Case Report
Published: 22 Sep, 2020

SF Journal of Radiology and Clinical Diagnosis

Capitellar Fracture (McKee's Double Arc Sign)

*Al-Ghafri A**

Ibri Hospital, Oman

Case Presentation

A 24 years old female with h/o of fall on an outstretched left hand three weeks back on 12.4.2020 presented on 4.5.2020 with pain & stiffness on her left elbow.

O/E

Tenderness over the lateral aspect of the elbow. No neurological deficit. Mechanical block.

Left Elbow X-ray AP and Lateral

There is a semilunar fragment displaced anteriorly and superiorly suggestive of displaced fragment fracture of the capitellum and possible lateral half of the trochlea. McKee's double arc sign. One arc representing the capitellum and the second arc represents the ridge of the trochlea. There is evidence of elevated both anterior and posterior fat pads suggestive of joint heamoarthrosis.

Impression

Features are suggestive of type IV capitellum fracture (according to Bryan and Morrey classification with McKee modification).

CT Left Elbow Joint

Confirmed displaced fracture involving the capitellum & lateral half of the trochlea. Mild to moderate heamarthrosis.

Patient was operated on 7.5.2020

Open reduction & screws fixation of the fracture.

Capitellum Fractures

Capitellum fractures are uncommon, however due to the severity of the consequent functional impairment resulting from these intra-articular elbow fractures, their prompt diagnosis and management are crucial. Capitellar fractures are relatively rare, with approximately 3-4% of distal humerus fractures falling into this category [1].

Mechanism

The most injury mechanism to this fracture is falling in an outstretched hand.

Radiographic Features

The extent of capitellar fractures is often un-fortunately - underestimated on plain film, while non-displaced or osteochondral lesions can even remain occult. Thus, CT is usually the radiological examination of choice for evaluation and classification. It helps as well in the surgical planning. In case of displaced fractures, McKee's eponymous "double arc" sign is often visible on lateral radiographs where the two separately visible arcs represent the displaced capitellum and the trochlea [2].

Classification

Multiple systems exist for characterizing fractures of the capitellum, the most commonly used one being the modified Bryan and Morrey's system [1,3]:

Type I (Hahn-Steinthal fracture): complete osteochondral fracture of the capitelum; the trochlea can also be involved.

Type II (Kocher-Lorenz fracture): anterior osteochondral shear fracture with minimal subchondral bony involvement.

Type III (Broberg-Morrey fracture): compressed or comminuted fracture of the capitellum.

Type IV: coronal shear fracture involving the capitellum and extending to the trochlea.

OPEN ACCESS

*Correspondence:
Aziza Al-Ghafri, Ibri Hospital, Oman.
E-mail: alazhar23@yahoo.co.uk

Received Date: 21 Jun 2020
Accepted Date: 18 Sep 2020
Published Date: 22 Sep 2020

Citation: Al-Ghafri A. Capitellar Fracture (McKee's Double Arc Sign). SF J Radiol Clin Diagn. 2020; 2(1): 1004.

Treatment and Prognosis

Capitellar fractures are intra-articular, hence open surgical reduction and internal fixation, or excision of the displaced fragment is often needed. For some non-displaced fractures, conservative management with splint immobilization is considered appropriate [1].

References

1. Lasanianos NG, Makridis K. Capitellum Fractures. Digestive Diseases and Sciences. 2019; 63: 67-69.
2. McKee MD, Jupiter JP, Bamberger HB. Coronal Shear Fractures of the Distal End of the Humerus. J Bone Joint Surg Am. 1996; 78: 49-54.
3. Suresh SS. Type 4 capitellum fractures: Diagnosis and treatment strategies. Indian J Orthop. 2009; 43: 286-291.