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Functional and Radiological Outcome of Distal Radius Fractures Treated by Ligamentotaxis With or Without Bone Grafting and Distal Radius Plating- A Prospective Study of 20 Cases Treated in A Tertiary Medical Institution

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ABSTRACT

Background:*A variety of treatment options are available for treatment of distal radius fractures. This is a prospective study of the functional outcome of distal radius treated by ligamentotaxis and plating.*

Materials and methods:*20 cases were selected between the age group of 20- 80 yrs. of age. The mode of injury was fall by slipping 10 cases, road traffic accident 10 cases.10 cases underwent external fixation alone. 5 cases underwent external fixation with bone grafting. 5 cases underwent internal fixation with plating.*

Results:*In our study 5 cases gave excellent results, 10 cases showed good results, 5 cases showed poor results.*

Conclusion:*No treatment method is fool proof in management of distal fractures. Several treatment methods are available. Bone grafting results in better healing in cases treated by external factor.*

KEYWORDS : Distal radius fractures, ligamentotaxis with bone grafting, plating

Introduction:
A variety of treatment options are available for treatment of distal radius fractures. Whatever be the treatment method the fractures unite because the fracture site is in corticocancelous junction where there is rich blood supply. But the functional outcome and radiographic appearance may vary in different treatment methods. This is a prospective study the functional and radiological outcome of distal radius treated by ligamentotaxis and plating.

Materials and methods:
20 cases were selected between the age group of 20- 80 yrs of age. The mode of injury was fall by slipping 10 cases , road traffic accident 10 cases.

The exclusion criteria included pathological fractures, compound fractures, poly trauma cases, fractures with neurovascular deficit, and fractures with compartment syndrome.

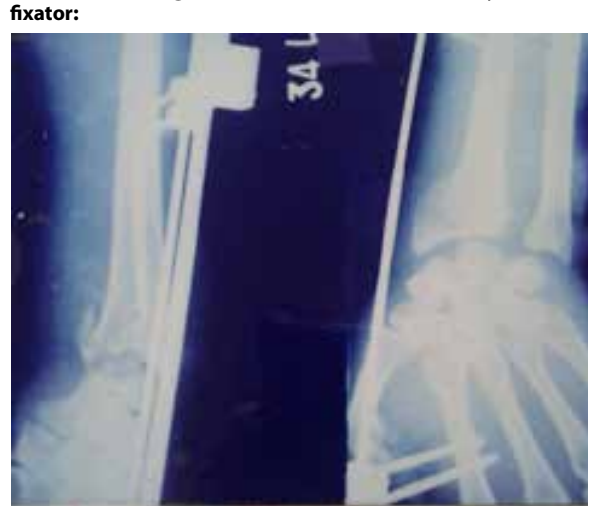
The fractures were classified according to the universal classification proposed by William.P.Cooney in 1990. This classification was based on the original classification of Gartland and Weley.Extra articular displaced but reducible and stable were 8 cases , extra articular reducible unstable were 2 cases, Intraarticulardisplaced were 8 cases, Intraarticular reducible unstable were 2 cases.

10 cases underwent external fixation alone. 5 cases underwent external fixation with bone grafting. 5 cases underwent internal fixation with plating.

The external fixation was done using either AO fixator (3.5mm) or Joshi's distractor. When an AO fixator was used, the fixator was applied after reducing the fracture. The fixator was applied either under general anesthesia or an axillary block. A limited open technique was used to place two pins into the radius and two pins in the second metacarpal. The first incision was made on the dorso radial aspect of the radius proximal to the fracture site. The branches of the large ante brachial cutaneous nerve and the radial sensory nerve were identified and preserved. The bare area of the radius was identified between brachioradialis and extensor carpi radialislongus. The pins were placed after pre drilling. The second incision was made on the dorso radial aspect of the base of the index metacarpal with care to avoid injury to terminal branches of the radial sensory nerve. The two pins were inserted 45 degrees to the horizontal plane. The fracture was reduced by traction after which the external fixator was locked in place. Reduction was confirmed by radiographs. Postoperative management included mobilization of the shoulder, elbow and fingers. The fixator was removed after one month after which POP short arm cast was given for two weeks.

Picture 1 showing distal radius fracture pre-op:

Picture 2 showing distal radius fracturetreated by external fixator:



Picture 3 showing distal radius fracture pre-op:

Picture 4 showing distal radius fracture treated by external fixator and bone grafting:

The internal fixation with plating was done using a volar approach. The incision was made along the tendon of flexor carpiradialis. The tendon is retracted ulnarwards and the incision continued through the dorsal sheath down to pronator quadratus muscle. The pronator quadratus muscle is taken down from its radial origin to expose the underlying fractures. A 4four holed locking plate with two screws distally and two screws proximally was sufficient to hold the fracture.

Pictyre 5 showing distal radius fracture treated by plating:

The results were evaluated using Jakim, Pieterse and Sweet scoring system proposed in 1991. This system allocates 60 points for functionaloutcome and 40points for radiographic appearance. Excellent results were awarded when the point scored was 100 to 90. Good result when the points scored was 89 to 80. Fair results for points 79 to 70 and poor results for points less than 70. In our study 5 cases gave excellent results, 10 cases showed good results, 5 cases showed poor results.

Results in patients'treated with external fixator alone: Excellent o, good 2, fair 3, poor 5 cases. Results in patient'streated with external fixator with bone grafting: excellent 1, good 3, and fair 1. Results in patient treated with plating alone: excellent 2. Good 2, fair 1.

Following complications were noted in our study. Malunion 4 cases, reflex sympathetic dystrophy 1 case, deep bone infection one case, superficial pin tract infection 3 cases.

Discussion:

Of all the treatment options available at present no particular method offers extremely excellent results. Results are variable in all treatment methods. But in the category of cases treated by external fixator, cases treated with bone grafting did give better results. Cases treated by plating gaveslightly better results than cases treated by external fixator.

Conclusion:

No treatment method is fool proof in management of distalfractures. Several treatment methods are available. Bone grafting results in better healing in cases treated by external factor.

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