

Post-Traumatic wrist contracture treated with Ilizarov distraction and gradual correction

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Introduction

1. Wrist contractures can be due to congenital causes, post-trauma or post-burns .
2. If left untreated it can lead to significant social and functional disability.
3. G.A. Ilizarov showed that soft tissue under tension-stress undergoes initial stretching followed by neogenesis of muscle tendon units, neurovascular structures and skin.
4. This process of soft tissue histogenesis is exploited in correction of difficult contractures.

Here is such a case of post-traumatic wrist contracture treated with gradual distraction and deformity correction using Ilizarov.

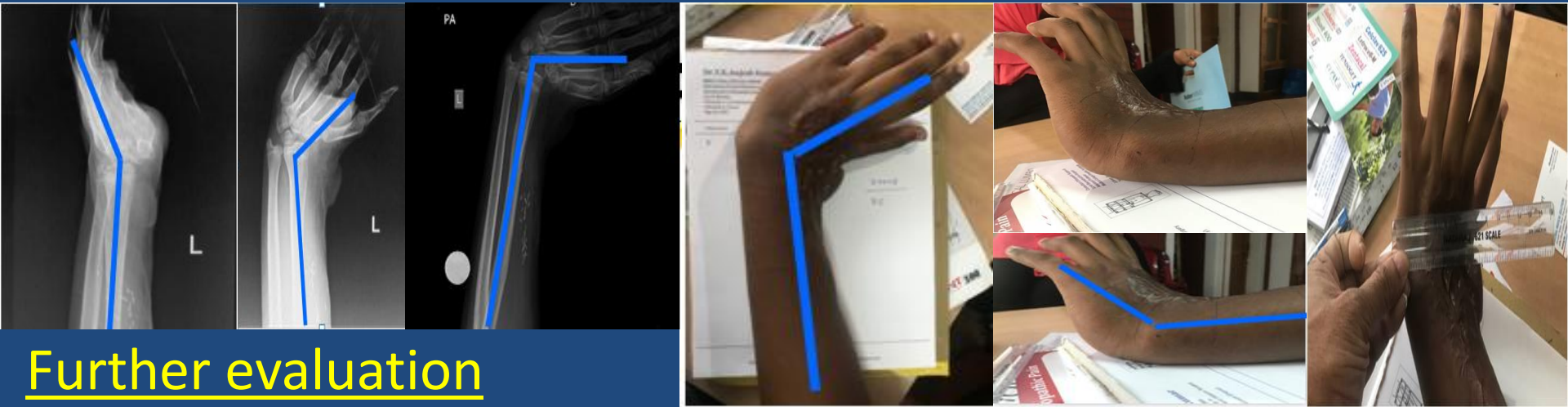
History

- 14 year old boy
- Wrist contracture on left side since 10 years
- Following crush injury during childhood
- History of multiple surgeries including flap coverage

Clinical features

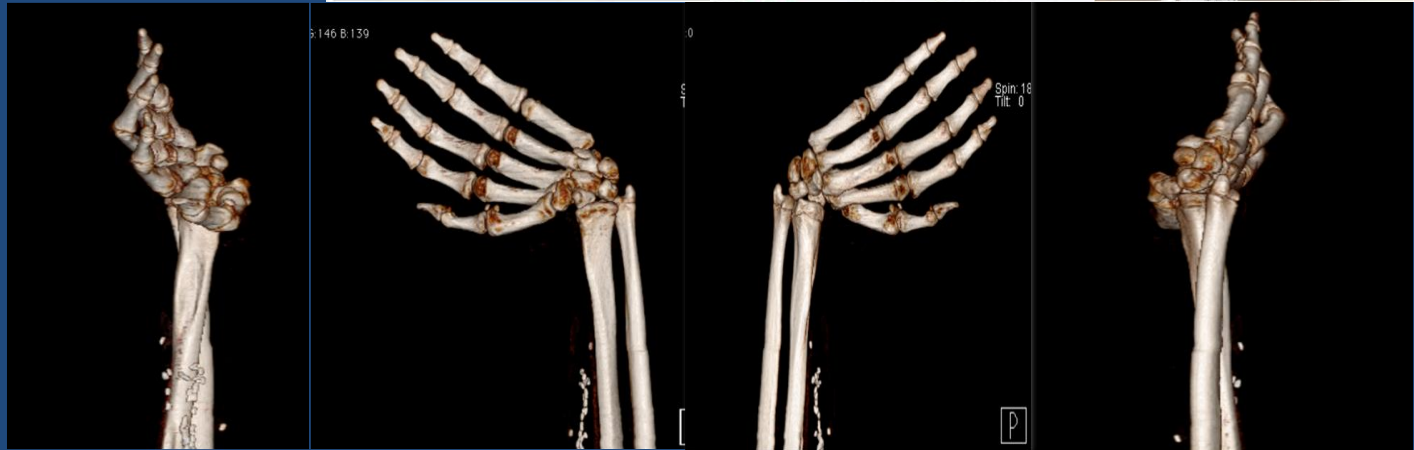
O/E

- No wrist movements
- Fixed contracture at wrist in radial deviated and dorsi flexed position
- MCP joints were also fixed
- PIP and DIP joints movements present
- No sensory problems



Further evaluation

- 3D CT
- Nerve conduction study-WNL
- Plastic surgery consultation -No intervention needed



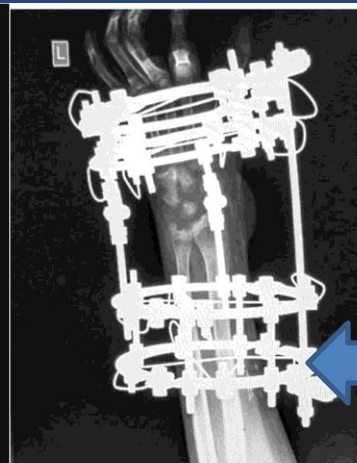
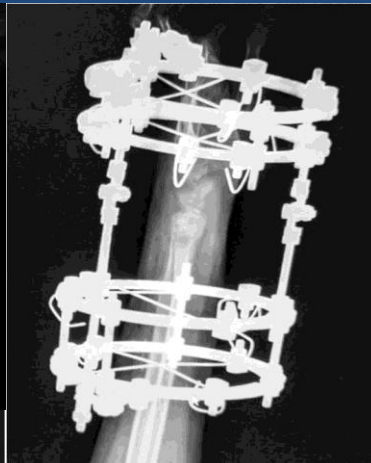
Problem statement

1. Wrist contracture in radial deviated position
2. MCP joint stiff in extension
3. No dorsiflexion or Palmar flexion
4. No bony deformity
5. No neuro vascular problems

Plan

- Ilizarov application and Gradual distraction
- Application of 2 ring at Meta carpals and 2 rings in the forearm.
- Hinge at the bisector axis of CORA away from the convex border
- This allows distraction to occur at the joint during correction

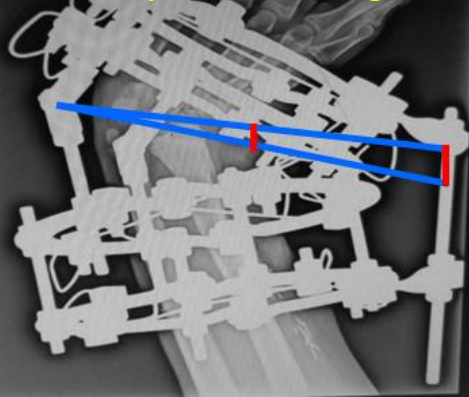
Pre-operative planning



Post-operative diatraction

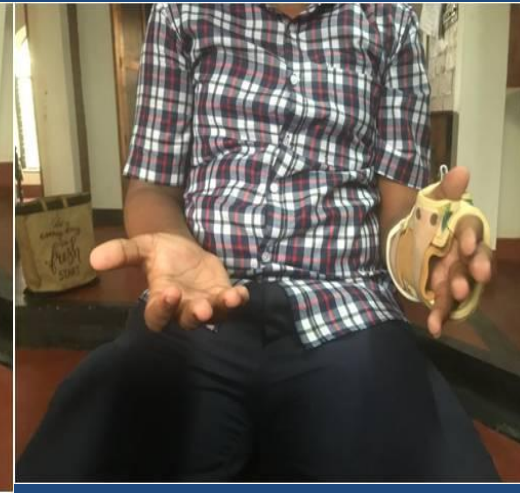
1. Gradually distracted at the rate calculated by rule of equilateral triangle
2. First distracted the wrist for 7 mm
3. Then angular correction done

Rule of Equilateral triangle



At Final correction

After Fixator removal



After 1 year of follow-up



“Turn o buckle brace”

1. One side there is hinge On other side distraction

2. Daily he has to do ulnar deviation to radial deviation multiple times
Also dorsiflexion /palmar flexion/pronation /supination

3. This was for about 2-3 months

TAKE HOME MESSAGE

- Joint contracture can be due to soft tissue /bone /joint issues.
- Gradual distraction has advantages over acute corrections
- Chance of Neurovascular injury is negligible with gradual distraction
- Post correction physiotherapy is as important as the correction itself.