

## Percutaneous Mini-open Reductioun for Mason II, III Radial Head and Neck Fracture

Department of Orthopedic Surgery, Yonsei University College of Medicine, Seoul, Korea

Ho-Jung Kang, M.D. · Man-Seung Her, M.D. · Jeong-Gil Lee M.D.  
Yun-Rak Choi, M.D. · Soo-Bong Hahn, M.D.

### Purpose

This study examines the hypothesis that percutaneous mini-open reduction using a periosteal elevator or small bone impactor may be useful for the treatment of Mason II, III radial head and neck fractures.

### Materials and Methods

Between May 2001 and February 2007, 13 patients with Mason II, III radial head and neck fracture (9: only neck fracture, 4: neck fracture combined with head fracture) were treated by 1 cm sized percutaneous mini-open reduction under the fluoroscopy. The average age of the patients was 29 years old and average duration of follow up was 14 months. Operative indications were angulation of 30 degree or above, or depression of 3mm or above, without associated elbow dislocation and severe comminuted fracture. 10 of the all patients were treated with no internal fixation after reduction, but the others were treated by percutaneous Kirschner's wire fixation or transverse PRUJ fixation for prevention of redisplacement. Average periods of cast immobilization were 4 weeks postoperatively. We evaluated the radiological results and clinical results by Mayo Elbow Performance Index. Statistical analysis was carried out using a Mann-Whitney U-test.

### Results

The mean preoperative angulation of radial neck was 34.4 degrees (15 to 42). And the mean postoperative angulation at last follow up was 7.5 degrees (2 to 15). This improvement was statistically significant ( $p < 0.05$ ). The union was noted in all cases. At last follow up, The mean range of motion at the elbow joint was calculated as 126.3 degrees (range: 120 to 135) in flexion, 8.1 degrees (range: 0 to 10) in extension, 76.5 degrees (range: 68-80) in internal rotation and 84.3 degrees (range: 76-90) in external rotation, respectively. Mayo Elbow Performance Index results were excellent in all cases. In each one case of temporary posterior interosseous nerve palsy and minimal cubitus valgus were noted.

## Conclusion

Selected Mason II, III radial head and neck fractures could be treated satisfactorily with percutaneous mini-open reduction with or without internal fixation.

This technique is very simple and effective, but there may be a risk of injury to the posterior interosseous nerve, and the starting point for reduction should be proximal enough to avoid injury to the posterior interosseous nerve.

This technique may however not be suitable for radial head and neck fractures with major translocation or severe comminution.

**Key Words:** Percutaneous, Mini-open reduction, Radial head and neck