Simultaneous fracture of the ankle and disruption of the superior tibiofibular joint

A case report

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We report a case of fracture-dislocation of the ankle occurring together with a disruption of the superior tibiofibular joint. The simultaneous occurrence of these two lesions does not seem to have been reported previously.

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Case report

The patient was a 35-year-old man who injured his left leg when he slipped while descending sideways down a greasy slope. At the casualty department, his left ankle had the appearance of a pronation-external rotation fracture-dislocation, which was immediately reduced without anesthesia. Subsequent radiographs (Figure 1) confirmed the diagnosis of a pronation-external rotation injury Stage IV (PE IV) according to the Lauge-Hansen classification (Hamilton 1984). The fibular head seemed slightly anteriorly displaced.

The ankle injury was operated on under general anesthesia. Following this, a pronounced instability of the fibular head was recognized during both extension and flexion of the knee. The proximal tibiofibular joint was explored; both the anterior and the posterior capsule and ligaments were ruptured. The fibular head was fixed with a transtibial cerclage wire.

A below-the-knee plaster cast was applied for 6 weeks with weight bearing prohibited for 4 weeks. The screws were removed after 10 weeks, and the cerclage wire was removed after 7 months.

The patient was reexamined after 6 years; his knee was asymptomatic, but he had some aching pain in the ankle in the morning and after a days' work. He had resumed handball and badminton at the preinjury level. His symptoms have remained stationary since 1 year postinjury.

Both plantar flexion and dorsiflexion of the ankle were restricted 10° each, whereas the subtalar movements were normal. The fibular head was stable and not tender. The radiographs showed moderate arthrotic changes with joint-space narrowing and osteophytes in the ankle joint, but normal findings in the superior tibiofibular joint.

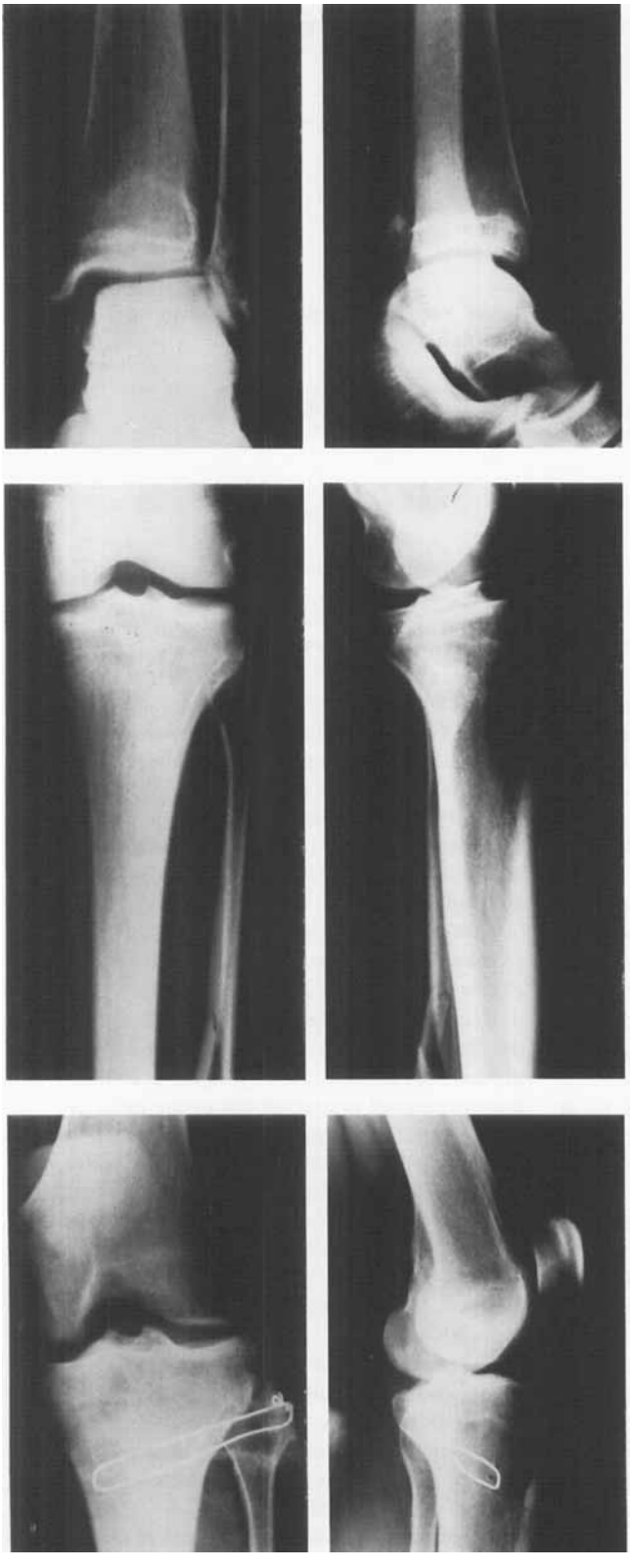
Discussion

Malleolar fractures occur from a number of indirect mechanisms of injury as described in the Lauge-Hansen classification (Hamilton 1984). The fibular fractures in PE injuries may occur at various levels (Yde 1980). The lesion of the interosseous membrane extends up to, and sometimes even above, the level of the fibular fracture (Lauge-Hansen 1950, Burri and Rüter 1978). In a very few cases the fibula is not fractured, but instead all the ligamentous structures between the tibia and fibula are ruptured (Weber 1966, Burri and Rüter 1978, Kristensen 1988).

Dislocation of the superior tibiofibular joint (Andersen 1985) is usually caused by violent muscular contraction during a fall or twisting injury. A posteromedial dislocation may thus be caused by pull from the biceps femoris muscle, and an anterolateral dislocation may be caused by vigorous contraction of the anterolateral muscle groups of the lower leg. The latter mechanism may also produce an isolated fracture of the fibular shaft (Lord and Coutts 1944). Tethering of the fibular head by the lateral collateral ligament during tibial rotation may contribute to dislocation. The exact type of dislocation in our patient is not known because the superior tibiofibular joint was not specifically examined before the ankle fracture was reduced.

The combination of lesions in our patient was probably caused by simultaneously acting independent mechanisms of injury, as described above, rather than by extension of the lesion to the interosseous membrane proximally past the midshaft fibular fracture, as a part of the PE IV lesion.

Although most isolated dislocations of the proximal tibiofibular joint are stable following closed reduction,



we opted for surgical stabilization of the fibular head, as well as of the ankle lesion, because we felt stability had been compromised by the osseous and ligamentous lesions related to the ankle injury, and because chronic instability of the fibular head has been known to cause symptoms, including deterioration of peroneal nerve function (Ogden 1974).

References

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Figure 1. PE IV injury of left ankle with rupture of the deltoid ligament, comminuted midshaft fibular fracture with distal tibiofibular diastasis, and posterior tibial lip fracture. The fibular head appears to be slightly anteriorly displaced. It was fixed with a transtibial cerclage wire.