

ELBOW STIFFNESS

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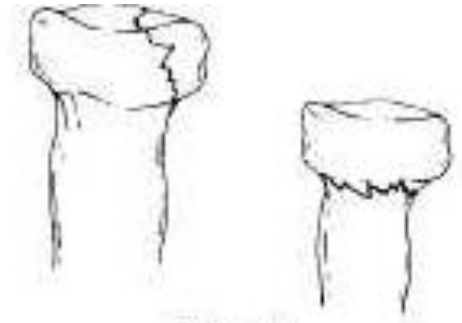
Excellence in orthopaedic and sports injury treatment

Causes

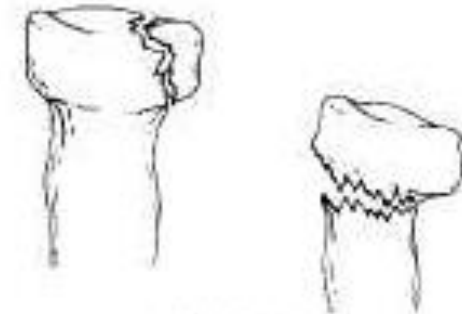


Incidence

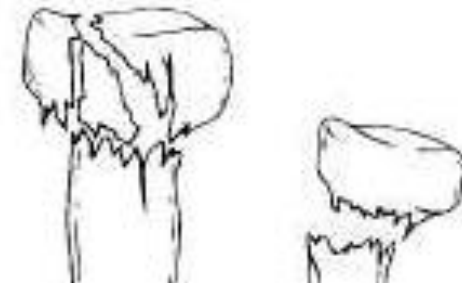
- 2nd most common elbow problem.
- Most common sequelae post trauma



Type II



Type III



Normal Motion

- Flexion: 0-140 deg
- Extension : -5 - 0 deg
- Rotation: 85 sup ,80 pron

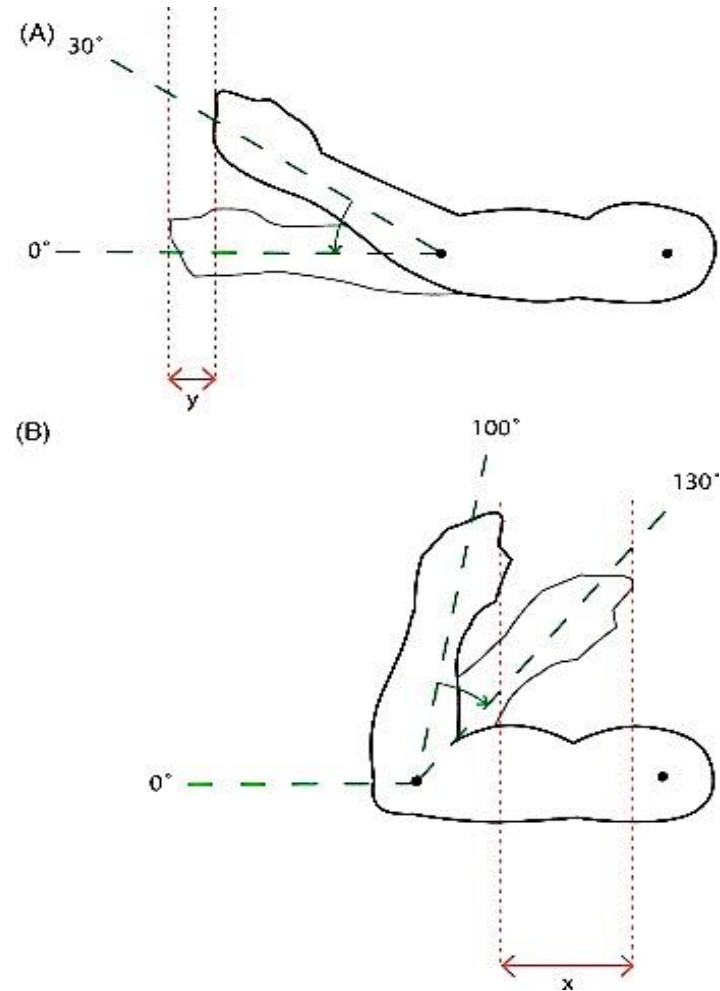
- ADL : 30-130 , 50-50



Loss of Motion

- Extension
- Flexion
- Supination
- Pronation

- Adjacent joint



Aetiology

Intrinsic

- Intra-articular
- Joint incongruity
- Joint adhesions

Extrinsic

- Extra-art or capsular
- Heterotopic Ossification
- Capsular thickening
- Soft tissue adherence

NB *trauma : combined*

Natural History

- Gradual improvement with mobilisation.
- Plateau time : Adults ~9m, Child ~18m.
- Variables:
 - Time to treatment
 - Post op immobilisation
 - Complication



Patient Evaluation : History

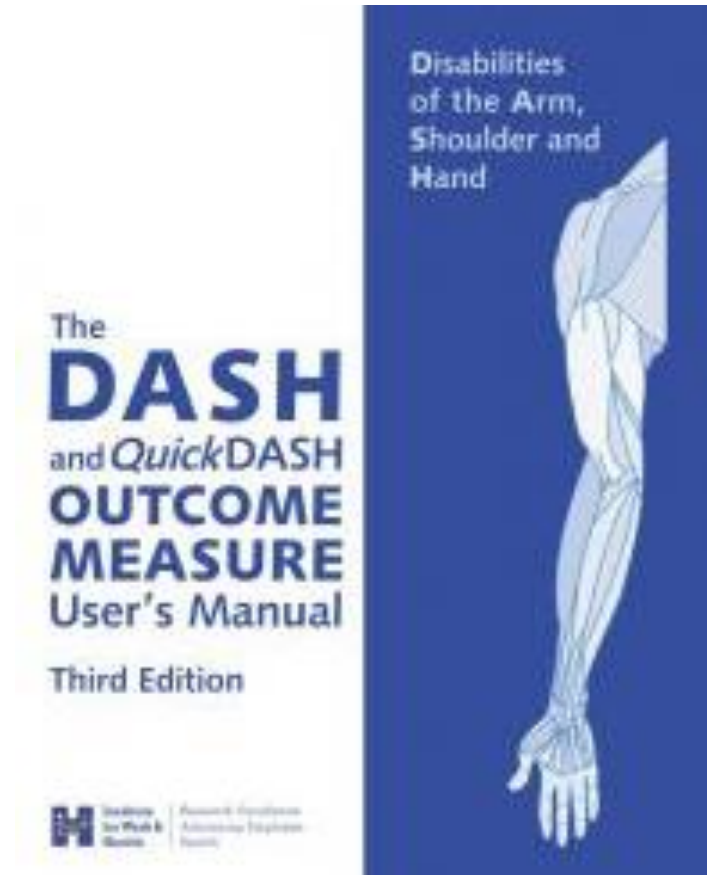
- Occupation
- Previous treatment
- Duration / Static
- Pain
- Metal work prominence
- Ulnar Neuropathy
- Locking



Patient Evaluation : PROM

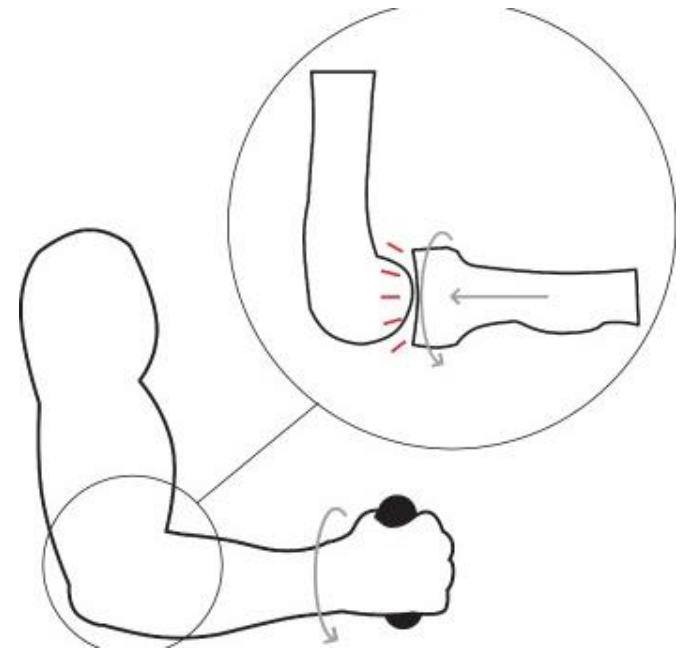
- DASH
- Mayo Elbow Eval Score

- Pain : VAS
- Doornberg & Ring



Patient Evaluation: Examination

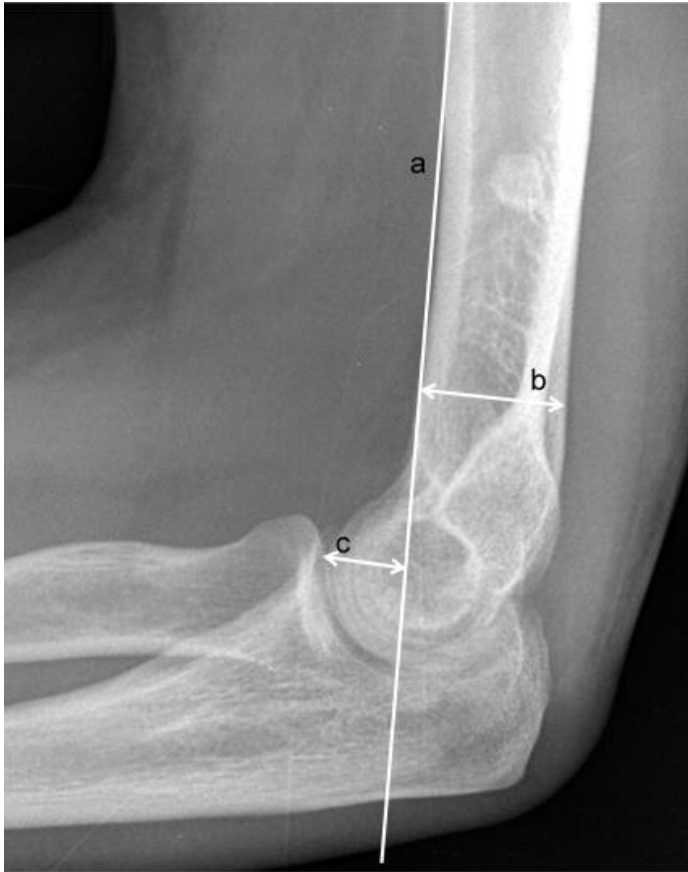
- End of range Pain
- End of range : Soft / Hard
- Scar adherence
- Radial head : Grip & Grind
- Ulnar nerve
- Metal work prominence



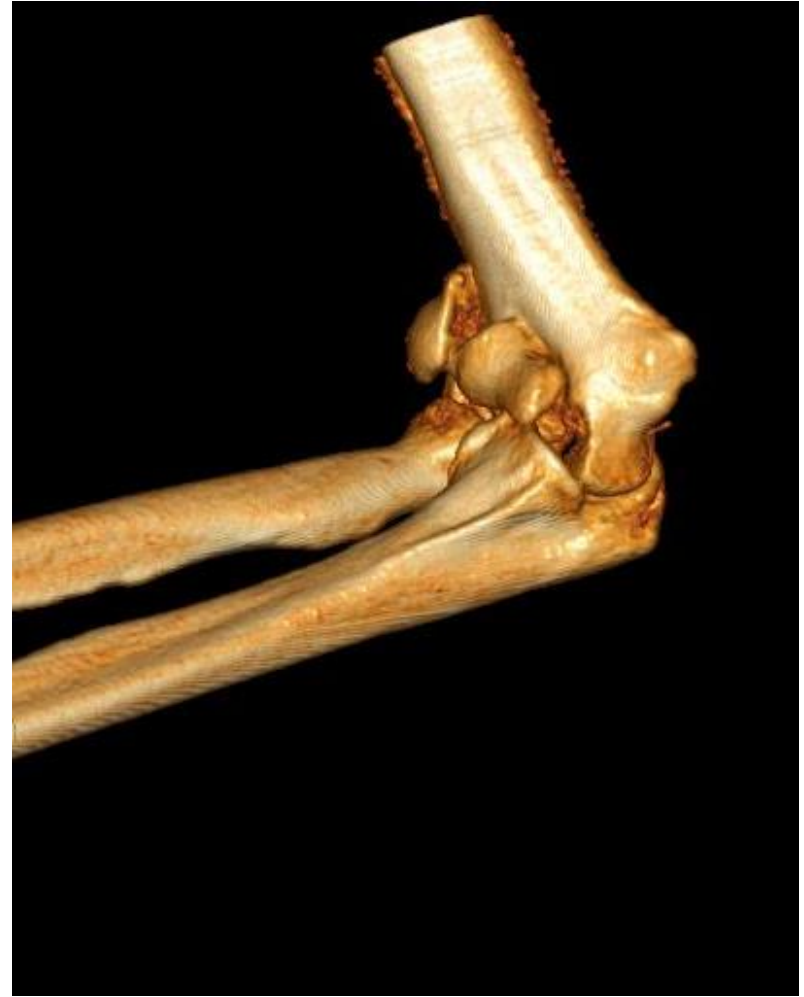
Imaging

- Xray : Osteophyte / HO / LB /
Congruence / Nonunion
- CT Arthrogram : Callus / HO / screw perf
- MR Arthrogram: Capsular adherence

Xrays



CT Reconstruction



MR Arthrogram

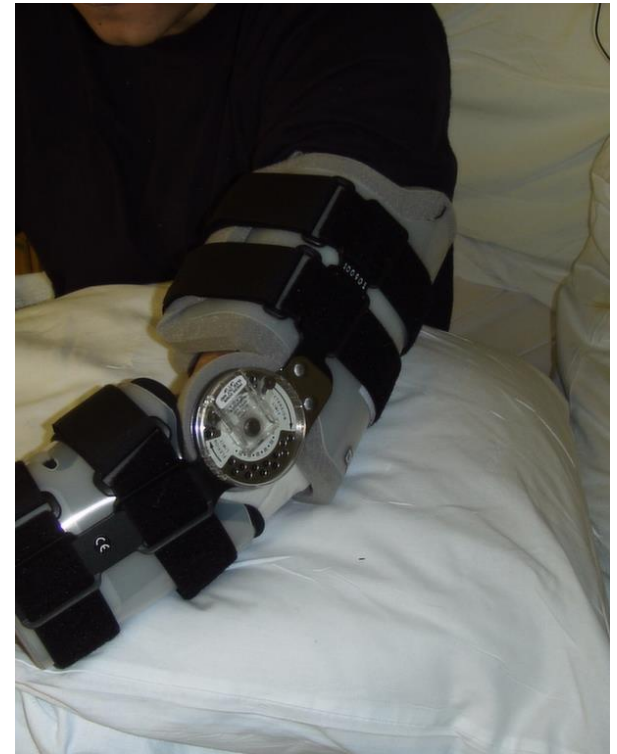


Treatment : Prevention

- Avoid immobilisation (2w Max)
- Pain relief
- Physio : encourage usage
Unstable: Overhead
- Closed Dislocation <3w :Mehlhoff 1988 JBJS (Am)

Treatment : Non Operative

- Home Exercise Programme
- Avoid forceful manipulation.
- Avoid inflammation
- Resting splints (night)



Treatment : Passive Stretch

- Turnbuckle Splint

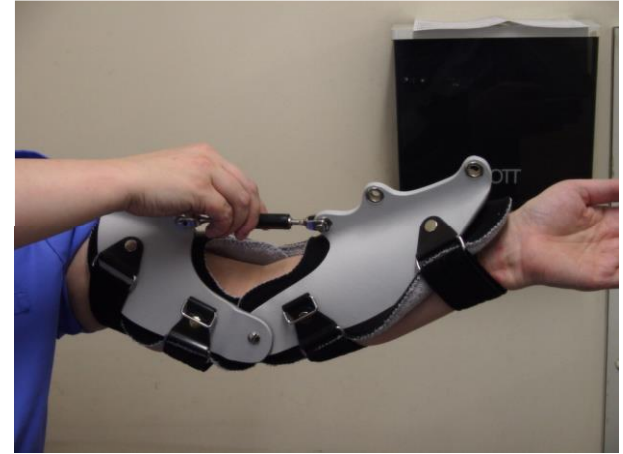
Green JBJS Am 1979

Stress relaxation

Plastic deformation

Gelinas JBJS Br 2000

18 hrs /day. Restrictive.



Treatment : Dynamic Stretch

- Joint Jack



Treatment : Surgical Principles

- Indication:

Failure to improve

Functional deficit

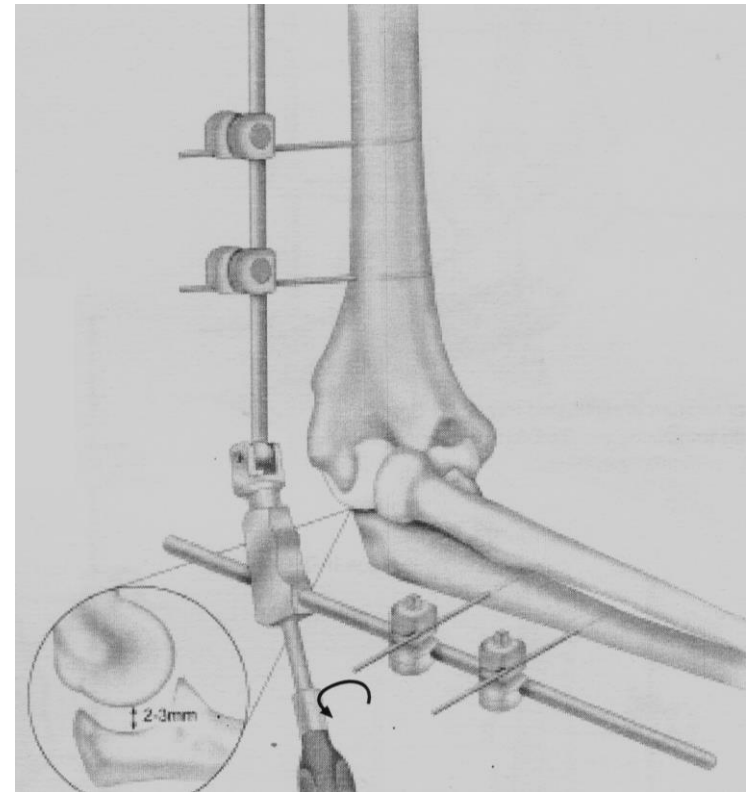
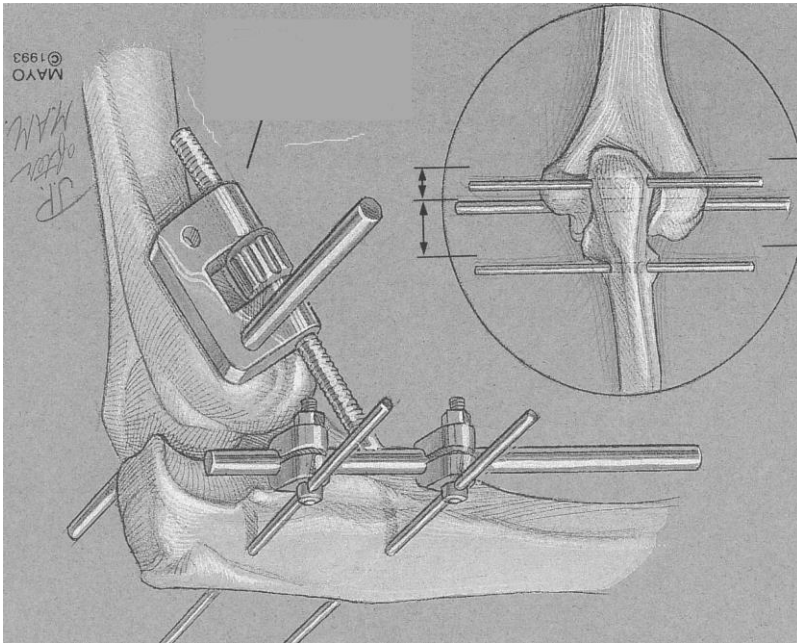
>6m post injury

Treatment : Surgical Principles

- Identify the problem
 - Soft tissue contracture
 - Heterotopic bone
 - Bone impingement
- Choose the right procedure for the condition

Soft tissue contracture

Distraction Arthroplasty



Arthroscopic Arthrolysis

- Difficult
- Dangerous :nerves
- Limited aims
- Problems
 - Access
 - Visualisation
 - Safe instrumentation



Combined Pathology

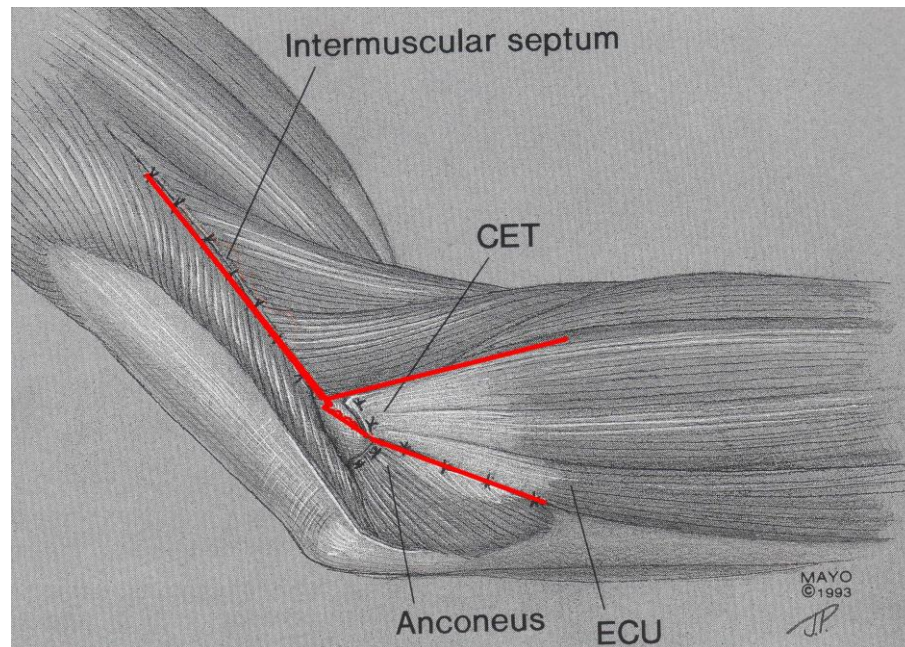
- Open approach:

- Global restriction

- Lateral Approach

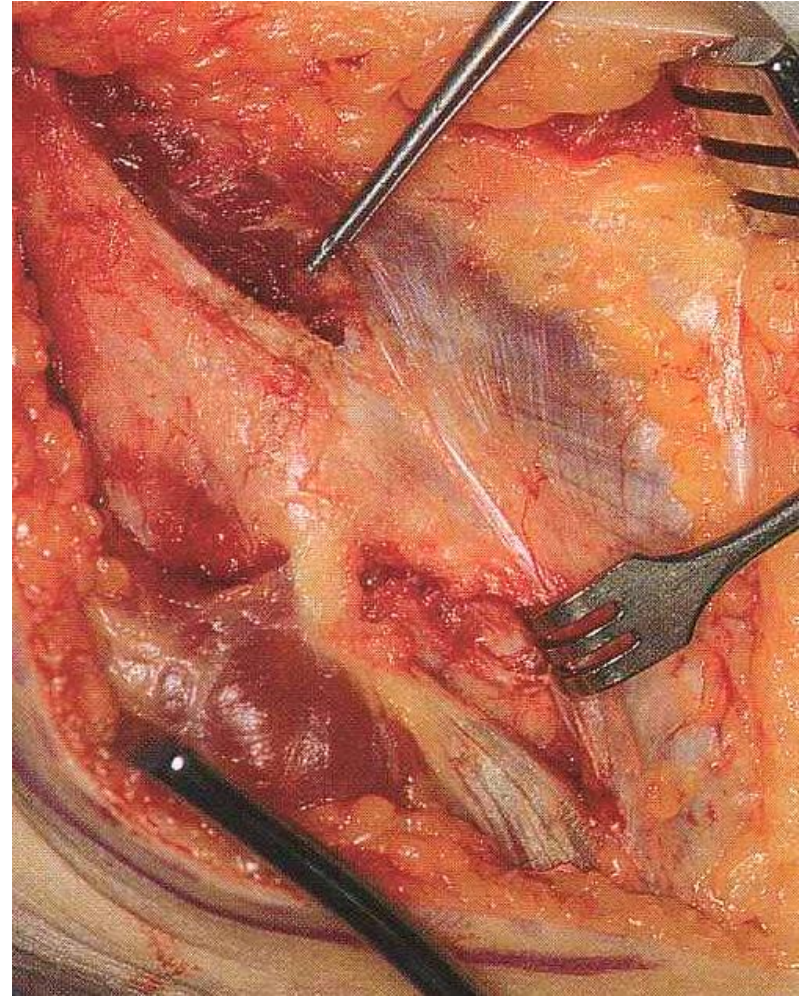
- Ulnar Neuropathy

- Medial Approach



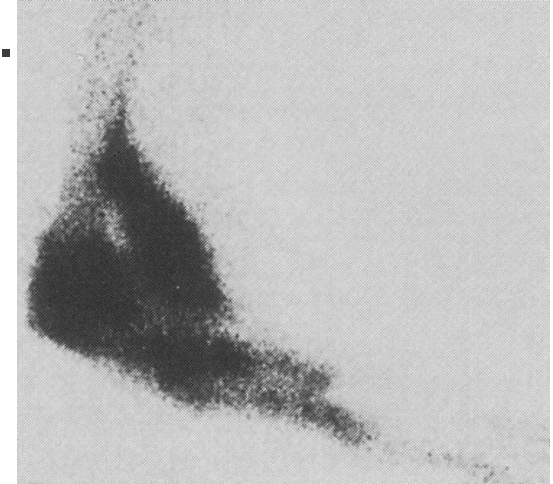
Lateral Column Procedure

- Anterior
 - Capsule, coronoid tip, anterior muscle
- Post
 - Capsule, Olecranon, Triceps
- Medial
 - Post bundle of MCL
- Lateral Lig elevation
 - Allows dislocation of joint



Heterotopic Ossification

- Pt at risk: Trauma, Head Inj, Burns.
- Classification : Brooker 1-5
- Await maturation (serial XR)
- Plan approach (CT/ MR) (incl NV)



- Treatment:

- Excise

- NSAID: Indomethacin 25mg tds 6wk

- Radiation : 7-8 Gray <72 hrs post op

Ankylosed Elbow

- Excision bone bridge
- Interposition arthroplasty
- Joint replacement



Rehabilitation

- Cont Passive Motion
- Alternating flexion /extension
- Good analgesia



Cautions

- NV bundle
- Childhood deformity
- Rotational stiffness
- Post op instability

Conclusion

