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Surgical management of fracture of the proximal third of ulna and buried kirschner wire fixation for radial head fracture: A case report

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Abstract

A 18-year-old male patient gave alleged history of road traffic accident, it's borewell lorry run over elbow - high velocity injury. On examination – wound of size 12 x 6 cm over posterior aspect of right elbow, exposing bone fragments and laceration of muscles in the posterior aspect of the proximal forearm contaminated with sand and grass particles. Patient clinico-radiologically diagnosed as fracture of the proximal third of ulna and radial head right sided without distal neurovascular deficits. All other long bones and joints were clinically found to be normal. After informed consent, patient underwent Wound debridement, open reduction and internal fixation with buried Kirschner's wire fixation for radial head and with cannulated cancellous screw fixation for olecranon was done, with skin grafting for raw area on posterior aspect of right elbow. Patient is being followed at regular intervals. Range of motion at 6months right elbow is 0-130 degree flexion. Kirschner wire and cancellous screw are cost effective than any other expensive implants and it can be a alternative to the plate osteosynthesis.

Keywords: Proximal third ulna fracture, radial head fracture, buried kirschner's fixation, cannulated cancellous screw

Introduction

Background: Traumatic forearm and elbow injuries make up approximately 15% of emergency department visits for upper-extremity musculoskeletal injuries annually ^[1]. Early and appropriate management is essential to prevent long-term consequences such as loss of forearm rotation, cubitus valgus, elbow instability and chronic pain ^[1, 2] The evaluation of traumatic elbow injuries requires radiographic detection of bone abnormalities and identification of associated secondary occult bone and soft-tissue injuries that could place the patient at risk for chronic joint instability ^[3]. Comminuted fracture of the proximal ulna is a severe injury, often associated with bone and ligament injuries of the elbow joint like Monteggia lesion, dislocation of the elbow and radial head fractures ^[4]. The treatment of these fractures is very demanding and the functional results are often fairly mediocre due to associated injuries.

Purpose

The purpose of the surgery done in the case reported was to obtain bone union, and also to restore a stable joint, articular congruence, strength, and a satisfactory and painless arc of mobility in an 18-year-old male who suffered traumatic elbow injury.

Case description

An 18-year-old male patient gave alleged history of road traffic accident, it's borewell lorry run over elbow - high velocity injury. On examination – wound of size 12 x 6 cm over posterior aspect of right elbow, exposing bone fragments and laceration of muscles in the posterior aspect of the proximal forearm contaminated with sand and grass particles. Active finger movements were present and distal pulsations were palpable. All other long bones and joints were clinically found to be normal. Wound debridement, open reduction and internal fixation with Kirschner wire fixation for radial head and with cannulated cancellous screw fixation for olecranon was done, with skin grafting for raw area on posterior aspect of right elbow.

Outcomes

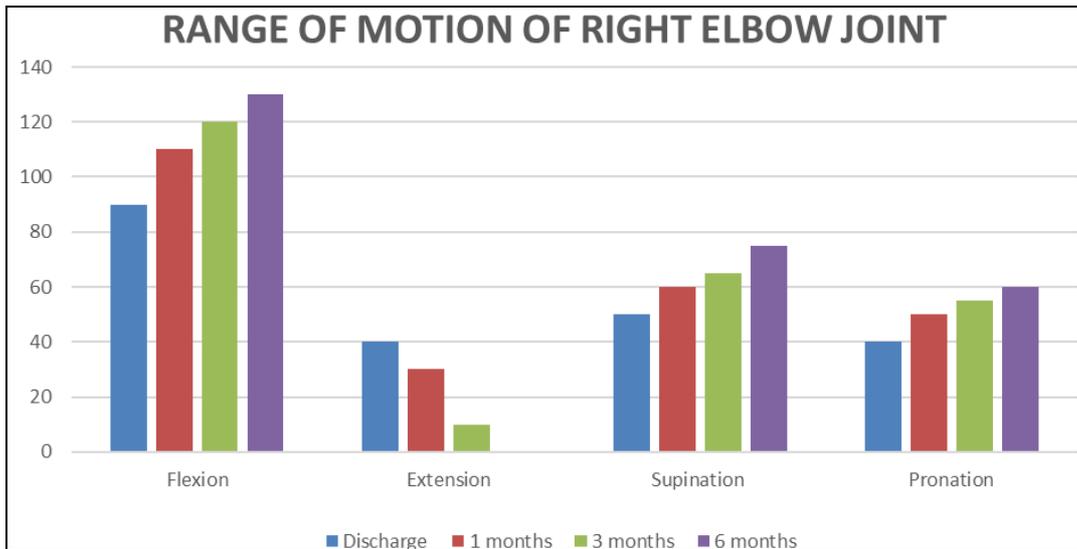


Fig 1: Range of motion of right elbow joint

Power over right upper limb was 5/5 and Sensation over right upper limb was 2/2.

Discussion and Conclusion

Complex fractures of the proximal ulna require a combination of different techniques whose objective is joint reconstruction as close to perfect as possible because this seems to be the best guarantee of a good prognosis.

Successfully treating these injuries with minimal complications or functional deficits is a challenge.

Many procedures for this difficult problem have been described; however, the outcomes are unpredictable.

The patient in our report had a successful clinical outcome and functional range of motion after buried K wire fixation of radial head and cancellous screw fixation of proximal ulna. K wire and cancellous screw are cost effective than any other expensive implants and it can be a alternative to the plate osteosynthesis.

Consent

Written informed consent was obtained from the patient’s legal guardian for presentation of this case report and accompanying images.



Fig 3: Wound exposing bone fragments and laceration of muscles in the posterior aspect of the proximal forearm.



Fig 4: X ray Antero Posterior view showing fractures of proximal third ulna and radial head over right side



Fig 5: X ray Lateral view showing fractures of proximal third ulna and radial head over right side



Fig 2: Wound of size 12 x 6 cm over posterior aspect of right elbow.



Fig 6: Open reduction and internal fixation with Kirschner wire for radial head fracture



Fig 7: Skin grafting for raw area on posterior aspect of right elbow with drain.



Fig 8: X ray Antero Posterior view showing Buried Kirschner wire fixation for radial head and with cannulated cancellous screw fixation for olecranon.



Fig 9: X ray Lateral view showing Buried Kirschner wire fixation for radial head and with cannulated cancellous screw fixation for olecranon.



Fig 10: Patient in our report showing Successful clinical outcome and functional range of motion after buried K wire fixation of radial head and cancellous screw fixation of proximal ulna after 6 months follow up.

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