



Visual diagnosis

A rare cause of elbow injury

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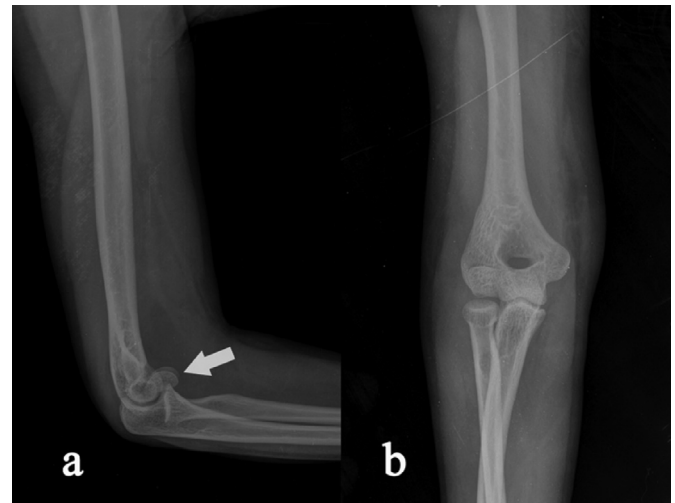
ABSTRACT

We present the case of a patient who presented to the emergency department complaining of elbow pain after falling. Radiographic views of the elbow were shown.

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1. A rare cause of elbow injury

A 40-year-old female patient presented to the emergency department complaining of elbow pain after falling. The patient's vital signs were normal. Physical examination revealed mild swelling, tenderness and limited range of motion in the left elbow. Neurovascular examination was within normal limits. Anterior-posterior and lateral radiographic views of the elbow were shown in Fig. 1a, b.



Arrow: capitellum fracture

Fig. 1. (a, b) Anterior-posterior and lateral radiographic views of the elbow.

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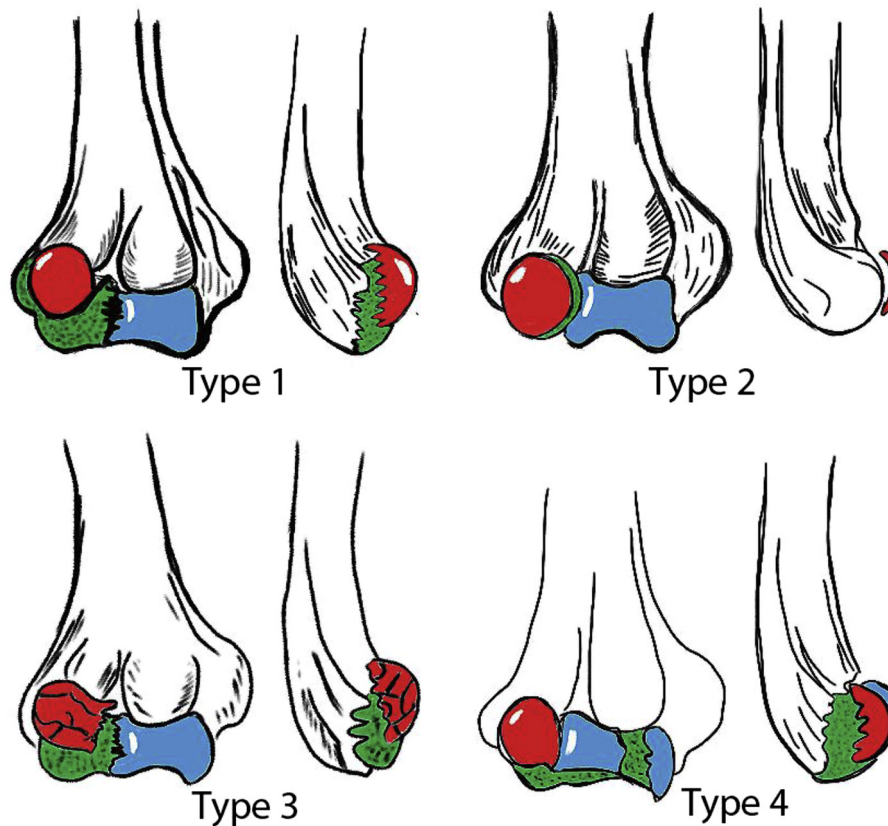


Fig. 2. Types of capitulum fractures.

2. Diagnosis: capitulum fractures

Capitulum fractures are rare and responsible for less than 1% of all elbow fractures. Views on plain radiography may be elusive. For these reasons, diagnosis of these injuries may be easily missed¹ (Fig. 1a,b).

The mechanism of injury is usually a fall onto the out stretched hand, with the elbow partially flexed or extended. An axial force is transmitted to the distal humerus from the radius, which results in a shearing force across the capitulum in the coronal plane. Another mechanism that may cause this injury is a direct blow with the elbow flexed.²

Fractures of the capitulum are classified into three patterns by Bryan and Morrey. Type I (Hahn-Steinthal fracture) which is the most common type, consists of a hemispherical fracture fragment caused by a coronal shear fracture of the capitulum. Type II (Kocher-Lorenz fracture) occurs as a shell of articular cartilage with a thin layer of subchondral bone which makes the capitulum appear as if it were “uncapped”. Type III fractures, which are commonly associated with radial head fractures, are comminuted and often impacted. Type 4 fractures, which were described by McKee and colleagues, are shear fractures involving the capitulum and most of the trochlea² (Fig. 2).

Significant signs and symptoms of capitulum fractures may present in a delayed fashion. Flexion of the elbow increases pain. A true lateral plain film usually shows the fragment lying anterior and proximal to the main portion of the capitulum.³

While joint stiffness and instability are short term risks of capitulum fractures, post-traumatic osteoarthritis is a long term risk.⁴

Operative treatment of capitulum fractures are recommended by most investigators. Treatment of type I and type IV fractures is operative fixation and the majority of type II and III fractures are treated with excision of the fragments.²

Capitulum fractures are an important pitfall in emergency medicine for being rare and difficult to diagnose. It may result in functional deterioration if left untreated.

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