CASE REPORT

Subtalar dislocation secondary to a low energy injury

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SUMMARY

An 18-year-old young man presented with an ankle injury, after landing on a supinated right foot following jumping while playing football. A plain X-ray revealed a medial subtalar dislocation. Despite obvious ankle deformity, the surrounding skin remained intact. Closed reduction of the subtalar joint was successfully performed under general anaesthesia in theatre. A CT of the ankle, after reduction, demonstrated a non-displaced fracture of the neck of the talus; no osteochondral defect was observed. This was successfully managed conservatively, with immobilisation of the ankle, in a non-weight bearing cast for 6 weeks. This case highlights that subtalar dislocation may follow a low-energy mechanism and that such injuries can be managed without open reduction.

BACKGROUND

This case highlights that subtalar dislocation may occur following a low-energy mechanism. It also demonstrates that such injuries may be managed conservatively.

CASE PRESENTATION

An 18-year-old young man, with no significant medical history, presented to the emergency department with an ankle injury sustained while playing football. The mechanism of injury was landing on a supinated right foot after jumping for the ball. On examination there was an obvious deformity of the ankle, although his skin remained intact.

INVESTIGATIONS

Anteroposterior and lateral X-rays of the ankle revealed a medial dislocation of the talocalcaneal and talonavicular joints (a subtalar dislocation). No associated fracture was observed (figures 1 and 2). A CT of the ankle showed a non-displaced fracture of the neck of the talus with no osteochondral defect (figure 3).

TREATMENT

A closed reduction was performed in theatre under general anaesthesia. A mobile X-ray image intensifier was used to screen the ankle and verify successful reduction of the dislocation. The ankle joint was then immobilised in a short leg, non-weight bearing cast.

OUTCOME AND FOLLOW-UP

At review, 2 weeks following the injury the cast was removed. Clinical examination and plain X-rays of the ankle were unremarkable. However, a CT of

Figure 1 Anteroposterior X-ray of the right ankle demonstrating a medial subtalar dislocation.

the ankle revealed a non-displaced fracture of the neck of the talus (figure 3); no osteochondral defect was observed. This was managed conservatively with a second short leg, non-weight bearing cast applied for a further 4 weeks (a total of 6 weeks in cast). Following this, the cast was removed and gradual weight bearing was introduced using an aircast boot.

DISCUSSION

Subtalar dislocation is an extremely rare injury. It represents approximately 1–2% of supination injuries to the foot.¹ Typically subtalar dislocations are the result of high-energy trauma, such as motor vehicle accidents and falls from a significant height. As a consequence, the overlying skin is usually breached.² Osteochondral fractures are

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Figure 2 Lateral X-ray of the right ankle demonstrating a medial subtalar dislocation.

commonly associated with subtalar dislocation.³ Initial imaging with X-ray establishes the direction of dislocation and the presence or absence of an associated fracture. Dislocation can

Figure 3 CT of the right ankle (coronal view) demonstrating a non-displaced fracture of the neck of the talus (arrow).

occur in any direction but medial subtalar dislocation is most common, as was observed in the present case.⁴ Postreduction CT imaging is recommended to identify osteochondral injuries, occult fractures and subtalar debris.⁴ In the present case, a CT scan revealed a non-displaced fracture of the neck of the talus that was not observed on plain X-ray. No osteochondral defect was observed on CT. Prompt reduction of subtalar dislocation is important to avoid complications with the overlying skin.⁵ Reduction under sedation is desirable; however, this is often not possible. Subtalar dislocation may be associated with significant late complications including osteoarthritis and arthrofibrosis of the subtalar joint and avascular necrosis of the talus.⁶ Avascular necrosis of the talus is rare given that the talus has not been dissociated from the ankle mortise, therefore most of its blood supply is maintained from the deltoid ligament.⁶ Most patients will have some degree of pain and stiffness of the subtalar joint and some degree of osteoarthritis following these injuries.⁷ Closed subtalar dislocation generally has a good functional outcome.⁷ However, when associated with tarsal fractures, higher rates of ankle arthrodesis secondary to traumatic osteoarthritis are observed.⁸ Open subtalar dislocation is a severe injury often associated with significant long-term complications.⁹ Rates of ankle arthrodesis and avascular necrosis of the talus are much higher when compared to closed injuries.⁹

Learning points

- ▶ Subtalar dislocation may follow a low-energy mechanism and may occur without an osteochondral defect.
- ▶ CT may reveal non-displaced fractures of the talus not visible on plain X-ray.
- ▶ Such injuries can be managed without open reduction.
- ▶ Closed subtalar dislocation is generally associated with a good long-term functional outcome.
- ▶ Open subtalar dislocation is often associated with significant long-term complications.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Taymaz A, Gunal I. Complete dislocation of the talus unaccompanied by fracture. *J Foot Ankle Surg* 2005;44:156–8.
- 2 Young R, Jae J, Ho S, et al. Completely extruded talus without soft tissue attachments. *Clin Pract* 2011;1:e12.
- 3 Xarchas K, Psillakis I, Verettas D. Total dislocation of the talus without a fracture. Open or closed treatment? Report of two cases and review of the literature. *Open Orthop J* 2009;3:52–5.
- 4 Huang P, Fu Y, Tien Y, et al. Open total talar dislocation—report of two cases. *Kaohsiung J Med Sci* 2000;16:214–18.
- 5 García-Regal J, Centeno-Ruano A. Talocalcaneonavicular dislocation without associated fractures. *Acta Ortop Mex* 2013;27:201–4.
- 6 Simon LC, Shulz AP. “Basketball Foot”—long time prognosis after peritalar dislocation. *Sportverletz Sportschaden* 2008;22:31–7.
- 7 Fotiadis E, Lyrtzis C, Svarnas T, et al. Closed subtalar dislocation with non-displaced fractures of talus and navicular: a case report and review of the literature. *Cases J* 2009;2:8793.
- 8 Chrintz H, Pahle E. Subtalar luxation. *Ugeskr Laeger* 1989;151:1674–5.
- 9 Goldner JL, Poletti SC. Severe open subtalar dislocations. Long term results. *J Bone Joint Surg Am* 1995;77:1075–9.

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