Simultaneous bilateral snowboarder’s fractures in a young woman: a rare entity
Avijit Barai, Ralph Scorgie, Bruce Lambie

BACKGROUND: Talus is a well-supported bone in the foot. A fracture of talus requires a high-impact injury. A wedge-shaped inferolateral component is the lateral process of the talus (LPT). A fracture of LPT is also known as a ‘snowboarder’s fracture’. Simultaneous bilateral snowboarder’s fracture is rarely reported in English literature.

CASE: We present here a case of simultaneous bilateral snowboarder’s fractures in a slow-moving motor vehicle accident in the icy conditions. The injuries were unique because the snowboarder’s fractures were accompanied by fractures of the inferior aspect of talus bilaterally and a fracture of the anterior process of the calcaneus in the right foot. To our knowledge, no such case has been reported in the past. Our patient underwent successful open reduction and internal fixation with plate and screws.

CONCLUSION: Snowboarder’s fractures are frequently missed by the clinicians, which causes significant morbidity of the patients. Adequate knowledge and awareness among the physicians about this type of injury may improve the patient care.

Case report
A 17-year-old lady was brought in to our emergency department (ED) following a motor vehicle accident. She was a front-seat passenger in a car which was traveling slowly when the car skidded on icy roads. She was found restrained with her feet up on the dashboard. She was complaining of pain in the back, abdomen, left hip, right knee and both ankles. She was quite anxious during her presentation to the ED and her main complaint was the pain in her ankles. Although she could not explain exactly how her feet went up the dashboard, it is assumed that her feet sustained dorsiflexion and inversion injuries against the dashboard.

Both of her ankles were mildly swollen, but the skin was intact and there was no obvious deformity. Medial aspect of the right ankle, right knee, left ankle and left hip were tender. Distal neurovascular status was intact. Her upper abdomen and mid lumbar spines were tender.

Her initial x-rays of both ankles revealed bilateral snowboarder’s fractures (Figure 1), though there was some doubt about the left ankle fracture.
Her x-rays of feet, pelvis, knees, lumbar spines and chest did not show any fractures. The bedside ultrasound scan did not show any intra-abdominal free fluids. CT scans of both ankles showed bilateral snowboarder’s fractures associated with fractures in the inferior aspect of anterior talus bilaterally and anterior process of the calcaneus in the right foot (Figure 2 and 3).

**Figure 1:** Plain radiographs of both ankles AP view showing snowboarder’s fractures.

![Figure 1](image1)

**Figure 2:** CT scan of both ankles’ coronal sections showing snowboarder’s fractures.

![Figure 2](image2)
We placed her in bilateral below knee back slabs and admitted her under the orthopaedic team where she was treated with open reduction and internal fixation with plates and screws. Her other x-rays and CT scan of abdomen did not show any fractures. However, there was a small laceration of the liver which was considered to be insignificant by the surgical team and was treated conservatively.

Discussion

Our case was unusual for a number of reasons. Firstly, her mechanism of injury was a low-impact injury, which contradicts other authors.6–9 It is not obvious how an axial traction to her ankles caused forced dorsiflexion, and inversion or external rotation of her ankles as were proposed as the probable mechanism of a snowboarder’s fracture. This case might illustrate that there might be some other mechanism for a snowboarder’s fracture.

Secondly, her tenderness was on the medial aspect of the right ankle, and diffuse tenderness of left foot, which warranted foot x-rays that completely missed the fractures. This might highlight the reason why snowboarder’s fractures are frequently missed by the inexperienced clinicians.2 Bonvin et al reported that snowboarder’s fractures may be misdiagnosed as ankle sprain in up to 50% of cases in plain x-rays.11 The issue may be addressed with knowledge and awareness of the condition.

Thirdly, she had distracting injuries on her back, abdomen and knee joints, which diverted our attention, and we could have easily missed the snowboarder’s fractures. In fact, snowboarder’s fracture is frequently missed by inexperienced clinicians and cause significant long-term morbidity of the patients.3,10,11 This might focus on the importance of a thorough clinical examination in the diagnosis and management of relatively rare entities.

Fourthly, she had bilateral snowboarder’s fractures in addition to the sub-talar fractures bilaterally, and an anterior process of calcaneus fracture in right foot, which to our knowledge has not been previously reported in English literature. Table 1 illustrates a summary of comparable cases.
Table 1: Comparable cases of snowboarder’s fractures.

<table>
<thead>
<tr>
<th>Author</th>
<th>Summary</th>
<th>Comparison with our case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnett et al7</td>
<td>A case of bilateral LPT fractures, which by definition are snowboarder’s fractures.</td>
<td>Our case was of a different type of injury, especially considering the fact that there were sub-talar fractures bilaterally and the right foot had an anterior process of calcaneus fracture as well.</td>
</tr>
<tr>
<td>Mussmann et al2</td>
<td>A case of a snowboarder’s fracture in left ankle following a wakeboarding injury, which was treated conservatively.</td>
<td>This is clearly different from our patient who had bilateral snowboarder’s fractures associated with other bony injuries, which were treated with plate and screws.</td>
</tr>
<tr>
<td>Balaji et al6</td>
<td>A case of bilateral open fracture-dislocations of talus resulting in avascular necrosis (AVN).</td>
<td>Our case was closed fracture, which was treated successfully with plate and screws. Due to the nature of blood supply of talus and a lack of dislocation in our case, we don’t believe that an AVN is likely to develop.</td>
</tr>
</tbody>
</table>

The Otago region of New Zealand is a popular tourist destination all year round. During the winter months, tourists from all over the world travel to Otago for participation in the winter sports such as skiing and snowboarding. Although we encounter some unique injuries, a simultaneous bilateral snowboarder’s fracture was a once-in-a-lifetime experience to even the most experienced ED clinicians. Thorough knowledge of this rare entity may prevent this to be missed, and thus will improve the care of the patients.

Competing interests: Nil.

Author information: Avajit Barai, Emergency Department, Dunedin Hospital, Dunedin; Ralph Scorgie, Emergency Department, Dunedin Hospital, Dunedin; Bruce Lambie, Emergency Department, Dunedin Hospital, Dunedin.

Corresponding author: Dr Avajit Barai, Emergency Department, Dunedin Hospital, 201 Great King Street, Dunedin 9016. drbarai@gmail.com

REFERENCES:


