

# Fracture dislocation of the ankle with the fibula trapped behind the tibia

## A case report

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The authors present a case of fracture dislocation of the ankle with the fibula entrapped behind the tibia—Bosworth's fracture. It is often unrecognized as such because it is so rare and because radiographs are not correctly interpreted. A stable reduction can be obtained by closed treatment when promptly recognized.

Since Bosworth (1947) reported 5 patients with a fracture dislocation of the ankle involving fibular entrapment behind the tibia, 26 other cases of the same kind of fracture have been reported (Harris 1947, Fahey et al. 1954, Fleming and Smith 1956, Meyers 1957, Meyers 1965, Langer 1967, Lovell 1968, Olerud 1971, Schatzker et al. 1977, Mayer and Everts 1978).

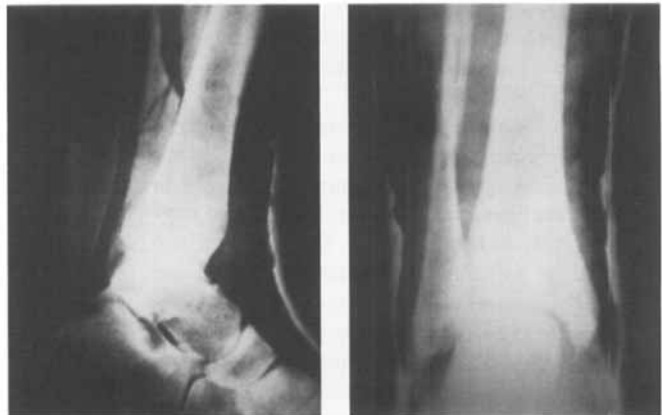
It is a rare injury, second only to the even more exceptional anterior variant (Schatzker and Johnson 1983), is often misunderstood, and needs prompt identification and treatment.

### Case report

A 31-year-old man fell to the ground when hanggliding. There was a violent impact, with the right foot hitting a rock and being forced in pronation-external rotation. On arrival at the hospital, the right foot was twisted 90° outwardly, plantarly flexed, with swelling of the ankle.



On arrival at the hospital (lateral and AP views).



After reduction.

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Figure 1. A 31-year-old man with a fracture dislocation of the ankle and the tibia trapped behind the fibula.

The dorsal and medialis pulses were reduced. The radiographs showed an external dislocation of the ankle with the fibula displaced behind the tibia and fracture of its distal fourth (Figure 1).

Under general anesthesia the dislocation was reduced using the technique of Mayer and Evarts (1978), applying traction and medial rotation to the foot with the left hand while the fibular shaft was pushed laterally with the right hand. A snap was heard and the ankle was reduced to a stable position. A temporary cast was applied to the leg for a few days; and after subsidence of the edema, the tibiofibular syndesmosis was stabilized with a cortical screw, and a long leg cast was applied.

After a month, the screw was removed and active mobilization of the ankle was started. Three months after the accident, the patient could resume sports activities. A modest and painless limitation of the ankle mobility persisted for 6 months; but 1 year later, normal mobility had been regained.

## Discussion

There is almost unanimous agreement in recognizing a torsional stress with pronation-exorotation of the foot as the pathogenetic mechanism of this fracture (Bosworth 1947, Fahey et al. 1954, Meyers 1957, Lovell 1968, Schatzker et al. 1977, Mayer and Evarts 1978, Yde 1980, Hamilton 1984). Other authors maintain that supination and external rotation are responsible (Olerud 1971, Connolly 1982).

The astragalus is dislocated behind the ankle mortice with strain on the tibiofibular syndesmosis. The fibula is pulled toward the outside from the lateral ligaments of the ankle and dislocates behind the tibia with a fracture at the distal fourth. More rarely, it can simply be dislocated without any fracture (Lovell 1968, Olerud 1971).

Mayer and Evarts (1978) reported that the interosseous membrane is severely stretched; but it is not ruptured by the fibular displacement, and usually the lateral ankle ligaments are not injured (Meyer 1965, Olerud 1971, Schatzker 1977, Mayer and Evarts 1978). This explains the stability of the fracture dislocation once reduction has been performed.

Particular attention should be paid to the radiographic examination of the fracture. As pointed out by Fahey et al. (1954), it is easy to arrive at an erroneous diagnosis. In particular when true anterior-

posterior and lateral projections are not used, the two can be misunderstood, leading to an erroneous interpretation.

A technical trick of great help is to include the knee in the radiographs (Schatzker et al. 1977). In this way a correct diagnosis can be made, and a possible fracture of the proximal fibula is also visualized.

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