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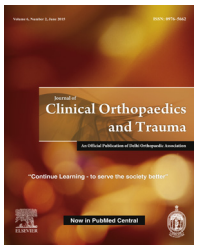

Original Article

Functional outcome after surgical treatment of perilunate injuries: A series of 12 cases

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ARTICLE INFO

Article history:
Received 3 June 2015
Accepted 15 September 2015
Available online 21 October 2015

Keywords:
Perilunate injuries
Surgical treatment
Functional outcome
Mayo score
Neglected injuries

ABSTRACT

Purpose: Perilunate injuries (PLIS) are complex injuries, which are frequently missed in the initial setting, and delayed presentation leads to poor functional outcomes. In this study, we are presenting our experience of treating these injuries by surgical treatment and the effect of neglect on their outcome.

Materials and methods: In this retrospective study, 11 patients with 12 PLIS, which presented to our center from January 1, 2000 to December 31, 2012 were included. They were managed surgically as open reduction and internal fixation. Function was documented by using Mayo score. To ascertain the effect of the delay/neglect on the outcome, the patients were divided into two groups according to time between day of injury and final surgery (group I – operated within 6 weeks of injury and group II – treated after 6 weeks of injury).

Results: Average postoperative Mayo score was 76.4. Average Mayo score in group I was 93.7 (90–95). Average Mayo score in group II was 67.1 (60–75). Although functional result as Mayo score was significantly better in group I (p value <0.5) even chronic or delayed group patients also had good to fair results.

Conclusion: Early diagnosis and treatment of such injuries should be emphasized as delay in treatment leads to progressive poor results. Well-planned surgical management gives good functional results even in delayed cases.

1. Introduction

Perilunate injuries (PLIS), first described by Etienne Destot in 1926 are uncommon.[1] These are complex wrist injuries caused by high energy trauma that severely disrupt normal carpal anatomy and wrist biomechanics.[2] Although these injuries warrant an early intervention for restoration of wrist anatomy, up to 25% are diagnosed late, either due to delay in presentation, poor interpretation of radiographs, or due to associated injuries that require more urgent attention.[3,4]

Historically, these injuries have been treated with closed reduction and immobilization, but since the results have been universally poor with such a treatment, operative repair is the recommended treatment now.[3,5,6]

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http://dx.doi.org/10.1016/j.jcot.2015.09.005

In this study, we are presenting our experience of treating PLIS with surgery as open reduction and internal fixation (ORIF) and the effect of neglect/delay on functional outcome.

2. Materials and methods

In this retrospective study, total of 11 patients with 12 injured wrists, which presented to our center from January 1, 2000 to December 31, 2012 were included. At the time of first visit, radiographs (anteroposterior and lateral views) of the affected extremity were done. C.T. Scan was obtained wherever diagnosis was inconclusive on initial radiographic evaluation. After initial assessment and diagnosis of injury, complete clinical work up required for surgical intervention was done (Fig. 1).

All the patients were operated under general anesthesia under a tourniquet control. Fracture/dislocations were reduced with open reduction. Volar or dorsal or combined volar and dorsal approaches were used as per requirement (dorsal approach was performed usually, unless there is an irreducible volar lunate dislocation). Fracture of Scaphoid if encountered was fixed with Herbert's screws/3.5 mm headless screws. K wires were put to held reduction in place and removed at six weeks. Postoperatively a plaster slab was given to all the patients for 2 weeks, which was converted to a below elbow thumb spica cast for another 4 weeks after the removal of sutures. After 6 weeks, the wrist was protected with a wrist splint and the mobilization of the wrist started under the supervision of a qualified physiotherapist till the fractures showed complete union (Fig. 2). During this time, the patients were encouraged to use the wrist and hand for the activities, which did not cause any pain to the patients. Patients were included with minimum of 2-year follow-up. At the final follow-up, functional assessment was done (by using the Mayo score[7]) (Fig. 3).

To ascertain the effect of the delay/neglect on the outcome, the patients were divided into two groups according to time between day of injury and final surgery (group I – operated in less than 6 weeks of injury and group II – treated after 6 weeks of injury).

3. Results

From January 1, 2000 to December 31, 2012, we treated 16 patients (15 males, 1 female) with 17 wrists. Five patients (4 neglected and 1 acute) did not report for regular follow-up and hence were excluded from the study. A total of 11 patients with 12 fracture/dislocations were included [group I – 4 patients (5 CASES) and group II – 7 patients]. One patient was female and the rest were males. Right extremity was injured in 4 patients; left in 6 patients and in one case injury was bilateral. There was an average delay of 80.3 days (range 5–240 days) in between final surgical treatment and the day of infliction of injury. There was an average delay of 6.6 days in group I and 132 days in group II. Depending upon the injury pattern, volar approach was used in 1 patient; dorsal in 4 patients and remaining were reduced with combined dorsal and volar approach. While all the patients except 1 of group II were treated with combined approaches, only one patient of group I was treated with combined approach. Mean follow-up was 95.1 months (range 24–166 months) (Table 1).

Average postoperative Mayo score was 76.4 (60–95). Average Mayo score in group 1 was 93 (90–95). Average Mayo score in group II was 67.1 (60–75). None of the patients had poor outcome. Early intervention group (group I) had excellent to good functional results. Even one patient in delayed surgery group (group II) had good, and rest had fair functional results (Fig. 4).

4. Discussion

The treatment plan for PLIS varies according to the pattern of dislocation and/or the fracture configuration.[3–6] Multiple

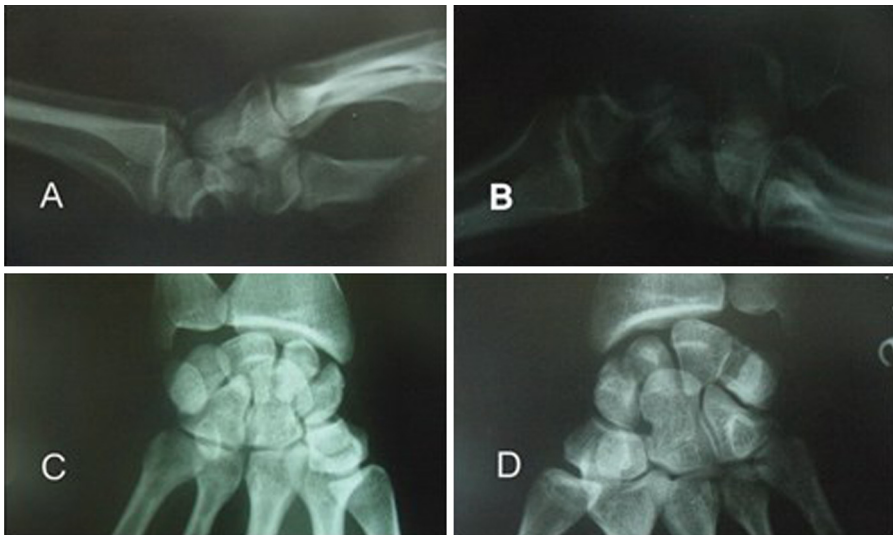

Fig. 1 – Preoperative X-ray of a patient showing bilateral perilunate injury with bilateral scaphoid fracture; (A) lateral view of right wrist; (B) lateral view of left wrist; (C) A-P view of right wrist; (D) A-P view of left wrist.