



ISFAHAN UNIVERSITY OF MEDICAL SCIENCES
SCHOOL OF MEDICINE
ORTHOPEDIC DEPARTMENT

Thesis for obtaining the specialty degree in Orthopedic

Title:
**Evaluation of outcomes of open reduction and internal
fixation surgery in patients with type C distal humeral
fractures**

NUMBER: 393689

Author:
Dr. Morteza Barazandeh

Supervisor:
Dr. Mohammad Hadi Nouraei
(Professor of Orthopedic)

Nov 2015

Evaluation of outcomes of open reduction and internal fixation surgery in patients with type C distal humeral fractures

Abstract

Background: In this study, functional state of patients with type C distal humerus fractures undergone surgical plating was evaluated 6 and 12 months after the surgery in order to record post-surgical factors such as pain level and job/performance satisfaction.

Methods: In this cross-sectional study, 46 patients with humerus fractures were recruited and their ability to do daily tasks, presence of degenerative changes, stability of elbow joint and range of motion were evaluated. For assessment of response to surgery, MAYO score was used.

Results: Among 46 patients, 45 (97.8%) of them had joint stability. Evaluation of post-surgical complications showed that 6 subjects (13%) had no complications, but superficial infection was observed in 12 (26.1%) subjects. Neuromuscular disorders in ulnar nerve was present in 11 subjects (23.9%), recurrent articular bursitis of elbow joint in 6 (13%), stiffness of elbow joint in 29 (63%), nonunion of fracture in 3 (6.5%) and myositis ossification in 4 (8.7%) subjects. Also 18 (39.1%) patients presented with more than one (2-4) complications.

Conclusion: ORIF surgery with dual plating is the method of choice for treatment of type C distal humeral fractures. Evaluation of long term outcomes of this surgery could be done via several different questionnaires as many studies suggest. This study demonstrated that the outcomes of this surgery in Isfahan, Iran has been noticeably inferior compared to results of the studies in other parts of the world.

Key words: Distal humeral fracture, Outcomes, MAYO Elbow Performance Index (MEPI), Visual Analogue Scale (VAS)

References:

1. Gofton WT, Macdermid JC, Patterson SD, Faber KJ, King GJ. Functional outcome of AO type C distal humeral fractures. *The Journal of hand surgery.* 2003;28(2):294-308.
2. ME M, M A, R S, H W. *Manual of Internal Fixation Techniques Recommended by the AO group.* New York: Springer; 1979.
3. Horne G. Supracondylar fractures of the humerus in adults. *The Journal of trauma.* 1980;20(1):71-4.
4. Gabel GT, Hanson G, Bennett JB, Noble PC, Tullos HS. Intraarticular fractures of the distal humerus in the adult. *Clinical orthopaedics and related research.* 1987(216):99-108.
5. Helfet DL, Hotchkiss RN. Internal fixation of the distal humerus: a biomechanical comparison of methods. *Journal of orthopaedic trauma.* 1990;4(3):260-4.
6. Letsch R, Schmit-Neuerburg KP, Sturmer KM, Walz M. Intraarticular fractures of the distal humerus. Surgical treatment and results. *Clinical orthopaedics and related research.* 1989(241):238-44.
7. Waddell JP, Hatch J, Richards R. Supracondylar fractures of the humerus--results of surgical treatment. *The Journal of trauma.* 1988;28(12):1615-21.
8. DL S, GR N. *Health Measurement Scales: A Pratical Guide to Their Development and Use.* New York: Oxford University Press; 1995.
9. Kirshner B, Guyatt G. A methodological framework for assessing health indices. *Journal of chronic diseases.* 1985;38(1):27-36.
10. C SH. Guidelines for treatment of cancer pain: The pocket edition of the final Report of the Texas cancer council's workgroup on pain control in cancer patients. Texas: Texas Cancer Council; 2003. 65 p.
11. Pajarinen J, Bjorkenheim JM. Operative treatment of type C intercondylar fractures of the distal humerus: results after a mean follow-up of 2 years in a series of 18 patients. *Journal of shoulder and elbow surgery / American Shoulder and Elbow Surgeons [et al].* 2002;11(1):48-52.

12. Puchwein P, Wildburger R, Archan S, Guschl M, Tanzer K, Gumpert R. Outcome of type C (AO) distal humeral fractures: follow-up of 22 patients with bicolunar plating osteosynthesis. *Journal of shoulder and elbow surgery / American Shoulder and Elbow Surgeons* [et al]. 2011;20(4):631-6.
13. Krishnamurthy M. Evaluation and Outcome of Surgical Management of Supracondylar Fracture Humerus with Intercondylar Extension in Adults.
14. Schmidt-Horlohe K, Bonk A, Wilde P, Becker L, Hoffmann R. [Functional results after osteosynthesis of the distal humerus fracture with an anatomically precontoured, angular-stable double plate system]. *Zeitschrift für Orthopädie und Unfallchirurgie*. 2010;148(3):300-8.
15. Reising K, Hauschild O, Strohm PC, Suedkamp NP. Stabilisation of articular fractures of the distal humerus: early experience with a novel perpendicular plate system. *Injury*. 2009;40(6):611-7.
16. TP R, RE B, CG M. *AO principles of fracture management*. 2 ed. Stuttgart, New York: Georg Thieme Verlag; 2007.
17. Kundel K, Braun W, Wieberneit J, Ruter A. Intraarticular distal humerus fractures. Factors affecting functional outcome. *Clinical orthopaedics and related research*. 1996(332):200-8.