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Snowboarders' Ankle

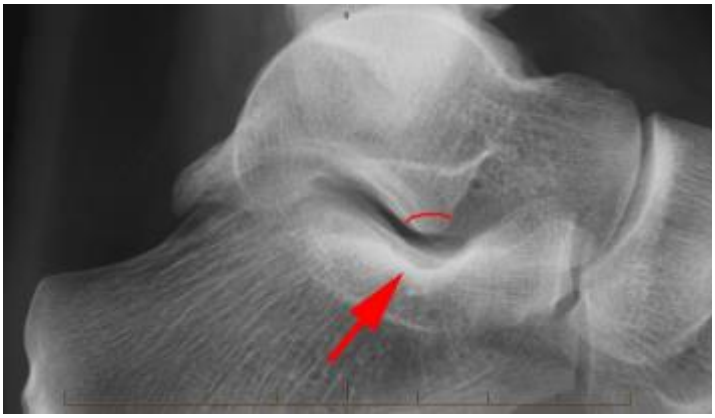
Introduction
Snowboarding injuries to the ankle are common however often go misdiagnosed.

One such injury is the fracture to the lateral process of the talus (FLPT), or snowboarders' ankle. This injury was not widely recognised until the advent of snowboarding. The incidence of this previously rare injury has been reported as high as 3% of all snowboarding injuries sustained. In a review of this injury it was found that only 59% of FLPT were correctly diagnosed on initial presentation.

Given the lateral process of the talus articulates with both the calcaneus (subtalar joint) and the fibula (talofibula joint) fractures are thus intra-articular and may involve both of these joints. Thus patients may have pain on both ankle and subtalar joint motion. The fracture types range from small chip type fractures to a larger comminuted fracture. They are often difficult to diagnose, even with the use of X-ray.

Clinical presentation
Typically, the clinical presentation is similar to that of an ankle sprain with lateral ankle swelling and eccymosis. Tenderness is localised to a region about 1cm inferior to the tip of the lateral malleolus. Although often mimicking a lateral ankle sprain it may be difficult to specifically elicit this site.

The actual mechanism has been debated and on questioning the snowboarder will probably not remember exactly how they fell. It is likely that the injured ankle was the leading foot at the time of the fall. Recent research indicates that forced ankle joint dorsiflexion, inversion and external tibial rotation causes the LPT to shear away as it compresses against the calcaneus (see image).



Typical site of a fracture to the lateral process of the talus

As a clinical clue, the snowboarder may describe falling both forward and toeside that would combine these planes of motion.

Diagnosis and treatment
Imaging is the only way to confirm the injury. A high index of suspicion would be raised in a snowboarder with persistent ankle pain that is not settling after an injury. Both lateral (ankle at 90°) and ankle mortice views are recommended as routine investigation. If clinical suspicion is high and an X-ray is NAD, then a CT scan / MRI should also be requested.

Misdiagnosed fractures can lead to permanent joint changes and disability. For this reason alone it may be worthwhile excluding this injury where possible in all snowboarding ankle injuries. Treatment depends upon the type of fracture diagnosed. A CT or MRI scan should be performed if a fracture is visible on X-ray to determine any displacement. Small nondisplaced fractures (< 2mm separation) can be managed with BKNWB cast for up to 4 weeks then a WB cast for 2 weeks. Some literature however suggests the removal of small fragments if they involve the articular surface. Larger or displaced fractures (>2mm separation) and comminuted fractures are best reduced surgically. Surgical intervention usually involves ORIF and is essential in reducing further joint damage and degeneration.

An aggressive diagnostic approach is recommended to ensure that this injury minimises joint damage and is managed appropriately.

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Take home messages

- Be suspicious of a non-settling snowboarders' ankle injury
- Hyper dorsiflexion, inversion and external rotation are potential mechanisms
- Snowboarders front foot most likely injured
- Plain films may not highlight a fracture so CT or MRI may be required
- Manage this aggressively as these are not simple sprains