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Radial neck fracture in an adult- Mason Type 2: A case report

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Abstract
Radial neck fractures in adults are rather uncommon. The outcome is determined not only by the injury, but also by the treatment approach and the presence of any other injuries [1]. In order to lessen the displacement and avoid complications, many surgical procedures have been employed to treat displaced radial neck fractures [2]. Metaizeau was the first to report closed intramedullary pinning in paediatric radial neck fractures in 1980, and satisfactory results have been published many times since then [3]. We applied the Mataizeau technique in this case of Radial neck fracture in an adult with satisfactory results and have decided to present the case.

Keywords: Radial neck fracture, adult orthopaedics, intramedullary pinning, metaizeau technique

Introduction
Fractures of the radial neck are relatively uncommon injuries; the incidence in children is reported to be about 14%, but this includes all epiphyseal and metaphyseal injuries. Blount reports an incidence of 4.5% of all elbow fractures, whereas Lindham has reported an incidence of about 7% of all elbow fractures in their series [4]. Radial neck fractures are relatively rare in children, accounting for 1% of all fractures in children and 5% to 14% of traumatic elbow injuries. They rank fourth after supracondylar fractures, epitrochlear fractures and external condyle fractures [5]. The incidence in adults being 1%, but being the most common elbow fracture among the adult populaton

Classification
The Mason classification is used to classify radial head fractures and is useful when assessing further treatment options [6].

- **Type I:** non-displaced radial head fractures (or small marginal fractures)
- **Type II:** partial articular fractures with displacement (>2 mm)
- **Type III:** comminuted fractures involving the entire radial head
- **IIIa:** fracture of the entire radial neck, with the head, completely displaced from the shaft
- **IIIb:** articular fracture involving the entire head, consisting of more than two large fragments
- **IIIc:** fracture with a tilted and impacted articular segment
- **Type IV:** fracture of the radial head with dislocation of the elbow joint

Steinberg *et al* and Rodríguez-Merchán
- mild (10°-29°, <30% translation)
- moderate (30°-59°, <50% translation)
- severe (60°-90°, >50% translation)

Steele and Graham
- Grade 1 (0°-30°, 0%-10% translation)
- Grade 2 (31°-60°, 11%-50% translation)
- Grade 3(61°-90°, 51%-90% translation)
- Grade 4 (>90°, >90% translation)

Steele and Graham
- Grade 1 (0°-30°, 0%-10% translation)
- Grade 2 (31°-60°, 11%-50% translation)
- Grade 3(61°-90°, 51%-90% translation)
- Grade 4 (>90°, >90% translation)

Metaizeau *et al* and Judet *et al*
- Grade 1 (0°, with translation)
- Grade 2 (<30°)
- Grade 3 (30°-60°)
- Grade 4a (60°-80°)
- Grade 4b (80°-90°).

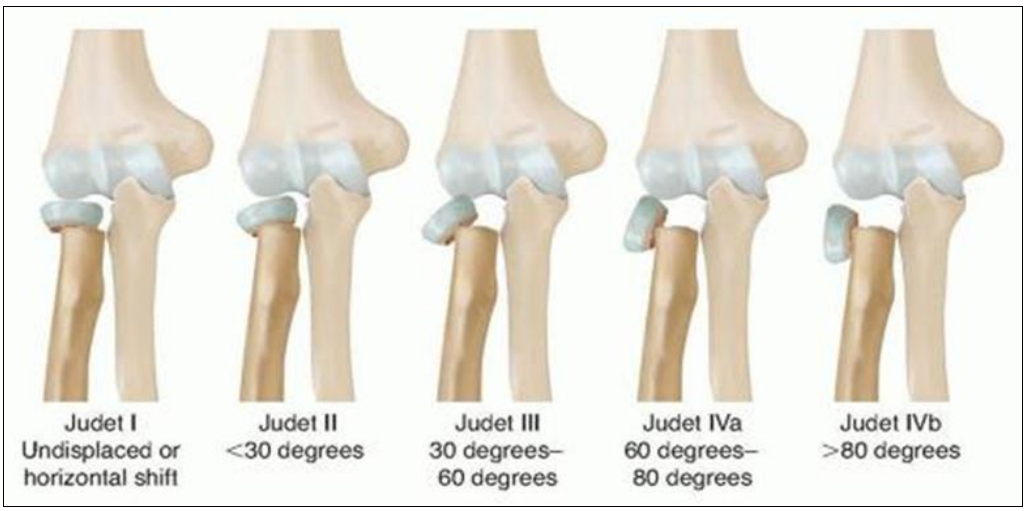

Fig 1: Radial tuberosity - site of insertion of biceps brachii tendon

Vascular Supply

The recurrent radial artery supplies the ventral, lateral, and dorsal parts of the radial head. A branch of the ulnar artery ramus periostalis ulnaris supplies the medial and dorsomedial parts. These two main vessels create an anastomosis on the dorsal side of the radial neck via a subchondral plexus. In addition, dorsal and ventral parts of the radial neck are supplied by branches of an interosseous artery: a third source of blood supply to the radial head coming out of the ulnar artery. The radial recurrent artery is the main intraosseous source of blood supply

Case Report

A 33-year-old male presented to our emergency room with an injury to the elbow following a fall on the outstretched hand. He had a diffuse swelling around the elbow, with no external wounds. On examination there was diffuse swelling on the medial aspect of the elbow. He had weakness of the flexors of the fifth and fourth digits of the hand with a hypoaesthesia in the distribution of the ulnar nerve.

Case details follows
- Patient MV
- 33M,
- C/O: Pain and Swelling of the left elbow after a fall from a 2 wheeler on 03/11/25
- No H/O loc, vomitting, ENT bleed, seizure, pain abdomen, hematuria
- No other complaints.
- D: Left Closed Displaced radial neck fracture - Mason Type 2

O/E:
- Alert, conscious cooperative
- P- 90/min
- BP- 100/70
- RR- 18/MIN
- TEMP- 98F

Systemic examination
- Chest: Normal breath sounds +
- CVS: S1, S2 +, no added sounds
- P/A: Soft, no organomegaly.
- CNSL NAD

Left elbow
- Swelling present
- Tenderness present over the Radial Neck
- ROM painfully restricted
- No signs of distal neuro-vascular deficits.

Sx: Closed reduction and ESIN stabilization - Matizeau technique -06/11/2025

INTRA OP
- Patient under the effect of GA.
- Placed in supine position with the arm on arm board.
- Patterson, Israeli and elastic bandage technique used to reduce the radial head but was not successful.
- Under tourniquet control, incision made just proximal to the distal radial physis and soft tissue dissected to the bone.
- Entry point made using an awl and 3 mm ESIN introduced into the radial marrow cavity.
- ESIN passed into the epiphysis after a 180’ rotation in the metaphysis and neck reduced.
- Wash given and incision closed in layers.
- A/E slab applied,

Post OP: Comfortable and alert, fullness decreased, Distal Radial Pulse palpable, Post op Xray satisfactory, No deficits

PLAN
- Limb Elevation
- Slab for 2 weeks then to start elbow ROM

Fig 2: Intra Op Xrays

Fig 3: Post OP Xrays

Conflict of Interest
Not available

Financial Support
Not available

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