

A Case Series of Fracture Upper end Humerus in Elderly Patients with Co-morbidities Treated with Umex Fixator

Gaikwad Yogesha¹, Devendra Vartak¹, Ranade Ashish², Khadilkar Madhav¹, Nemade Vijay¹

Abstract:

Proximal humerus fractures are increasing in frequency and complexity. Due to increased life span more and more elderly patients with multiple co-morbidities are frequently presenting with complex proximal humerus fractures. In these patients there is always an associated risk for open surgery both in terms of anaesthesia risk and healing risk. External fixation has been described as minimally invasive surgery for humerus fractures. We have used the UMEX fixator for treatment of proximal humerus fractures in 16 patients with good results. We had 3 pin tract infections and two wire backouts. At final follow up all patients had healed fractures with almost full range of motion. Use of UMEX fixator for treatment of proximal humerus fracture may be a good option in elderly with multiple co-morbidities

Key words: proximal humerus fracture, UMEX fixator, Elderly

Introduction

Fractures of the upper end Humerus occur commonly in elderly patients after a fall on outstretched hand due to osteoporosis.¹ Various treatment modalities are available for managing these fractures such as non-operative treatment, closed reduction and pinning, external fixator application, open reduction and plating and hemiarthroplasty^{2,3,4,5,6}. Frequently these patients also have associated co-morbidities such as Diabetes Mellitus, Ischaemic Heart Disease and Hypertension among others. Often these co-morbid conditions can make an extensive surgery more morbid for the patient. Hence we decided to perform closed percutaneous fixation with a UMEX fixator on these patients. This avoided the risks associated with an extensive surgery in these fragile elderly patients with medical co-morbidities.

Material & Methods

The study was approved by local ethics committee. Informed consent was obtained from each patient. Between March 2008 and August 2014 we included a total of 16 patients in the study, 9 females and 7 males. All patients had some co-morbidity and were not fit to undergo extensive – open surgery. All patients were available for follow up. The average follow up duration was 1 year (range 5 mth– 4 years).

The inclusion criteria were

- Elderly patients with co-morbidities.
- 2 or 3 part upper end Humerus fractures.

Exclusion criteria were

- 4 part or more upper end Humerus fractures.
- Fracture dislocation upper end Humerus.
- Patients without co-morbidities.

The average age of patients was 63 yrs (range 54-78 years).

13 patients were operated under short General Anaesthesia and 3 were operated under local + sedation.

Under image intensifier control the fracture was reduced and fixed with 4-6 percutaneously placed Kirchner wires. K wires used was 2 or 2.5 mm in diameter. K wires placement was according to fracture geometry. These wires were then connected to each other externally with the help of beta clamps and fish mouth clamps of the UMEX fixator assembly system.

Post-operatively patients were given a sling support. Physiotherapy was started on second post-operative day. Patients were allowed to do pendulum exercises and shoulder shrugs in the first 10 days. Gentle range of motion exercises – flexion and extension, assisted abduction and rotations were started on the 11th postoperative day.

Patients were reviewed every week for assessment of the fixator assembly. Pin tract care and dressings were done on all patients on a regular basis. Xray evaluation was done at monthly intervals.

The fixator was removed after radiological union of the fracture, at 3 -5 months after surgery (average 4 months).

Physical therapy was continued after fixator removal.

¹Smt. Kashibai Navale Medical College and General Hospital, Pune.

² – Deenanath Mangeshkar Hospital, Pune.

Address for correspondence:

Dr. Gaikwad Yogesh

Smt. Kashibai Navale Medical College and General Hospital, Pune.
Maharashtra, India.

Email-



Fig 1: 66 Year old patient with proximal humerus fracture treated with UMAX fixator. Goo reduction could be achieved and was maintained till fracture healing

Result

All 16 patients were available for follow up evaluation. Radiological union was achieved in all patients.

We had complications in the form of superficial pin tract infection in 3 patients and k-wire backout in 2 patients.

The superficial pin tract infection resolved with antibiotics.

All patients achieved almost full range of motion of the shoulder 4-6 months after surgery.

Discussion

Fractures of the upper end of Humerus are very common and their incidence has increased in the recent past^{7,8}. These fractures occur in all age groups and their occurrence has increased in the elderly due to senile osteoporosis¹. Various modalities have been described for the management of these fractures in the elderly including non-operative treatment, closed reduction and strapping, closed reduction and percutaneous k-wire fixation, closed reduction and fixation with retrograde elastic nailing, external fixator application and open reduction and internal fixation with locking and non-locking plates and prosthetic replacement^{2,3,4,5,6}. All of these modalities have their own merits and demerits⁹.

Also these elderly patients have multiple medical comorbidities such as diabetes mellitus, hypertension,

ischaemic heart disease, renal or hepatic function derangement which poses challenges in terms of anaesthesia and immunity levels⁹. Patients also may not co-operate with the rigorous physical therapy due to pain after extensive surgery and dissection around the shoulder. Extensive surgery and dissection carries with it the risk of wound healing issues and infection^{8,9}.

We performed closed reduction and fixation with k wires which were then interconnected with the UMAX fixator system. This was a relatively easy to perform surgery. The anaesthesia duration and requirement was significantly lower as compared to what is required during open reduction and fixation with plate. Patient compliance to the fixator was also excellent. The patients achieved union and returned to their normal daily functions. All of the patients achieved good range of motion which did not interfere with their day to day function.

Conclusion

Closed reduction and fixation with k-wires and UMAX fixator is an excellent tool in the armamentarium of an orthopaedic surgeon for the management of upper end Humerus fractures in elderly patients with medical comorbidities which may make extensive surgeries risky in these individuals. A longer follow up is essential to evaluate the long term outcomes of this procedure.

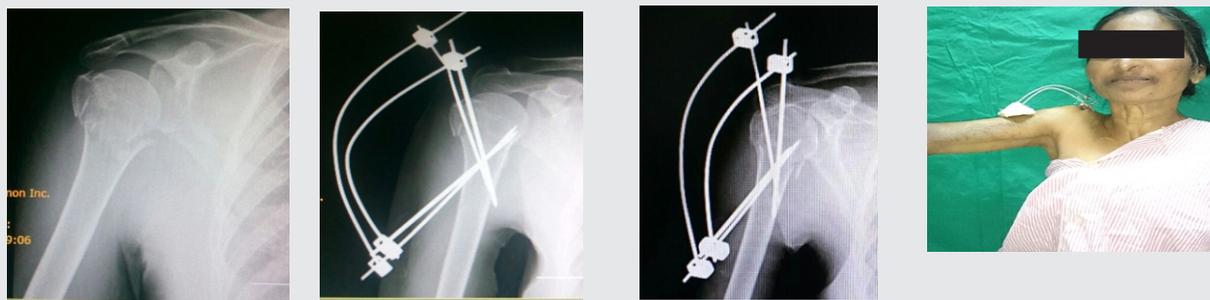


Figure 2: Another case of proximal humerus fracture fixed with UMAX fixator. Clinical picture shows good range of motion even with the fixator, so rehabilitation can be started early with this fixator.

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