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### CASE REPORT

## BEWARE THE "SIMPLE" FIBULAR FRACTURE (A CLUE FOR SEVERE UNSTABLE ANKLE INJURY)

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### INTRODUCTION

The ankle is a common site of sport injuries. These usually have their main manifestations at the ankle joint and are thus easily recognised. However, unstable ligamentous ankle injuries may be associated with a fracture of the proximal fibula which can dominate the clinical picture. This severe uncommon injury complex, known as Maisonneuve fracture, is easily missed and maltreated (Pankovich, 1967).

The purpose of this paper is to present the case of a Maisonneuve fracture. The mechanism, diagnosis and treatment of this type of injury are discussed.

### CASE HISTORY

A 24 year old basketball player injured his left ankle while stumbling and falling during a game. Severe pain in the ankle and proximal part of the leg resulted, preventing him from standing on his left leg. On examination, slight tenderness and swelling at the ankle, associated with extreme tenderness and crepitations over the upper third of the fibula, were noted. No neurovascular deficits were detected. Routine roentgenograms of the left leg and ankle revealed a fracture of

the proximal third of the fibula, without obvious damage to the ankle (Fig. 1).

Due to the tenderness and swelling around the ankle, associated with a fracture of the proximal third of the fibula, Maisonneuve fracture was suspected. Stress X-rays were performed and demonstrated a tear of the deltoid ligament and the tibiofibular syndesmosis, indicating a severe unstable ankle injury (Fig. 2).

Closed reposition and long leg plaster immobilisation for eight weeks, resulted in complete recovery six months following the injury.

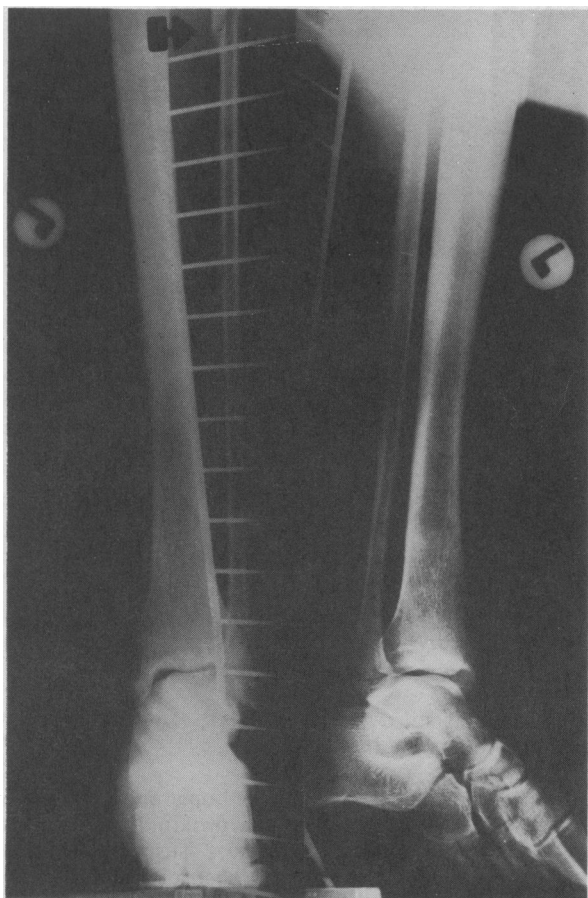
### DISCUSSION

Maisonneuve fracture is an uncommon fracture of the proximal fibula, associated with severe unstable ligamentous ankle injury. (Maisonneuve, 1840; Pankovich, 1976). It is the end result of the pronation external rotation ankle injury described by Lauge-Hansen (1950).

Due to the pronation, the medial ankle structures are tense at the initiation of trauma and are first to fail. This may result in a fracture of the medial malleolus or a tear of the deltoid ligament. The talus is now able to rotate externally, pushing the fibula in the same direction. The anterior tibiofibular and interosseous ligaments fail in succession. Continued external rotation fractures the fibula at its upper third, resulting in posterolateral ankle subluxation or dislocation, which usually reduces spontaneously (Lauge-Hansen, 1950; Pankovich, 1976, 1978).

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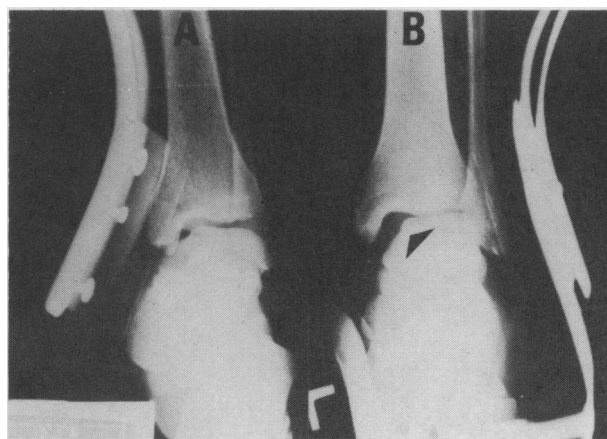
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**Fig. 1:** Anteroposterior and lateral X-ray views of the injured leg and ankle. High fracture of the fibula is demonstrated. No obvious ankle injury is seen.

The combination of a tear of the deltoid ligament, the anterior tibiofibular and interosseous ligaments (the syndesmosis), and high fracture of the fibula is known as Maisonneuve fracture (Maisonneuve, 1840). The patient usually complains of pain in the ankle and the upper third of the leg. On examination swelling and tenderness are detected on the anterior and medial aspects of the ankle, as well as over the upper third of the fibula. One area can dominate the clinical picture, causing neglect of the other area, which should not be missed.

The common peroneal nerve, which crosses the neck of the fibula, can be damaged by the fracture. Sensory



**Fig. 2:** A) Inversion (supination) and B) Eversion (pronation) stress views of the injured ankle. Increased medial malleolus-talar gap is demonstrated in the eversion stress view.

and motor functions of this nerve must be evaluated (Pankovich, 1976).

Routine ankle X-rays are usually negative, due to spontaneous reposition of the ankle dislocation and lack of osseous injuries. The fracture of the upper third of the fibula, when seen, should arouse the suspicion of unstable ankle injury. This can easily be demonstrated by stress X-ray views in pronation and external rotation, as demonstrated in the present case.

Accurate reduction of the ankle is mandatory for complete recovery (Ramsey and Hamilton, 1976). Closed reposition in internal rotation and supination, or open reduction and suture of the ligaments are the possible alternatives. Immobilisation in a long leg cast for six to eight weeks is necessary for complete healing of the ligaments (Wilson, 1976).

To conclude: one should be alert to the possible association of unstable ankle injuries and a fracture of the upper third of the fibula. In any case of ankle injury, the fibula should be palpated and X-rayed along its full length. On the other hand, detection of "simple" fracture of the fibula, should not cause neglect of the possibility of a severe ankle injury.

Stress ankle views in pronation and external rotation ensure accurate diagnosis. Appropriate reduction of the ankle mortise is mandatory for preservation of full sport capacity.

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