

Neglected Close Fracture of Capitellum: A Rare Case Report

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Abstract: *Capitellum fracture is a rare injury of the elbow, happened in about 1% of the fractures around the elbow. We report a case of a 32-years old male with neglected capitellum fracture came to us four weeks after the injury. Radiographs showed a fracture of the capitellum extending medially to the trochlea. The procedure was done with anterolateral approach to the elbow. Open reduction and internal fixation of the fracture with screws and wire was done. The outcome of the procedure is excellent with early mobilization. Through this case report, we aim to highlight the importance of radiographic assessment, decision-making regarding the surgical approach and early mobilization in the treatment of the neglected capitellum fractures.*

Keywords: Capitellum fracture, neglected, elbow, anterolateral approach

1. Introduction

Fracture of the capitellum is a rare injury, accounting for about 1% of the fractures around the elbow [1]. It results from low-energy trauma, usually a fall on an outstretched hand. Capitellum fractures are particularly difficult to manage. Although there are various number of classification systems described for this fracture, the type of fracture is accounted for only in the one proposed by *Hahn-Steinthal* [2]. This case report aims to highlight the importance of radiographic assessment and decision-making regarding the surgical approach and choice of the implant in the treatment of capitellum fractures.

2. Case Presentation

A 32-year-old male came to outpatient orthopaedic and traumatology clinic Denpasar regional hospital with chief complaint pain and swelling in his left elbow. He had a history of fall on the outstretched hand four weeks before. He had taken treatment from a traditional therapist and got bandage, but his symptoms did not improve. On examination, we found a generalized swelling of the left elbow along with tenderness over the lateral condyle of the humerus and there is also limited range of motion in the elbow. There was no distal neurovascular deficit.

The anteroposterior and lateral view X-rays and CT- Scan showed a coronal fracture of the lateral column of the distal humerus (Figure 1).



Figure 1: Preoperative X-rays and CT- Scan of the left elbow.

The arrows show the fractured capitellum fragment in the (left) lateral views and (right) anteroposterior.

Open reduction and internal fixation of the fracture was done using the anterolateral approach to the elbow. Initial fixation of the anterior, large fragment was done with a single wire to avoid rotation and double mini screw for the fixation. After fixing the anterior fragment, a varus stress was given, along with traction, to open the joint. The wound was closed in

layers over a negative-suction drain. No complication of wound dehiscence or neural deficit was observed postoperatively. A posterior above-elbow plaster slab was given for a week after which active, assisted elbow movements were started. (Figure 2)



Figure 2: Durante Operation and X-ray after open reduction and screw & wire fixation of the capitellar fracture. The screws and wire used for fixation in the anteroposterior and lateral view

3. Discussion

Capitellum fracture is a very rare intra-articular fracture. This type of fracture is the same as the Hoffa fracture of the knee. Capitellum fracture occur on the distal lateral side of the humerus. The mechanism is usually caused by low energy. This injury occur when a person falls on an outstretched arm and direct axial compression with the elbow in a semi-flexed position creates a shear force. [3]

Patients with capitellum fracture often come with complaints of extreme swelling, pain and limited range of motion, often accompanied by stiffness of the elbow joint. Patients who come with these symptoms should receive a radiological examination with two views, that is anteroposterior and lateral on the distal humerus and capitellum to the radial head in the lateral view. This will make the fracture clearly seen, then a CT scan can be used to determine the size of the bone fragment.[4]

When there is a bone fragment at the elbow that was left, it would change due to bone reabsorption, proliferation and result in loss of the radial fossa. This condition triggers degenerative arthritis and heterotopic ossification. In addition, non-anatomical bone fragments can cause elbow impingement, stiffness, and decreased range of motion of the elbow.[5]

Nowadays the best surgical method is to use an anterolateral approach, thus in our case used to provide adequate anterior exposure of the elbow joint. It also helped us to place the screws anterior to posterior easily. In several studies the screws of choice were cortical, cancellous, cannulated, and headless. Internal fixation was carried out in this case with two cancellous mini screws with flat heads and one wire was added for anti-rotation.[6]

In this case early mobilization must be done to prevent joint stiffness which often occur when the joint starts to move late, as this is a frequent complication and must be avoided. This patient was mobilized early 1 week after surgery. Physiotherapy Joint Treatment is highly recommended for more focused exercises and improving the results after a successful surgery.

Many experts believe that generally after 25 weeks postoperatively there will be an average loss of 26° degrees of elbow motion of range and 47% will complain of moderate pain in the elbow. After six months postoperatively the limitations of movement in the elbow will be disappeared, and just the pain will appear occasionally.

4. Conclusions

Capitellum fracture is a rare elbow injury and is caused by low-energy trauma so it is often overlooked by the patient. This fracture of the capitellum was found late after 4 weeks of the incident so it is quite difficult to treat. A preoperative CT scan is essential to assess the anatomy of the fracture and its difficulty. This helps the surgeon to decide on the method of fracture fixation and incision in order to facilitate access to the fracture, the incision method used is anterolateral to the elbow giving extensive anterior exposure and should therefore be used in cases of capitellum fractures that extend medially to the trochlear. The screw used in this operation is the cancellus mini screw which has a flat head so that it is sufficient without intraarticular protrusion. Mobilization one week after surgery should be done immediately to avoid stiffness in the joints and improve the results of this operation.

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