The Incidence of Lateral Process Fracture of the Talus
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BACKGROUND

The lateral process of the talus has articulations that involve both the ankle joint and the subtalar joint. Because of this, a fracture of the lateral process can affect either or both of these joints, and a fracture can result in considerable disability. The anatomic location of this structure can make visualization difficult on plain radiographs.

Lateral process fractures were first described in 1882 when Shepherd discovered one such case during cadaveric dissection. The first attempt at presenting a collection of clinical cases was in 1952 by Mawell. In the initial 25 years, only 34 cases were reported in the literature. These fractures were thought to be a rare occurrence. Although downplayed in some cases due to the infrequency of occurrence, the propensity for disability has never been understated. Raskin presented 13 cases, of which eight were missed initially. Three of these were inadequately treated and developed significant disability. In 1974 Minkespie presented 15 cases in 13 months. In his series 22% of those with residual symptoms had lateral process fractures that were missed initially and subsequently had poor functional outcomes.

In recent years some attention has been focused on lateral process fractures with the contention that an increased incidence can be attributed to the rising popularity of snowboarding. Yet many authors still claim these fractures to be a rarity. Whether considered common or uncommon, lateral process fractures are frequently missed. It has been speculated that these injuries are often missed because the clinical picture can closely mimic that of an ankle sprain. The obvious difficulty in this is that poor outcomes often result when these fractures are overlooked or mistreated.

Still there is considerable controversy regarding the epidemiology of these injuries. To date, no large investigation into the precise frequency of these injuries has been reported. Given the propensity for disability and poor functional outcomes with these injuries, an investigation to determine the true incidence of these fractures is warranted. The present investigation seeks to determine the rate of occurrence of lateral process fractures of the talus presenting to a major medical center.

MATERIALS AND METHODS

- A retrospective review was conducted of all ankle x-ray and advanced imaging series obtained during the 3-year interval between July 1, 2001 to June 30, 2004 at a Level 1 trauma center.
- A brief search of these patient records was performed to determine whether or not the films were obtained as a matter of follow-up of an ankle sprain, or any other notable fracture to the affected extremity. Review was by consensus of a PCV-2 Resident, PCV-3 Resident, and Chief of Musculoskeletal Radiology.
- In cases where advanced imaging modalities such as CT or MRI were subsequently obtained as a matter of further diagnostic workup of the affected extremity, these images were also reviewed to further elucidate the extent of injury and serve as an internal control to verify the diagnostic accuracy of fractures on plain film radiography.
- The total number of cases of lateral process fractures and other fractures was tallied. The frequency of each of these was calculated by dividing the sum of each group by the total number of patients presenting for ankle injury.

- Mann-Whitney Chi-square analysis (SAS Version 8.2, Cary, NC) was performed to determine the statistical significance of associations between lateral process fractures and other radiographic findings.
- Statistical significance was defined as p≤0.05.

RESULTS

- 1,488 patients were imaged for suspected traumatic ankle injury during the 5-year study interval.
- 137 lateral process fractures were identified.

- The incidence of lateral process fracture was 9.3% (n=137) of patients imaged for ankle trauma.
- There were 34 cases reported in the literature. These fractures were thought to be a rare occurrence. Although downplayed in some cases due to the infrequency of occurrence, the propensity for disability has never been understated. Raskin presented 13 cases, of which eight were missed initially. Three of these were inadequately treated and developed significant disability.
- In 1974 Minkespie presented 15 cases in 13 months. In his series 22% of those with residual symptoms had lateral process fractures that were missed initially and subsequently had poor functional outcomes.

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LATERAL PROCESS FRACUTRE IMAGING

CONCLUSIONS

- This is the largest reported series to date in both number of subjects and time-interval studied.
- This investigation found an incidence of 9.3% as compared to the frequently cited incidence of 0.86%.
- This study shows that lateral process fractures are 10 times more common than previously thought.

- Go on the propensity for disability and poor functional outcomes with these injuries, a high index of suspicion should be maintained when examining patients with traumatic ankle injury, particularly those with lateral ankle tenderness and fractures of the posterior process of the talus.

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REFERENCES