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Clinical profile of patients with fractures of distal end of radius

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Abstract
Introduction: Smith in 1854 described a volar angulated fracture of the distal radius with a 'Garden Spade' deformity. In the reverse Colle's fracture the hand and wrist are displaced volarly with respect to forearm. This fracture pattern included both extra articular as well as intra articular involvement and also formed part of the fracture dislocation of the wrist.
Methodology: Routine examination of blood was done for hemoglobin percentage, total and differential WBC counts, fasting blood sugar, blood urea, serum creatinine, bleeding and clotting time, HIV and Hbs Ag. Examination of urine was done for presence of albumin and sugar. Blood pressure and ECG were recorded in all patients. Preparation of the part was done on the day of surgery. Tetanus toxoid injection and intravenous antibiotic were given to all patients pre-operatively.
Results: Most of the fractures are sustained due to RTA and fall on the out stretched hand and are usually intra articular displaced.
Conclusion: Fractures occur in older individuals as a result of a trivial trauma /fall owing to the lack of bone density.

Keywords: Colles fracture, radius, profile

Introduction
Fractures of distal end of the radius has been recognized from the ancient times but mostly recognized as dislocations of wrist.
Sir Abraham Colles [1], an Ireland surgeon, classically described the fracture in the Edinburgh Medical Surgical journal in 1814. He classically described the 'dinner fork deformity' and the six displacements: dorsal displacement, dorsal angulation, lateral displacement, lateral angulation, impaction and supination. He also described the management of the fracture by closed reduction and cast application.
The first description of this fracture has been attributed to Pouteau [2], the French surgeon. He described the fracture in 1783. In some parts of the world the fracture of the distal radius is called Pouteau's fracture. Sir Astley Cooper produced the first book to describe wrist injuries.' Dislocations And Fractures Of Joints' in 1822.
Barton [3] in 1838 described a fracture dislocation or subluxation in which the rim of the distal radius is displaced dorsally or volarly along with the hand and carpus.
Smith [4] in 1854 described a volar angulated fracture of the distal radius with a 'Garden Spade' deformity. In the reverse Colle's fracture the hand and wrist are displaced volarly with respect to forearm. This fracture pattern included both extra articular as well as intra articular involvement and also formed part of the fracture dislocation of the wrist.
J.H. Myer described experimental studies on Colle's fracture and published in British Journal of Surgery. Sir reginal watson-jones described the fracture in his book "FRACTURES AND Joint Injuries" in 1941.
In 1951 Gartland And Werley [5] published their system of evaluation of Colle's fracture in the functional demerit system in JBJS 1951. This system allows for comparison of results among several studies and different methods of fracture management.
In 1967 Frykmann's [6] classification was introduced. It involves radio carpal joint, radio ulnar joint and ulnar styloid process fracture.
In 1975 SARMIENTO introduced functional cast bracing to distal radius fractures and immobilized the patient in supination. He modified the Gartland and Werley system of evaluation.

The Ao –Asif group developed techniques of open reduction and internal fixation and external fixation. They applied their principles to distal radius fractures like k wire pinning, plating and external fixators. They introduced AO minifixator for the distal radius.

Fernandez [7] *et al.* studied articular fracture of radius treated with external fixators. He introduced a classification based on compression, bending, shear with intra articular 3 - part components. Muller in 1987 introduced the AO – ASIF classification for distal radius fractures.

Methodology

Twenty adult patients were included in this study

Inclusion Criteria

- Adults (aged over 18years), both male and female with unstable, comminuted or intra articular fractures of distal end radius
- Patients willing for treatment and given- informed written consent.

Exclusion Criteria

- Patients aged below 18years
- Patients medically unfit for surgery
- Compound fractures associated with vascular injuries
- Patients not willing for surgery

Routine examination of blood was done for hemoglobin percentage, total and differential WBC counts, fasting blood sugar, blood urea, serum creatinine, bleeding and clotting time, HIV and HbsAg. Examination of urine was done for presence of albumin and sugar. Blood pressure and ECG were recorded in all patients. Preparation of the part was done on the day of surgery. Tetanus toxoid injection and intravenous antibiotic were given to all patients pre-operatively.

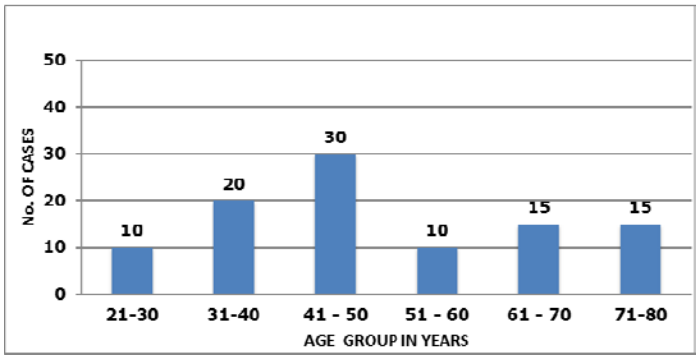
Physician fitness was obtained for all patients. Consent for surgery was taken and patients were operated after a pre-anaesthetic checkup.

Results

Distal radius fractures are more common in 3rd to 5th decades. Male preponderance is due to their involvement in heavy manual labour, outdoor activities and riding vehicles. Most of the fractures are sustained due to RTA and fall on the outstretched hand and are usually intra articular displaced. Fractures occur in older individuals as a result of a trivial trauma /fall owing to the lack of bone density.

Table 1: Age Incidence

Age In Years	No: Of Cases	Percentage
21-30	2	10
31-40	4	20
41-50	6	30
51-60	2	10
61-70	3	15
71-80	3	15
Total	20	100



Graph 1: Age Distribution

Table.2: Sex Incidence

Sex	No: Of Cases	Percentage
Male	14	70
Female	6	30
Total	20	100

Table 3: Side Of Involvement

Side	No: Of Cases	Percentage
Right	14	70
Left	6	30
Total	20	100

Table 4: Mode Of Injury

Mechanism Of Injury	No: Of Cases	Percentage
Road Traffic Accident	11	55
Fall On Outstretched Hand	9	45
Total	20	100

Discussion

In our study, distal radial fracture was more common in the 3rd-5th decade with an average of 43.9 years. Most of the intra articular, comminuted and unstable fractures requiring operative management occurred in young individuals are due to high energy trauma such as road traffic accident and fall on outstretched hand. Fractures occurring in old individuals are due to trivial fall and usually will be extra articular which in most cases can be treated with closed reduction and cast application.

Table 5: Comaprison of age

Series	Minimum Age In Years	Maximum Age In Years	Average Age In Years
Ayhan Kilic *et al*., (2009) [8]	18	77	45
Kevin C. Chung *et al*., (2006) [9]	18	83	48.9
R.E. Anakwe *et al*.,(2010) [10]	22	67	48
Arora Rohit *et al*., (2007) [11]	17	79	57
Present Study	20	77	43.9

The average age in our study is comparable to the studies of Ayhan Kilic *et al.* (2009) [8], Kevin C. Chung *et al*., (2006) [9] and R.E. Anakwe *et al.* (2010) who had an average age of 45 years, 48.9 years and 48years respectivelyy. Arora Rohit *et al.* (2007) [11] had an average age of 57 years in their series.

In our study 55% of the patients had road traffic accident and 45% had a fall on the out stretched hand.

KevinC.Chung *et al.* (2006) [9] and Arora Rohit *et al.* (2007) [11] reported fall on the outstretched hand as the most common mode of injury.We reported road traffic accidents as the most common mode of injury.

Ayhan Kilic *et al.* (2009) [8] and R.E. Anakweetal (2010) [10] reported road traffic accidents to be most common mode of injury.

Conclusion

Distal radius fractures are more common in 3rd to 5th decades

Most of the fractures are sustained due to RTA and fall on the out stretched hand

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