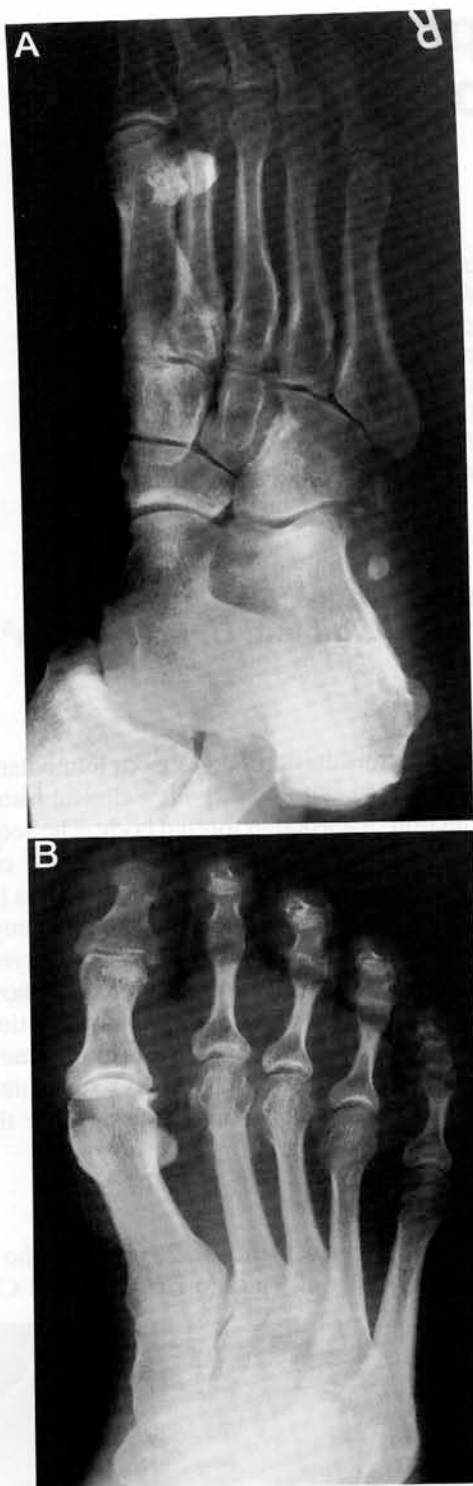


Figure 3. At 8 weeks, there was evidence of a healed stress fracture at the neck of the second metatarsal bone. A, anteroposterior; B, oblique.

the surgical treatment was removal of the os peroneum and repair of the peroneus longus tendon or a tenodesis of the peroneus longus tendon to the peroneus brevis tendon. Only one patient in this series (case 3) had a very wide separation of the fractured os peroneum.

In the present case, as in the two previous cases, indirect trauma resulted in fracture. The authors believe that the patient initially had a stress fracture of the second metatarsal, which was not obvious. As she was walking on the lateral border of the foot, she sustained an inversion injury to the foot, causing snapping of the peroneus longus.

The roentgenogram initially showed a bipartite os peroneum without a diastasis. However, a subsequent x-ray revealed considerable posterior migration of the proximal part of the fractured os peroneum. In all three cases, a final diagnosis was made by comparing initial and subsequent roentgenograms, and finding evidence of the subsequent diastasis. The authors suggest that the rarity of this condition is because of the difficulty in diagnosis. This injury must be included in the differential diagnosis of lateral collateral ligament injury of the ankle. The authors suggest that failure to alleviate symptoms by cast immobilization may be an indication for surgical intervention and tendon repair.

Acknowledgments

The authors are grateful to Mr. Wayne Blair, Medical Photographer, Memorial Hospital, and to Mrs. Chitra Pai for her expert secretarial assistance.

References

1. Abraham, E. Neglected rupture of peroneal tendons. *J. Bone Joint Surg.* 61A:1247-1248, 1979.
2. Bassett, F. H., Speer, K. P. Longitudinal rupture of the peroneal tendons. *Am. J. Sports Med.* 21:354-357, 1993.
3. Goodwin, M. I., O'Brien P. J., Connell, D. G. Intra-articular fracture of the calcaneus associated with rupture of the peroneus longus tendon. *Injury* 24:269-271, 1993.
4. Pessina, R. Os peroneum fracture: a case report. *Clin. Orthop.* 227:261-264, 1988.
5. Scranton, P. E., Jr., Rutkowski, R. Anatomic variations in the first ray: Part II. Disorders of the sesamoids. *Clin. Orthop.* 151:256, 1980.
6. Tehranzadeh, J., Stoll, D. A., Gabriele, O. M. Case report 271, posterior migration of the os peroneum of the left foot, indicating a tear of the peroneal tendon. *Skeletal Radiol.* 12:44-47, 1984.
7. Sobel, M., Pavlov, H., Geppert, M. J., Thompson, F. M., DiCarlo, E. F., Davis, W. H. Painful os peroneum syndrome: a spectrum of conditions responsible for plantar lateral foot pain. *Foot Ankle* 15:112-124, 1994.