Ankle instability caused by peroneal tendon rupture

A case report

Lars Konradsen and Henning Sommer

Functional instability caused by traumatic rupture of both peroneal tendons has only been reported once (Abraham 1979). We present another case.

Case report

A 23-year-old male cross-country skier complained of acute pain and swelling under the right lateral malleolus after a 50-km race. The subsequent year's treatment with anti-inflammatory drugs, ultrasonography, laser, elastic bandages, plaster cast, and varying periods of rest failed. Whenever the patient resumed training, pain and swelling returned. Concomitantly, there was increasing ankle instability. After a severe twist of the ankle, the condition worsened.

The patient was referred to our department with diffuse swelling at the lateral part of the ankle joint and tenderness under the lateral malleolus, but with full range of ankle motion and without mechanical instability. The tentative diagnosis was functional instability, and stabilizing surgery was planned.

Both peroneal tendons were ruptured, and the lateral ligaments were intact. Proximally, the tendons were embedded in scar tissue. Distally, the short tendon could be identified in a grossly thickened tendon sheath, while the long tendon had retracted into the osseous canal and could not be mobilized. Restitution of peroneal function was achieved using the trimmed proximal peroneus longus muscle and tendon stump, and the distal peroneus brevis stump interposing a transplant from the fascia lata. A short walking plaster cast was applied in eversion for 8 weeks, and after that the patient began rehabilitation.

Six months after the operation, pronation up to the neutral position was possible. The right ankle pronation strength was 85 percent of the left (Cybex), and a one-leg stance was possible for at least 1 minute. The patient trained at approximately 90 percent of his capacity.

Discussion

Functional ankle instability—that is, recurrent sprains and/or giving way of the ankle joint—is a subjective symptom that appears during activity.

Possible causes of instability include tibiofibular sprain, damaged ankle proprioception (Freeman 1965, McCloskey 1978), and pronator muscle weakness (Staples 1972, Tropp 1985). In rare cases, osteochondral fractures (Staples 1972), osteochondritis dissecans (Broström 1966), and peroneal nerve traction injuries (Prins 1978) have been mentioned. No causal connection exists between mechanical and functional instability (Freeman 1965, Termansen 1979, Tropp 1985), and in our case the lateral fibular ligaments were intact. Peroneal tendon rupture has seldom been reported as a cause of functional instability, but these conditions often go unrecognized (Griffiths 1965, Abraham 1979).

The clinical findings of peroneal rupture can be subtle with swelling and diffuse pain under and behind the lateral malleolus mimicking chronically damaged lateral ligaments. Contrary to the latter condition, pronation strength is reduced and pronation usually aggravates the pain. Despite the rupture of both tendons, pronation is still possible to some extent using only the m. extensor digitorum communis. Ankle tenography (Gilula 1984) or CT-scanning (Rosenberg 1986) can establish the diagnosis.

The onset and gradual aggravation of symptoms in our case suggest that rupture was preceded by chronic tenosynovitis (Burman 1956, Abraham 1979). Whether the tendons ruptured separately or simultaneously is difficult to assess, because chronic tenosynovitis in itself may cause functional instability (Andersen 1987).

Lars Konradsen, Møllebakken 36 st tv, DK-3400 Hillerød, Denmark

References

Abraham E, Stirnaman J E. Neglected rupture of the peroneal tendons causing recurrent sprains of the ankle. Case report. J Bone Joint Surg (Am) 1979;61(8): 1247–8.

Andersen E. Stenosing peroneal tenosynovitis symptomatically simulating ankle instability. Am J Sports Med 1987;15(3):258–9.

Broström L. Sprained ankles. A pathological, artrographic and clinical investigation. Thesis, Karolinska sjukhuset, Stockholm, Sweden 1966.

Burman M. Subcutaneous tear of the tendon of the peroneus longus. Arch Surg 1956;73:216–9.

Freeman M A R. Instability of the foot after injuries to the lateral ligament of the ankle. J Bone Joint Surg (Br) 1965;47(4):669–77.

Gilula L A, Oloff L, Caputi R, Destouet J M, Jacobs A, Solomon M A. Ankle tenography: a key to unexplained symptomatology. Part II: Diagnosis of chronic tendon disabilities. Radiology 1984;151(3):581–7.

Griffiths J C. Tendon injuries around the ankle. J Bone Joint Surg (Br) 1965;47(4):686–9.

McCloskey D I. Kinesthetic sensibility. Physiol Rev 1978;58(4):763–820.

Prins J G. Diagnosis and treatment of injury to the lateral ligament of the ankle. A comparative clinical study. Acta Chir Scand 1978;(Suppl 486):3–149.

Rosenberg Z S, Feldman F, Singson R D. Peroneal tendon injuries: CT-analysis. Radiology 1986;161(3):743–8.

Staples O S. Result study of ruptures of lateral ligaments of the ankle. Clin Orthop 1972;85:50–8.

Termansen N B, Hansen H, Damholt V. Radiological and muscular status following injury to the lateral ligaments of the ankle. Follow-up of 144 patients treated conservatively. Acta Orthop Scand 1979;50(6):705–8.

Tropp H. Functional instability of the ankle joint. Thesis, University of Linköping, Linköping, Sweden 1985: 7–34.