

TEST YOUR KNOWLEDGE

A child with elbow pain

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Abstract

Elbow injuries are common in children. Supracondylar fractures occurred in 16% of all pediatric fractures. Supracondylar fractures can be classified into 4 types according to the Gartland classification, depending on the degree of the fracture present in the lateral radiograph. This case highlights the case of a child with a Gartland Type I fracture. A misdiagnosis of this fracture will compromise the management of the injury with regards to immobilization and subsequent care. As this injury can be managed on an outpatient basis, primary care frontliners need to be aware of the condition.

Case History

3-year old boy presented to the outpatient clinic with left elbow pain and swelling after a fall. He fell on his left arm when it was in the outstretched position. He complained of pain, especially during movement, and developed mild swelling at the elbow. He also denied any changes in sensation in the left arm or hand (such as numbness or tingling).

The examination of the left arm showed tenderness and swelling at the elbow but no bruises. The range of movement could not be elicited because the child refused to move the arm. However, he was able to move his distal fingers. The left radial pulse was palpable and had good volume. The skin color and temperature were normal.

Radiographs of the left distal humerus with anteriorposterior (AP) and lateral views were performed (**Images 1 and 2**).



Image 1



Image 1

Questions

- 1 Describe the radiological findings in Images 1 and 2.
2. What is the diagnosis?
3. Outline the management for this patient.

Answers

1. There is the presence of a posterior fat pad (lateral view) with minimal cortical disruption (buckling) of the medial surface of the left supracondylar (AP view). The fat pad is a visualization of a lucent crescent of fat located in the olecranon fossa in a true lateral view of the elbow joint.¹ An anterior fat pad can present in a normal radiograph. However, the posterior fat pad is usually pathological, indicating an elbow joint effusion. It can be a clue pointing to occult nondisplaced fractures, in particular, a supracondylar fracture in children.
2. The diagnosis is a left supracondylar fracture of Gartland Type I. The Gartland classification is based on the lateral radiograph. Gartland Type I fractures are nondisplaced, Type II fractures are displaced with angulation, and Type III fractures are completely displaced and lack cortical contact while maintaining an intact posterior cortex.² Supracondylar fractures occurred in 16% of all pediatric fractures.³ The peak age for supracondylar fractures is between 6 and 7 years of age.⁴ In this age range, the area is prone to fracture because it is undergoing remodeling and typically thinner with a more slender cortex. Proper assessment of clinical presentation and radiographic features is important
3. The affected elbow should be supported and immobilized at a flex of about 30 degrees with the other hand, a triangular bandage sling or any other form of splintage before sending for radiographic evaluation to prevent further neurovascular injury and also to reduce pain. This child needs an above-elbow cast at 90 degrees of flexion for 3 to 4 weeks.⁵ If a backslab is applied, it should be extended as high above the elbow as possible (i.e., close to the axilla) and down to the MCP joints.⁶ The application of a comfortable, well-padded, and appropriately applied splint is a critical part of the initial management of these injuries, regardless of their definitive treatment. This child can be given an oral analgesia (e.g., ibuprofen 5mg/kg, paracetamol 15mg/kg or Codeine 1 mg/kg every 4–6 hours) for mild to moderate pain relief.⁷ The parent(s) should be advised regarding the elevation of the affected limb and encouraged to monitor the child's condition frequently, including monitoring changes in pain level, finger movement and sensation. The child also needs to be encouraged to perform finger exercises to prevent stiffness and promoting circulation.

How does this paper make a difference to general practice?

- Elbow injuries are common in children and range in severity.
- A subtle injury can be missed in a radiograph if the radiograph is not evaluated carefully.
- Recognition of a Gartland Type I elbow fracture will change the management plan in terms of the duration of immobilization and care.
- A Gartland Type I elbow fracture can be managed in a primary care clinic.

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