

Ipsilateral Diaphyseal Fractures of Radius, Ulna and Radial Head: Case Report

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Citation

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Abstract

Forearm fractures along with elbow or radial head injuries are quite rare. The early use of radial head prosthesis in these injuries is quite controversial. We present a case report on our experience of management of forearm fracture along with radial head fractures with early use of radial head prosthesis.

INTRODUCTION

Fractures of forearm with elbow are still challenge in trauma surgery. We present a case report in which we managed the variant of Monteggia type 4 along with ipsilateral fracture of radius with ORIF and use of Radial head prosthesis. The results were quite satisfactory and we recommend the use of early ORIF with Radial head prosthesis in these injuries especially in young patient group. In the event of comminuted fractures of the radial head which are impossible to reconstruct by osteosynthesis and which occur with concomitant ulnar ligamentous and osseous injury, the implantation of a prosthesis is preferred over the resection of the head of the radius.

CASE REPORT

34 year old male, marine engineer by profession, presented to us with injury to his non dominant left forearm as it was crushed between anchor elevator and ships hull. His G.C.S was 15/15 and there were no other injuries. The left forearm was grossly swollen and bruised with dorsal angulation. The injury was closed. There was no sensory loss and distal pulses were good. The elbow flexion was possible only up to 60 degrees. After initial care the forearm including the elbow and wrist was x-rayed. The x-rays showed the comminuted fracture of midshaft of radius and ulna along with type 2 comminuted fracture and dislocation of radial head (Fig 1,2).

Figure 1



Figure 2



The patient was taken to theatre for fracture fixation. The radial fracture was exposed by anterior approach. The fracture was reduced and fixed with 7 holes 3.5mm D.C.P. The ulna was exposed by subcutaneous approach. It was fixed with 6 holes D.C.P. Both the wounds were quite swollen and it was decided to close them secondarily. The radial head was approached by lateral approach and loose comminuted fragments of radial head were removed. There was also area of chondral damage on the capetulum. The joint was washed and Vitallium radial head prosthesis of medium size 9 mm was inserted into radius. The stability of elbow joint was checked. The arm was splinted; elevated and intravenous antibiotics were started. The elbow was started with gentle range of motion exercises next day. The wound closure was attempted on 2nd postoperative day but it was still difficult. Another attempt was made after 2 days which was successful. The patient was sent home after 5 day and was put into extensive physiotherapy programme for wrist and elbow as outpatient basis. He was followed up in outpatient fracture clinic. On first visit after one week the wound was healing satisfactorily and elbow flexion was possible from 30 to 90 degrees which improved to 30 to 110 degrees and supination of 45 and pronation of 80 degrees by 2nd month. The postoperative x-rays were satisfactory (Fig 3,4). At 10 month on final visit the patient was able to achieve the elbow flexion from 10 to 130 degrees with near full pronation and supination to 60 degrees.

Figure 3



Figure 4



The range of motion was very satisfactory according to Anderson et al.'s criteria for evaluation of forearm fractures¹

DISCUSSION

The combined fracture of forearm bone and elbow is very rare and complicated injury. The longest series of these type of injuries as represented by Bado² and Ring et al.³ did not mention any of these kind of injuries. McGinley JC³ studied axial loading forearm fracture models in order to determine the influence of forearm rotation on the fracture pattern around forearm and elbow. He concluded that fracture of radial head with associated forearm fractures and also the Essex-Lopresti type of injuries most commonly occurs with axial loading of the pronated forearm as there is maximum contact of the radiocapitellar joint. These injuries can be treated successfully with ORIF⁴. The treatment of comminuted fractures of the radial head with concomitant injuries of the ulnar complex by resection of the radial head usually does not provide long-term results⁵. Other than joint instability in the elbow and a limited range of motion, radius proximalisation in the sense of ulnocarpal impingement, osteoarthritis and pain in the elbow have been described. The

comminuted fractures of the radial head in association with forearm fracture are a therapeutic challenge when fixation is not possible as described by Ring et al. Care should be taken in decision whether it should be treated by operative and conservative. Instability of elbow joint occurs when fracture of radial head combines with fracture of ulna, dislocation of the elbow, fracture of major portion of coronoid process and rupture of medial ligament. Treatment in these complex injuries should therefore consist of reconstruction of radial pillar of the elbow joint with use of Radial head prosthesis which acts as joint spacer. The result of this method of treatment for a difficult problem age good^{6,7}. Chick G⁸ presented a retrospective study of 38 patient involving the fracture of proximal radius and ulna with and without radial head fractures and dislocation. There were certain characteristics of the fractures mentioned by him which were predictive of poor outcome and these included skin opening, association with a lesion of the ipsilateral upper limb, mirror lesion of the lateral condyle, metaphyseal-epiphyseal fractures, comminuted fractures, presence of a fracture of the radial head or the coronoid process. These Complex fractures of both bones of the forearm threaten the functional prognosis of the upper limb due to the risk of stiffness. Successful treatment depends on three factors: stable anatomic reconstruction of the ulnar articulation, and reconstruction of the lateral column and the coronoid process, necessary for a stable elbow. In addition, early mobilization, possible with a stable osteosynthesis, is indispensable for recovering useful joint movement.

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