

# Humerus Varus : Corrective Osteotomy and Stabilisation With Ilizarov Fixator

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## The Problem

- Humerus varus caused by growth arrest of the proximal humerus.
- Leads to shortening, decreased flexion, and decreased abduction.
- Prior reports don't address all the issues.

## The Solution

- Proximal humerus osteotomy for deformity correction (flexion + valgus).
- If desired, simultaneous or sequential diaphyseal osteotomy for lengthening.
- Percutaneous surgery with external fixation.

## Materials and Methods

- Retrospective review (1990-2004)
- N = 7 (2 ♂, 5 ♀)
- Average age = 25 years (range, 15 to 43 years)

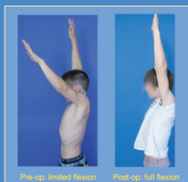
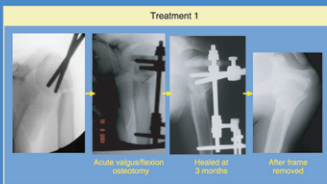
- Etiology of growth arrest—
 

perinatal trauma	3
pathologic fracture	2
neonatal sepsis	2

## Case example

- 14 year old boy
- Neonatal sepsis
- LLD = 3 cm; predicted = 6 cm

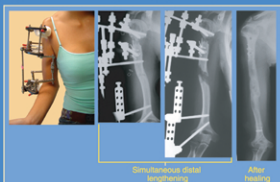
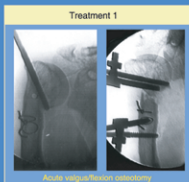
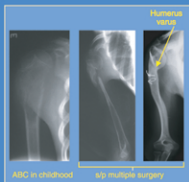
- Two treatments:
  - Deformity correction (Ilizarov)
  - Lengthening (Orthofix)



## Case example

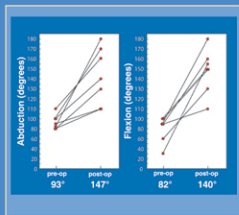
- 26 year old woman
- Aneurysmal bone cyst in childhood
- s/p multiple surgeries
- Limited abduction

- Limited flexion
- Arm length discrepancy = 11 cm
- One treatment:
  - Deformity correction + lengthening (Ilizarov)



## Results

- **LLD** -
  - > 6 cm : 3 pts. Valgus/flexion osteotomy at humeral neck. Diaphyseal osteotomy for lengthening.
  - < 3 cm : 4 pts. Valgus/flexion osteotomy at humeral neck. Lengthening procedure in one patient.
- **Proximal osteotomy union** – 4 months (range, 2 - 6 months)
- **Lengthening** – 8 cm (range, 6 - 10 cm)
- **Time in fixator** – 7 months (range, 3 - 15 months)



## Complications

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| Pin loosening                       | 1                                   |
| Broken pin                          | 1                                   |
| Delayed regenerate consolidation    | 2                                   |
| Delayed union of proximal osteotomy | 2 (bone graft in 1)                 |
| Fracture of regenerate bone         | 1 (R <sub>1</sub> – fracture brace) |
| Transient elbow flexion contracture | 2                                   |
| Transient paraesthesia              | 2                                   |

## Conclusion

- Valgus + flexion osteotomy improves shoulder ROM
- Ilizarov technique allows for simultaneous or sequential lengthening
- Correct pin placement in proximal humerus is critical