

# Surgical management of galeazzi fracture dislocation

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## Abstract

**Introduction:** By definition, Galeazzi fracture involves fracture of the shaft of radius anywhere between radial tuberosity and a point 2-4 cms proximal to the wrist, associated with sub luxation or dislocation of lower end of ulna.

### Objectives:

1. Preoperative assessment evaluating the type of fracture mechanism of injury
2. To study the results of surgery and post-operative complications
3. To analyze the efficacy of surgical techniques in achieving reduction and restoring the congruency of joint and stability of distal radio-ulnar joint.
4. To study the duration of immobilization required and initiation of early mobilization
5. To assess the functional outcome of distal radioulnar joint in Galeazzi fracture treated by surgical method.

**Methodology:** All cases of Galeazzi fracture dislocation fulfilling the inclusion criteria were managed by various surgical techniques and followed up to evaluate the results. All the required data were obtained from the patients during their stay in the hospital or during follow up and from hospital records and records in the proforma. **Results:** Age of the patients ranged between 22 years to 60 years with a mean range of 43.7 years. 16 cases were male (80%), 4 cases were females (20%). In 13 cases injury was in right side and in 7 cases injury was in left side. Most of the cases injury was due to self fall on outstretched hand (70%). Four cases were due to RTA (20%) and 2 cases due to direct hit (10%).

**Discussion:** In the present study, in majority of cases volar plating by anterior Henrys approach was used in 17 cases (85%). Dorsal plating by thompson approach used only in 3 cases because of superficial abrasion and pinpoint wound over volar side. **Conclusion:** The key to the satisfactory results in the treatment of the Galeazzi lesion is anatomic restoration of length of the radius with application of rigid internal fixation to maintain the reduction. Open revision and K-wire fixation of distal radio ulnar joint are not necessary if anatomic reduction of the joint is obtained by indirect means such as open reduction and internal fixation of the radius and immobilization

**Keywords:** Galeazzi fracture, distal radio-ulnar joint, mayo wrist score.

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## INTRODUCTION

By definition, Galeazzi fracture involves fracture of the shaft of radius anywhere between radial tuberosity and a

point 2-4 cms proximal to the wrist, associated with subluxation or dislocation of lower end of ulna. Most often the fracture occurs at the junction of middle 1/3 and distal 1/3 between the insertion of pronator teres and pronator quadrates. Galeazzi fracture dislocation is inherently unstable because of various factors. Cam bell stressed the need of open reduction and rigid fixation for this fracture and called it as “the fracture of necessity”. Intramedullary devices are very rarely used. Non operative treatment is worthwhile only in children with Galeazzi lesions of classic or equivalent type. The timing of operative treatment should be as early as possible because most of the complications are related to the timing of surgery than anything else.<sup>1,2</sup>

## OBJECTIVE

1. Preoperative assessment evaluating the type of fracture mechanism of injury
2. To study the results of surgery and post-operative complications
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4. To study the duration of immobilization required and initiation of early mobilization
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## METHODOLOGY

All cases of Galeazzi fracture dislocation fulfilling the inclusion criteria were managed by various surgical techniques and followed up to evaluate the results. All the required data were obtained from the patients during their stay in the hospital or during follow up and from hospital records and records in the proforma.

### INCLUSION CRITERIA

1. Fracture shaft of radius with an associated dislocation of distal radio-ulnar joint. The shaft is considered to be part of radius between bicipital tuberosity proximally and an area 4-5 cm from the distal articulating surface of radius distally.
2. All the Galeazzi fracture dislocation above the age of 15 years will be included
3. Galeazzi fracture dislocation associated with neurovascular injury.
4. Compound fracture type-I.

### EXCLUSION CRITERIA

1. Galeazzi fracture dislocation <15 years
2. Fracture of distal end of radius
3. Fracture of radial head and neck
4. Associated with fracture of ulna.
5. Associated with dislocation of elbow.
6. Old mal united fracture of radius,
7. Pathological fracture
8. Compound fracture type 2 and 3.

## RESULTS

Age of the patients ranged between 22 years to 60 years with a mean range of 43.7 years. 16 cases were male (80%), 4 cases were females (20%). In 13 cases injury was in right side and in 7 cases injury was in left side. Most of the cases injury was due to self fall on outstretched hand (70%). Four cases were due to RTA (20%) and 2 cases due to direct hit (10%). All cases preoperatively immobilized with above elbow POP slab. Patient's fitness for surgery was evaluated. During surgery, tourniquet was used in all cases. Volar plating

done in 17 cases by Anterior Henrys approach. In 3 cases dorsal approach was used because of superficial abrasion and pinpoint wound over volar side. In 45% of cases, 3.5mm NDCP of 7 Holes used. In 7 cases, 6 Holed NDCP was used. In 4 a cases 8 Holed NDCP was used. Immobilization was done in above elbow slab and cast in full supination. In 11 cases 4 weeks immobilization was done, in 6 cases 6 weeks and in 3 cases 8 weeks. Physiotherapy was initiated for elbow wrist and digital motion as early as possible. Patients were followed up for frequent intervals. Using mayo wrist score, 15 cases gave excellent result. 2 cases gave excellent result. 2 cases good, 1 case fair and 2 case gave poor result. Using other criteria, results were excellent in 14 cases, 2 fair and 4 cases poor result. Poor results were due to old age, so-morbidity and loss of distal radio-ulnar joint stability.

## DISCUSSION

In the present study, in majority of cases volar plating by anterior Henrys approach was used in 17 cases (85%). Dorsal plating by thompson approach used only in 3 cases because of superficial abrasion and pinpoint wound over volar side. In a study conducted by Anderson *et al.*<sup>3</sup> found that volar plating is technically easier and result in better soft tissue coverage. The treatment outcome of Galeazzi fracture has drastically improved from a high failure rate of 52% with closed treatment (Houghston)<sup>4</sup> to 70-80% excellent with AO plating. We had used 3.5mm NDCP in all cases. We had excellent results in 14 patients (70%). A complete dislocation of distal radioulnar joint always involves rupture of articulated disc and of the associated dorsal and volar distal-radioulnar ligaments. This articular injury as well as the fracture of radius must be dealt with if good results are to be obtained in the treatment of galeazzi fracture. All studies in this subject have cited the poor results are obtained when the injuries are treated by closed methods. Hougston<sup>4</sup> suggested immediate resection of distal part of ulna and MIKIC 4 advocated temporary fixation of the distal radio-ulnar joint, with 1 or 2 K-wires after fixation of the radial fracture site.

### Post-operative immobilization

Most of the cases in present study immobilized for 4 weeks (11 cases), 6 weeks in 6 cases, 8 weeks in 3 cases because of delayed union.

In a study by reckling *et al.*<sup>5</sup> immobilization was done in supination and continued for 6-8 weeks. In a study by MOORE TM *et al.*<sup>6</sup> post-operative immobilization in neutral position or 5-10° of supination for 4 weeks was done.

## Complications

There were no post-operative neurovascular complications in this series. But such nerve injuries have been described in previous studies.<sup>7</sup>

## CONCLUSION

The key to the satisfactory results in the treatment of the Galeazzi lesion is anatomic restoration of length of the radius with application of rigid internal fixation to maintain the reduction. Open revision and K-wire fixation of distal radio ulnar joint are not necessary if anatomic reduction of the joint is obtained by indirect means such as open reduction and internal fixation of the radius and immobilization.

**Consent:** was taken from the institutional ethics committee.

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