Common Wrist Fracture (Called The Colles Fracture)

By

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Introduction

- The lower end of the long bone of your forearm, the radius, is very easily broken in elderly females (usually above the age of 60 years).
- This area of bone, which is strong in the young, becomes weak and brittle as age advances and is due to osteoporosis.
- Hence they are more vulnerable for fractures in this period of life.

Mechanism:

- A skid and fall on outstretched hands in the wee hours of the morning in the bathroom is the usual history given by these women.
- An unsuspecting woman becomes victim to this disturbing fracture due to carelessness and apathy. (Fig 1)

Figure No 1 on the left shows the common mechanism of wrist fracture in elderly female and the figure on the right shows the fracture of the lower end of radius called the Colles fracture
Clinical Presentation:

- The lady with a fall described above clutches her wrist with pain.
- Swelling rapidly follows and a severe fall may present an S-shaped deformity near the wrist (Called as the Dinner fork deformity). See Fig 2
- The lady is unable to carry out any functions with the affected wrist and struggles to support the injured area.

![Fig. 2: Colles’ fracture (A dinner fork deformity)](image)

X-ray of the Wrist:

- Your doctor orders for an X-ray of the wrist, which is a must.
- The X-rays help to study the fracture pattern. (Fig 3)
- In the fortunate ones there may be two clean breaks and in the not so lucky ones there could be multiple pieces (Communited).

![Figs 3 A and B: Colles’ fracture: (A) AP view, and (B) lateral view](image)
Treatment

1. *What you need to do immediately after such a fall*
   - If you have any of the above features after the fall, assume you have a wrist fracture until ruled out by your doctor.
   - Immediately wrap the injured area with a wet towel or ice cubes.
   - Do not move your wrist.
   - Do not give heat water packs.
   - Do not massage the wrist or visit a quack for treatment.
   - Just support the injured area with a make shift splint made up of some firm material like a rolled newspaper, cardboard etc.
   - Rush to your doctor immediately for further treatment.

2. *What the doctor can do for you?* After confirming the diagnosis with a x-ray your doctor may plan the treatment depending upon the configuration of the fracture fragments namely:
   a) If the fragments are not separated, he may just immobilize your wrist with a plaster slap and give you a sling.
   b) In the event of two major fragments being displaced, he needs to put the displaced bone fragments back into its original position by reducing it under General anesthesia. After reduction he may immobile the wrist for 8-10 weeks in a below elbow plaster cast (Fig 4).
   c) In the event of multiple fractures within the wrist: Here he may suggest, reduction of the fracture as mentioned above and fixation of the pieces by stainless steel pins called the k-wires (Fig 5) in an operation theatre under C-arm control or by plate and screws (Fig 6). Alternatively he may also suggest using an external immobilizing device to hold the fracture if the wrist joint has become unstable or if there is open injury wherein the bones are projected outside the skin. (Fig 7).

Figure No 4 showing a below elbow plaster for wrist fracture
Fig. 5: Showing percutaneous fixation of a colles fracture

Fig. 6: Showing plate fixation of a colles fracture

Fig. 7: Showing external fixation of a colles fracture
**Rehabilitation Measures:**

As soon as the fracture is reduced and immobilized, immediate rehabilitation measures have to be set into motion to prevent troublesome complications like shoulder stiffness, wrist swelling etc: The recommended measures are:

- Actively move the fingers of your affected wrist.
- Actively move the elbow of the affected limb.
- Elevate, bend and rotate your shoulder. This is very important to prevent future stiffness of your shoulder, which is fairly common in these fractures.
- Keep your affected wrist elevated to prevent finger swelling.
- Follow the instructions of your doctor without fail.
- Visit the doctor once a week.
- The initial cast is replaced after 3 weeks because it will have loosened.
- You can do certain light household work like cutting vegetable, cooking etc.
- Do not attempt to lift any weight with the plastered hand.

Once the plaster is removed, physiotherapy measures like heat, ultra-sound, finger, wrist, and shoulder exercises help you to put back yourself into shape.

![Fig 8: various mobilization and physiotherapy techniques to mobilize your wrist joint after the treatment for the fracture is over](image-url)
Complications of colles fracture

Union in Wrong position called Malunion: This is the most common complication of Colles’ fracture. It may be due to improper reduction, inadequate immobilization or recurrence due to comminution etc. There will be pain, deformity and loss of wrist functions and difficulty in carrying activities of daily living. (Fig 9).

Fig 9: When your wrist fracture unites in a wrong position there will be deformity and loss of wrist functions

Fig 10: This is how the x-rays will look if the fracture has united wrongly
Treatment: The options of treatment in a malunited Colles’ fracture are:

- No treatment is required if the patient has no functional abnormality
- If there is pain, and if the patient desires correction of the deformity then surgery is indicated.

Stiff Shoulder (Frozen Hand Shoulder Syndrome)

This is a troublesome complication, which develops due to unnecessary voluntary shoulder immobilization by the patient on the affected side for fear of fracture displacements. It is said that the patient has performed a mental amputation and kept the limb still. (Fig 11). Physiotherapy and exercises needs to be done on a prolonged basis to overcome this problem.

![Stiff Shoulder](image)

Fig 11: due to stiffness in the shoulder following wrong immobilization in a colles fractures there is restriction of the shoulder movements

Sudeck’s osteodystrophy

This is due to abnormal sympathetic response which causes vasodilatation and osteoporosis at the fracture site (Fig. 12). The patient complains of pain, swelling, painful wrist movements and red stretched shiny skin. X-rays of the affected shows gross rarefaction and weakness (Fig 13). Treatment consists of immobilization of the affected part with plaster splints, injection of local anesthetics near the sympathetic ganglion in the axilla or cervical sympathectomy in extreme cases.
Prevention Of Wrist Fractures:

It is certainly possible to keep these fractures at bay if you observe the following preventive measures:

- Correct osteoporosis by suitable measures, as these fractures are more common in this condition. (Read book on Osteoporosis for more information)
- Be careful in the bathrooms and on slippery floors. Avoid falls to the best of your ability.
- Put anti skid foot rugs over the floor and near the bathrooms.
- Keep exercising to keep you physically fit.
- Get your eyesight and ears examined for any problem and attend them without delay.