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A Review article on Recent Trends in Surgical Treatment of Intercarpal Fracture Dislocation of Wrist

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Abstract

Background: Historically Closed reduction and immobilization is the gold standard treatment of perilunate injuries[13]. The current consensus is that non-operatively it is difficult to anatomically restore the carpus and maintain it[3,6]. Multiple studies have shown that the closed reduction and immobilization alone fail to maintain the complex intercarpal relationships[13,14]. Studies comparing perilunate injuries that treated conservatively with those treated operatively have shown better results in those treated operatively[3,5,10-12]. Association with loss of motion, traumatic arthritis, persistent pain and chronic carpal instability have been found with inadequate realignment of the carpals in a perilunate dislocation [4,15]. There is direct visualization of the injury which allows for restoration of the carpal anatomy in open reduction and internal fixation technique.[10] Purpose of this review is to study the recently published results of treatment of intercarpal fracture dislocation of wrist, which will help to formulate a preferred treatment modality in treating intercarpal fracture dislocation of wrist

Methods: Recent articles were searched on search engines such as PubMed, Google Scholar and additionally by checking references of different articles.

Summary: Recent studies published have shown significantly improved functional outcome in patient of intercarpal fracture dislocation of wrist treated surgically in the form of open reduction and internal fixation with reduced complications like arthritis and persistent pain and reduced range of motion which is associated with conservative treatment . early treatment is associated with better results then delayed treatment. Patents with delayed surgical intervention nevertheless have shown better results then patient treated conservatively

Keywords: intercarpal fracture dislocation , functional outcome , perilunate dislocation , surgical outcome

Introduction

Historically Closed reduction and immobilization is the gold standard treatment of perilunate injuries[13]. The current consensus is that non-operatively it is difficult to anatomically restore the carpus and maintain it [3,6]. Multiple studies have shown that the closed reduction and immobilization alone fail to maintain the complex intercarpal relationships[13,14].

Studies comparing perilunate injuries that treated conservatively with those treated operatively have shown better results in those treated operatively [3,5,10-12].

Association with loss of motion, traumatic arthritis ,

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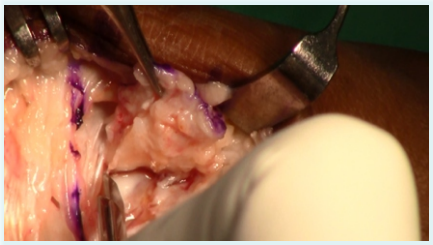


Figure 1: Berger flap raised to expose carpals

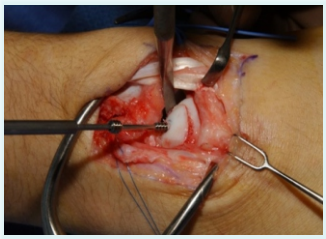


Figure 2: placement of screw

Figure 3: pre op post op 1 year

Figure 4: range of motion

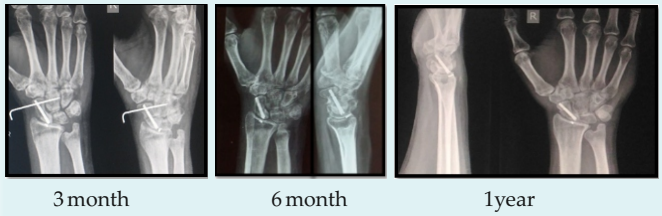
persistent pain and chronic carpal instability have been found with inadequate realignment of the carpals in a perilunate dislocation[4,15].

There is direct visualization of the injury which allows for restoration of the carpal anatomy in open reduction and internal fixation technique[10].

Hence the open reduction and internal fixation, through a dorsal and volar approach is our preferred method of treating all acute perilunate dislocations.

Purpose of this review was to go through recent articles on inetercarpal fracture dislocation of wrist and to try and come to consensus that whether there is early improvement of wrist function like motion , stability and grip strength and prevention of complications like loss of motion, traumatic arthritis , persistent pain and chronic carpal instability by early diagnosing and operatively treating all intercarpal fracture dislocation

Figure 5: pre op post op 1 month



3 month 6 month 1year

Materials And Methods

Recent articles were searched on search engines such as PubMed, Google Scholar with the use of Key words like 'intercarpal fracture dislocation of wrist', 'perilunate' 'Recent trends in management', 'Functional outcomes', 'surgical treatment' . Additional articles were identified by checking the references. Studies were initially screened based on titles and references and study of relevant topics were selected and were reviewed

1. Surgical treatment v/s conservative treatment

Farshid Bagheri et al. 2013 , in there study on 34 patients of intercarpal fracture dislocation of wrist , of which 20 cases treated with open reduction and internal fixation , 14 cases treated non-operatively, on follow up of 5 year found that Cases treated surgically had higher MAYO wrist scores of 87.78, And that of 71.11 in non surgically treated cases [1].

Thus study showed better clinical results in cases treated with early open reduction and internal fixation

2. Early v/s delayed intervention

Gupta R K et al. 2016 , in there study on 11 patients of which Group 1 were - ORIF within 6 weeks of injury , Group 2 were – ORIF after 6 weeks of injury, on mean follow up of 95.1 months found that Average post-operative mayo wrist score of 76.4 was observed.

Group 1 – mayo wrist score – 93.7

Group 2 – mayo wrist score of 67.1 [31].

So results were significantly better in cases treated early , but chronic cases also showed good to fair results

3. Outcomes after early treatment

Griffin M et al. 2016 in there study on 16 cases treated with Open reduction internal fixation on follow up of 24 months found that Grip strength of 59% of uninjured side was achieved , Flexion and extension of 71% and 58% resp. Was achieved. The PRWE score of 36.2 and DASH score of 25.2 was recorded , VAS score on activity was 3.3 [32].

Kara A et al. 2015 in a study on 17 cases treated with Open reduction and internal fixation , on follow up of 37.8 months found that Functional results using MAYO wrist score were

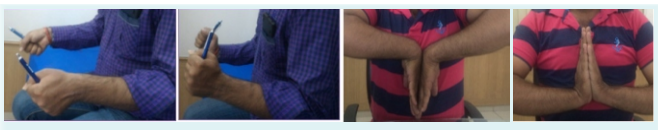


Figure 6: range of motion

excellent in 4, good in 2 and satisfactory in 5, poor in 6 cases, radiologically osteochondral defects were seen in 4 cases . study concluded that ligamentous and chondral injuries may lead to persistant pain inspite of anatomical reduction [33].

Hakan Basar et al. 2014 in a study on 18 cases found that by mayo wrist score functional results were excellent in 5 cases and good in 4 cases, average DASH score of22.8 was recorded, average scapholunate angle was 51 degrees, study concluded that clinical and radiological results were satisfactory with isolated volar approach [34].

Chow YY et al. 2002 on a study on 14 cases observed excellent results in 3 cases, good results in 6 cases , fair result in 1 case and poor result in 1 case , all cases were able to go back to there original vacations [2].

Thus above studies showing significant improvement in function and reduction in pain after early surgical intervention

4. Outcomes after delayed treatment

Abdel Hakim et al. 2012 on a study on 19 cases treated with Open reduction internal fixation after a mean time from injury of 29 weeks By MAYO wrist scoring , 5 cases had excellent results, 6 had good results, 6 had fair and 2 had poor results , Average MAYO wrist score being 56 % [35].

Thus even after delayed but with surgical intervention there is functional improvement

Thus our study also give comparable results to above studies on operative option of treatment of intercarpal fracture dislocation , and shows operative option a better way to treat intercarpal fracture dislocation.

Thus from above discussed studies it is found that in cases of intercarpal fracture dislocation of wirst early surgical intervention give best functional outcomes which are superior to delayed intervention. Delayed intervention nevertheless give better results then that of outcomes of conservatively managed cases .

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