

Functional Evaluation of Proximal Humerus Fracture Managed by Locking Plate

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Abstract: Background: Our study is planned to evaluate functional evaluation of proximal humeral fractures treated with open reduction and internal fixation with locking plates in view of range of movement, possible returns of basic functions around shoulder girdle, radiological outcome and resultant remaining disability in the course of healing and after completion of healing.

Materials and methods: Over two and half years 35 patients with proximal humerus fractures were managed With locking plate .34 of them completed mean follow up 11 months and evaluated using SPADI score.

Result: Average SPADI score for different fracture type according to Neers classification were suggestive of there is no statistically significant difference between these fracture types managed with locking plate. We found approximately equal Mean SPADI score in all 2 part, 3 part and 4 part fractures. Overall functional outcome found to be moderate to good in 92% of our patient but 8% patient had poor outcome due to associated complications postoperatively.

Conclusion: Proximal humeral locking plate is an exciting new method of osteosynthesis for complex proximal humerus fractures allowing early mobilization, good functional outcome and is a superior treatment option to hemiarthroplasty.

Keywords: Proximal humerus locking plate, SPADI score.

THESIS SUMMARY

Introduction:

Fractures of the proximal humerus are representing no more than 3% of all upper extremity fractures and approximately 4% to 5% of all fractures. 1

Three fourths of the fractures occur in older individuals with an occurrence three times more often in women than in men .

Severely displaced and comminuted fractures warrant surgical management for optimum shoulder function.

Traditional surgical treatment methods include percutaneous or minimally invasive

techniques such as pinning, osteosynthesis

using cancellous screws , open reduction and internal fixation with proximal humeral plates, and the use of intramedullary nails, hemiarthroplasty .

Various complications associated with above methods are implant failure, loss of reduction, non-union or malunion of the fracture, impingement syndrome, and osteonecrosis of the humeral head.

The key to this technology is fixed angle relationship between the screws and plate.

Even biomechanical analysis studies have showed the superiority of such locking

fixation .

Therefore our study is planned to evaluate functional evaluation of proximal humeral fractures treated with open reduction and internal fixation with locking plates in view of range of movement, possible returns of basic functions around shoulder girdle , radiological outcome and resultant remaining disability in the course of healing and after completion of healing.

Materials and methods:

Over two and half years 35 patients with

proximal humerus fractures were managed All patients with age between 20 and 60 years and Closed two part post traumatic fracture with major Humeral diaphyseal displacement or three or four part fracture with tuberosity displacement enough to cause significant subacromial impingement were included.they were treated with with locking plate . Patients were evaluated on OPD basis at 6 weeks, 12 weeks,6 months and 1 year follow up visit standard AP and axillary radiographs were obtained and All radiographs were evaluated for fracture healing ,implant related problems- screw perforation, screw loosening or backing out, plate pullout or breakage,anatomical alignment- major varus or valgus and evidence of postoperative osteonecrosis. Functional outcome was assessed using Shoulder Pain And Disability Index (SPADI) score at each follow up done at 6 week, 3 month. 6 month and 1 year

34 of them completed mean followup 11months and evaluated using SPADI score. The statistical analysis was done using SPSS 17th Edition.

Results:

All fractures united with average time taken for union was approximately 3 months.

Average SPADI score for different fracture type according to Neers classification were suggestive of there is no statistically significant difference between these fracture types managed with locking plate.

On comparison with respect to age distribution patients in 6 th decade shows comparatively low functional outcome as compare to lower age group.

In four patients we have found complications which are screw penetration, impingement, implant failure and infection. We found approximately equal Mean SPADI score in all 2 part, 3 part, 4 part fractures .But Mean SPADI score in 6 th decade is on higher side as compare to 3rd, 4th,5th decade.

overall functional outcome found to be moderate to good in 92% of our patient but 8% patient had poor outcome due to associated complications postoperatively.

Conclusion:

We believe that a reproducible standard surgical technique is necessary for improved patient outcome..Proximal humeral locking plate is an exciting new method of osteosynthesis for complex proximal humerus fractures allowing early mobilization, good functional outcome and is a superior treatment option to hemiarthroplasty.

Key Words:

Proximal humerus locking plate, SPADI score.

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