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CASE REPORT

# Talus fracture in a 4-year-old child

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## ABSTRACT

Fracture of the talus is uncommon in childhood. We report a case of talar neck fracture that occurred in a 4-year-old girl. We present the radiological findings, the orthopaedic follow-up and the clinical outcome.

## BACKGROUND

Talus fracture is uncommon in childhood. A high level of clinical suspicion is needed to avoid missing this type of fracture, especially when it has a minimal displacement. Paediatric bone is more elastic than adult bone,[1] so fewer fractures occur in early life.

The prevalence for paediatric trauma in talus fracture is estimated to be five times rarer than for adult trauma.[1] The talar neck is the first site of fracture, followed by the talar body.[2 3]

Potential bone remodelling for future growth is poor, which means avascular necrosis and osteoarthritis can occur if the fracture is not treated according to standard treatment methods.

## CASE PRESENTATION

A 4-year-old girl presented to the emergency department with right foot pain after being hit by a heavy weight (metal wardrobe around 50 kg). Physical examination showed swelling, ecchymosis and tenderness on the dorsal side of the mid-foot. Foot and ankle mobilisation was painful, with inability to bear weight after receiving paracetamol and ibuprofen according to her weight. Additional examination was not possible due to the reduced compliance. X-rays (figures 1 and 2) confirmed the diagnosis of minimally displaced talar neck fracture[4] (Hawkins type 1 neck of talus fracture without subtalar dislocation).

**Figure 2** Day 0 lateral plain film.

## TREATMENT

The lesion was treated with a non-weight bearing short-leg cast for 4 weeks (figures 3 and 4) and in

**Figure 1** Day 0 antero-posterior plain film.

**Figure 3** 1-Month antero-posterior plain film.

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**Figure 4** 1-Month lateral plain film.

**Figure 6** 2-Month lateral plain film.

a weight-bearing synthetic cast for another 4 weeks. Analgesia with paracetamol and ibuprofen was given according to her weight; ice was applied on the cast for 10 min three times a day for the first 3 days to prevent swelling.

After 2 months the patient was pain free and had resumed all her activities. X-rays (figures 5 and 6) showed a consolidation of the fracture without evidence of avascular necrosis.[5]

## OUTCOME AND FOLLOW-UP

Talar fracture is an uncommon pathology in children. For minimally displaced fractures, immobilisation with a cast has been proposed to avoid avascular necrosis and displacement of fracture.[1] In our case, the patient was treated conservatively. After 22 months, clinical findings revealed a favourable functional outcome. The mobilisation of the foot and ankle was complete without any pain.

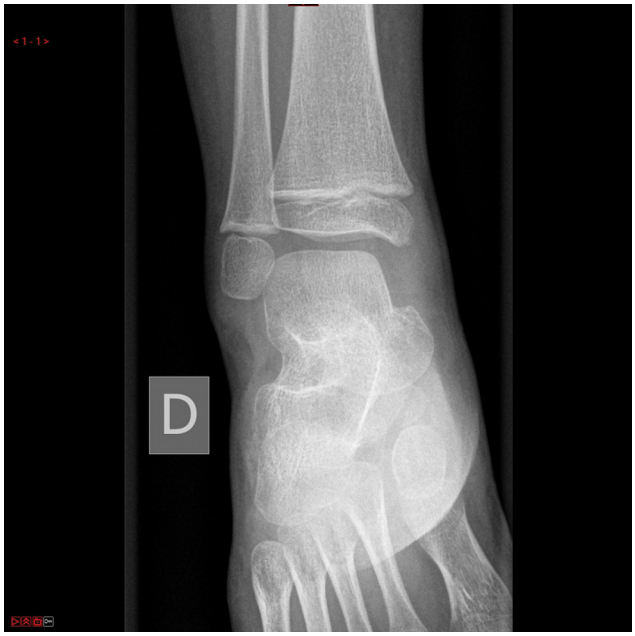


**Figure 5** 2-Month antero-posterior plain film.

### Learning points

- Talus fracture is an uncommon pathology in children which could be missed during diagnosis.
- Using a cast is a good treatment option with favourable outcomes for non-displaced and minimally displaced fractures.
- There is a need for long term follow-up in cases of talus fractures.

## DISCUSSION

Meier *et al*[1] studied the long-term outcome of neck or body talar fracture in 15 children (10 boys, 5 girls) with an average age of 10 years (4–16 years). All Hawkins types were studied with different treatment. Hawkins type 1 was treated by close reduction (if necessary) and with a cast immobilisation.

Patients with Hawkins type 1 and type 2 or body fractures achieved excellent results except two patients who had to be treated by an arthrodesis procedure. Smith *et al*[6] studied 29 children with talus fractures sustained at an average age of 13.5 years. They observed no persistent osteonecrosis in patients younger than 12 years old and reported favourable outcomes in the majority of cases regardless of the mode of treatment.

The guidelines for the treatment of avascular necrosis and osteoarthritis caused by talus fracture in childhood trauma should be clearly defined, even if this rare type[5] of fracture is not always recognised, especially with non-displaced fractures.

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