

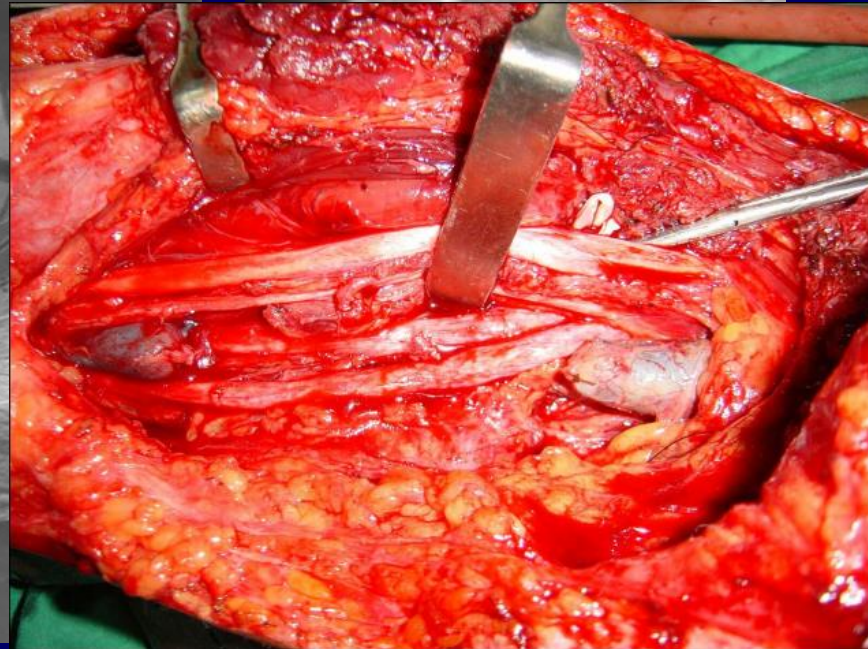
Proximal Humerus Fracture

Dr J Dheenadhayalan

Ganga Hospital, Coimbatore

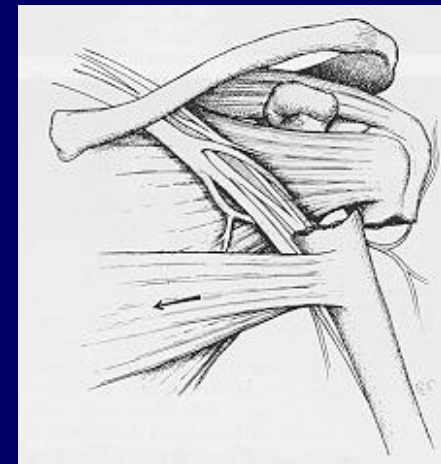
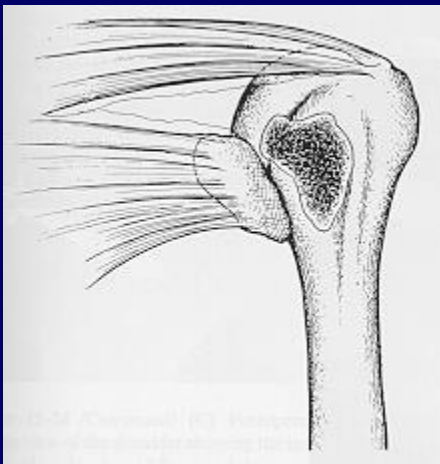
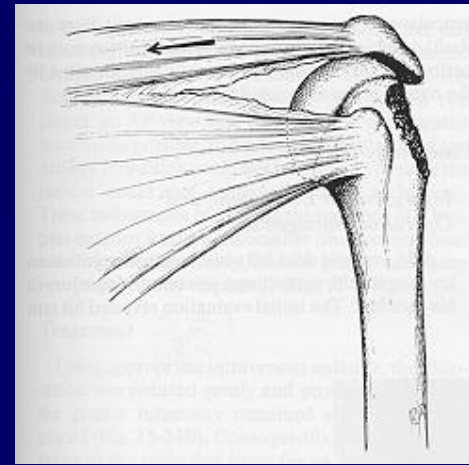
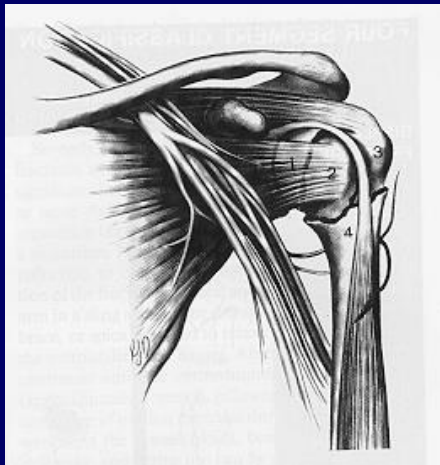
Few Lessons in Plating of Proximal Humeral Fractures

Lesson 1 –
Know the Absolute Indications



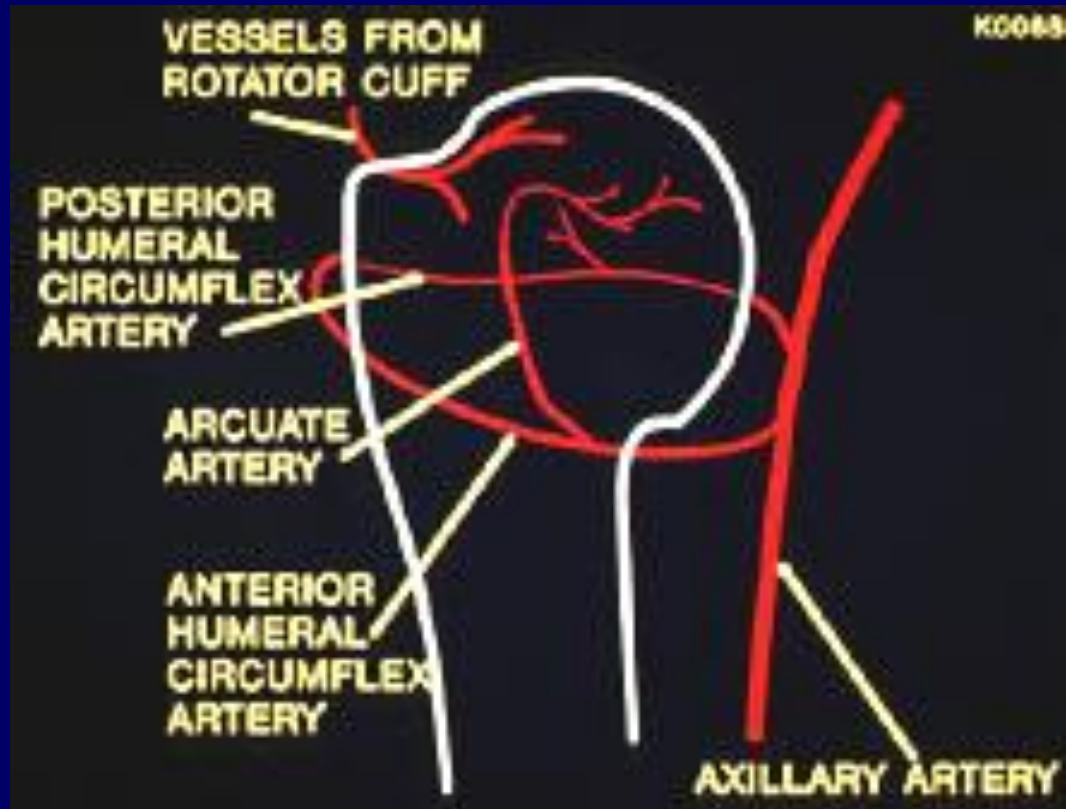
Lesson 2 –
Understand the Fracture

Deforming Forces

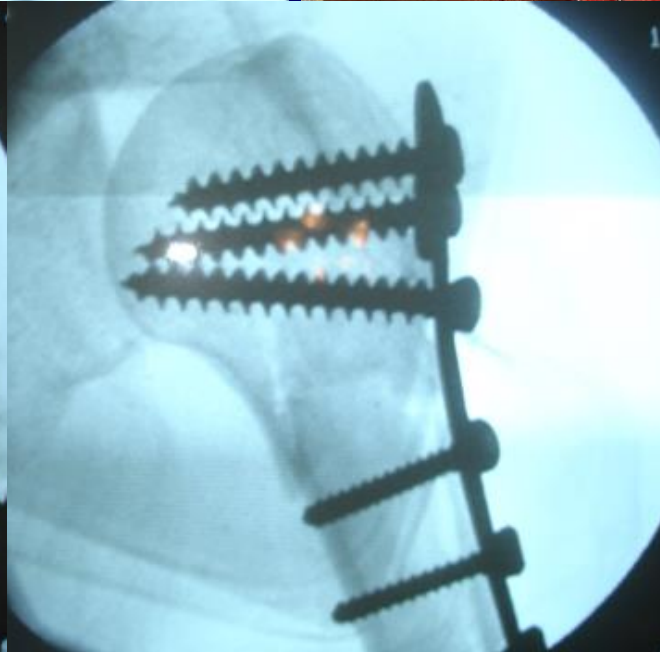
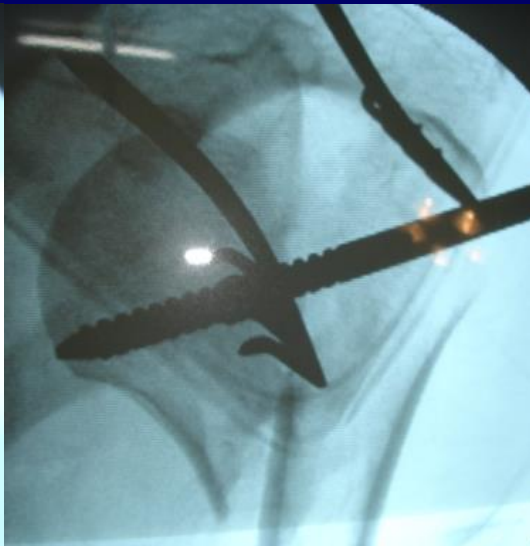


Lesson 3 – Surgical Technique

Blood supply



Minimal Soft Tissue Disruption



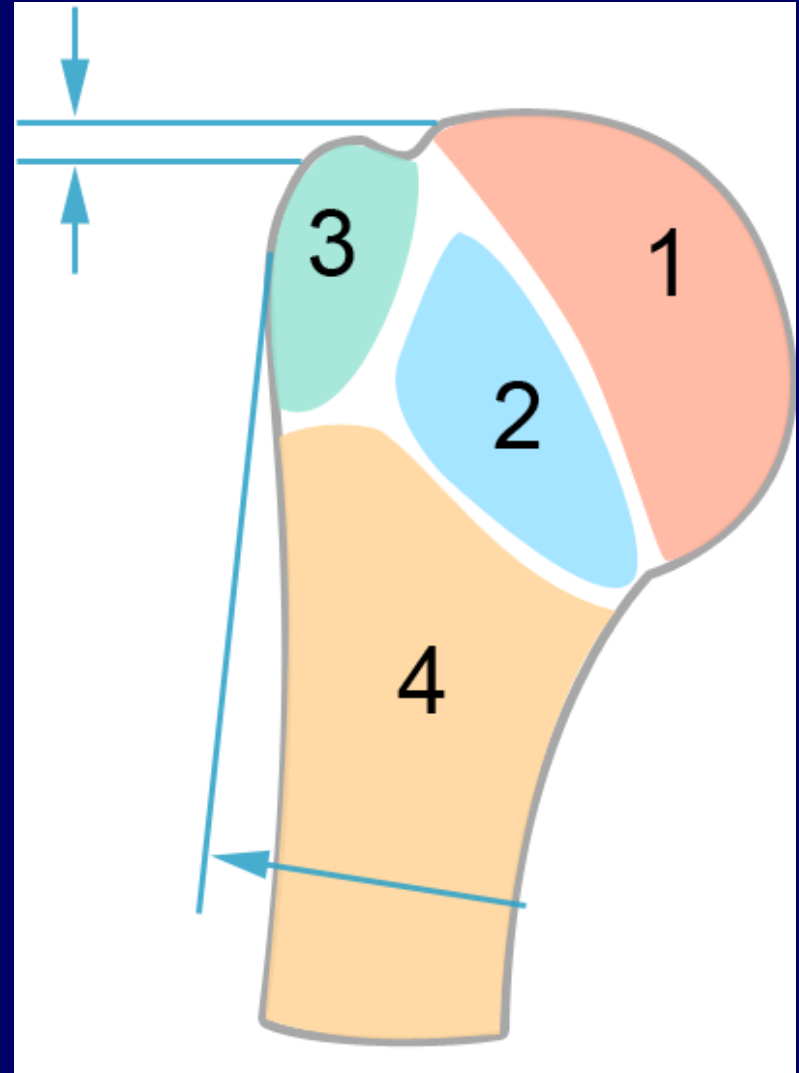
Lesson4 –
Restoration of Anatomy

Restoration of anatomy

No Varus [Rietveld, et al 1988]

Restore tuberosities

- Prevent impingement
- Tension cuff



Reduction

Reduction

achieves

stability

Internal Fixation of Proximal Humeral Fractures: Current Concepts

- **No general agreement on the surgical strategy for displaced and unstable two- to four-part fractures.**
- **The clinical outcome is influenced by the fracture type and concomitant injury to the rotator cuff.**
- **Technical errors**



Planning_ _ _

- ? Need for CT scan
- Type of Implant
- Equipments required

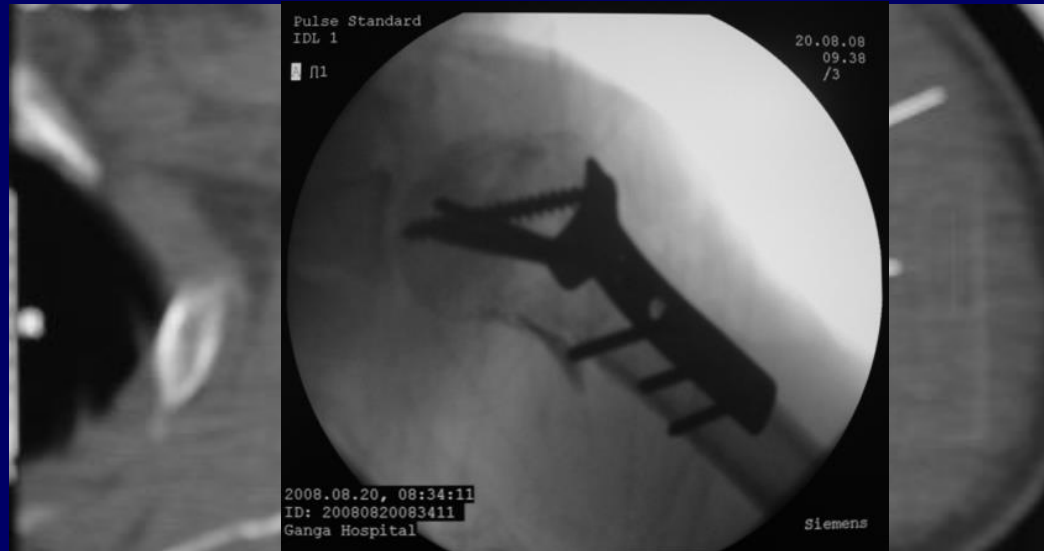


Fracture Complexities

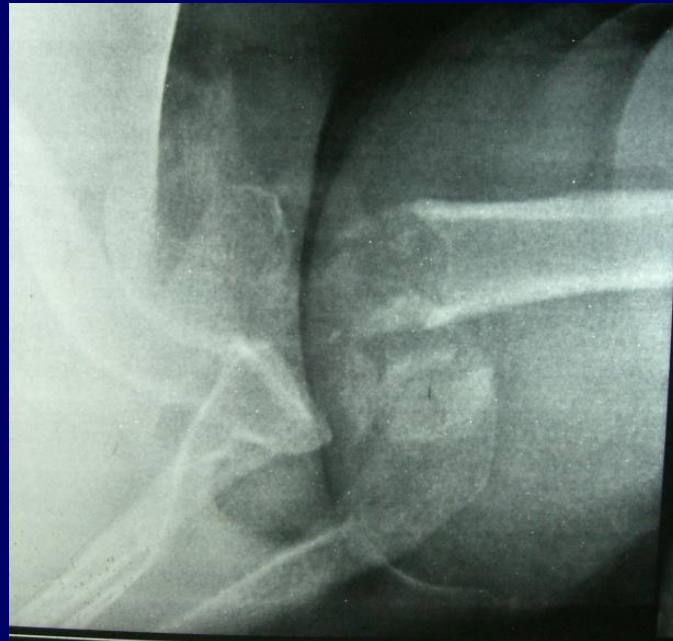


Lesson 5 -- Posterior Subluxation

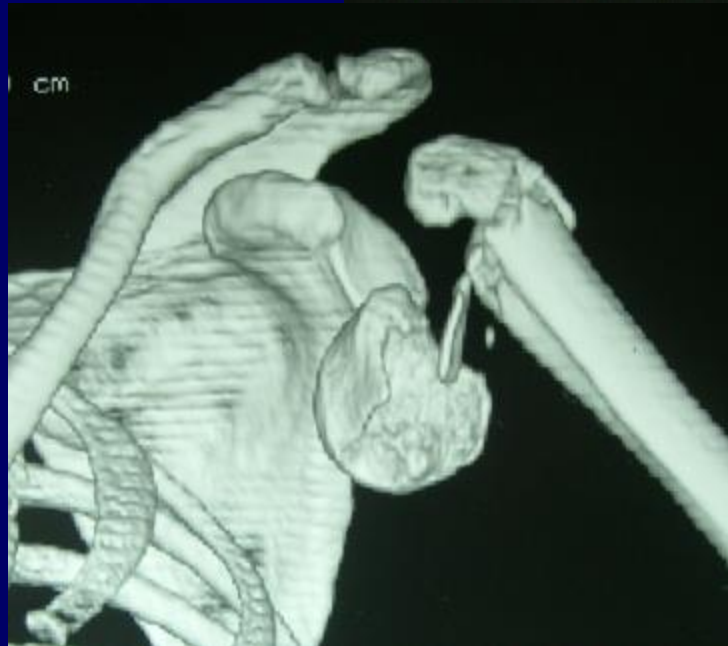


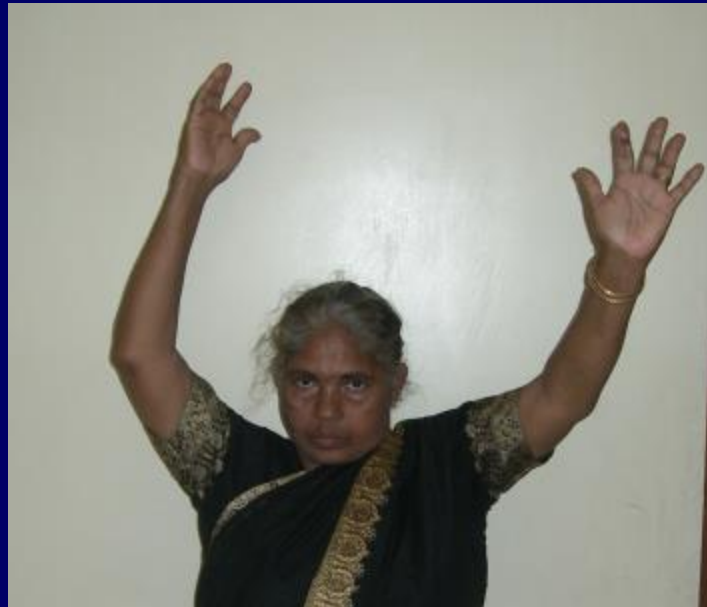
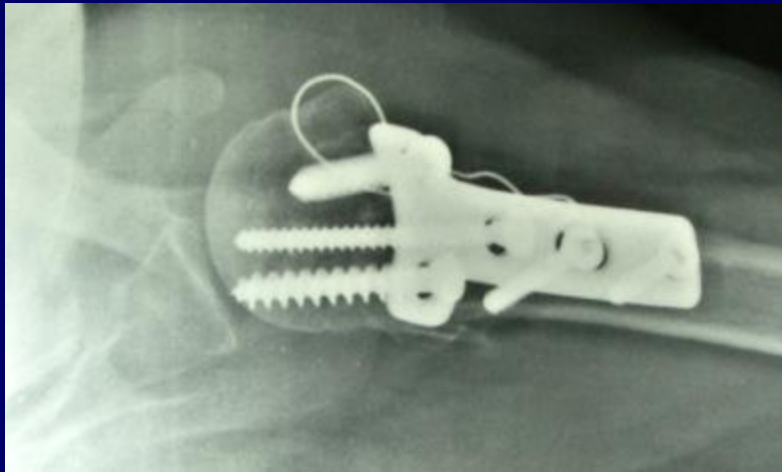
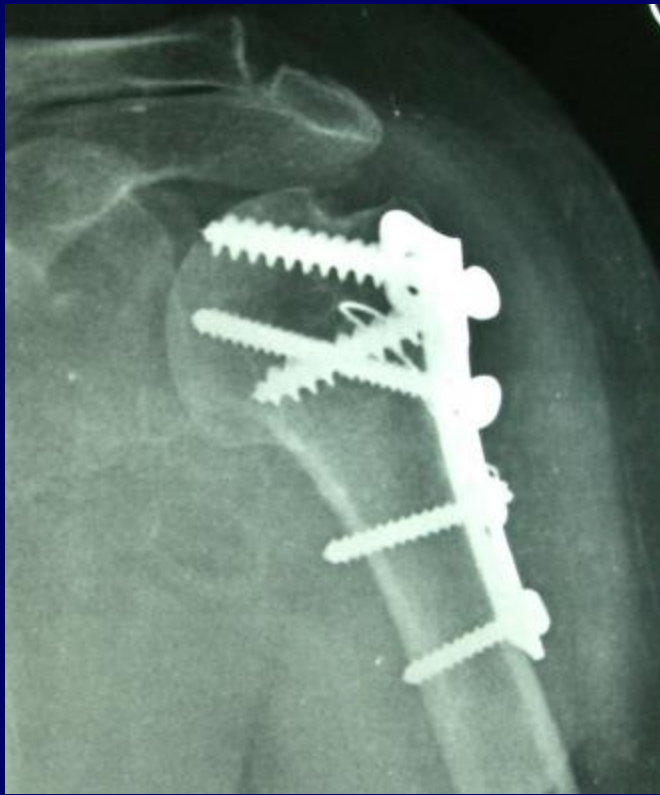


Lesson 6 -- Fracture Dislocations



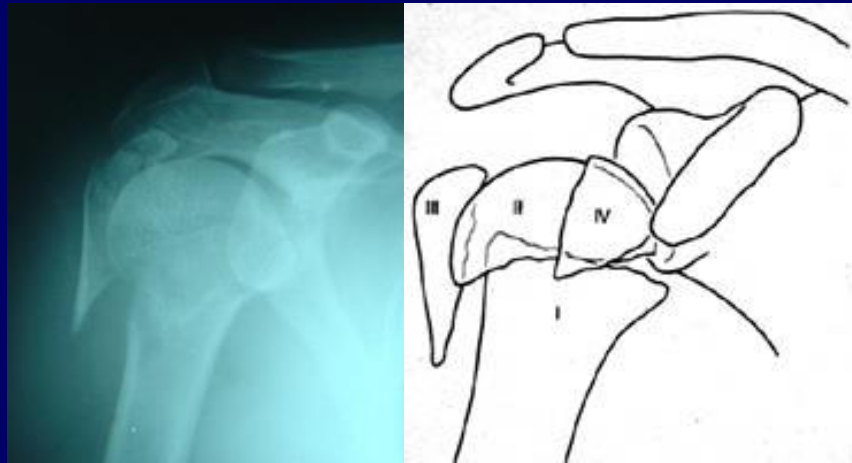
Ganga Hospita





Lesson 7 –

Four part Valgus Impacted Fractures

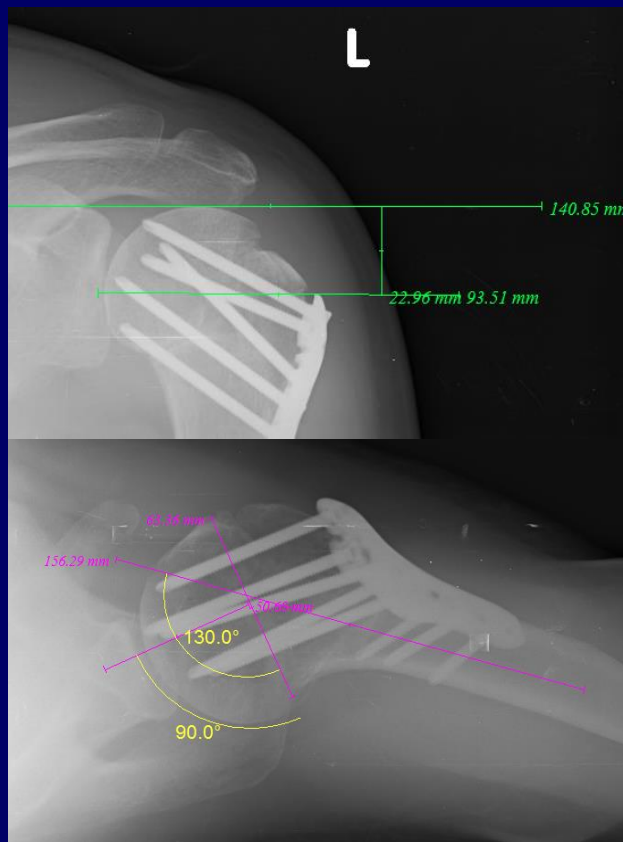


- AVN- infrequent
- More amenable to internal fixation than to displaced four part fractures

Lateral displacement of the head of the humerus from the shaft signify that the medial vessels in the periosteum is disrupted

Case examples

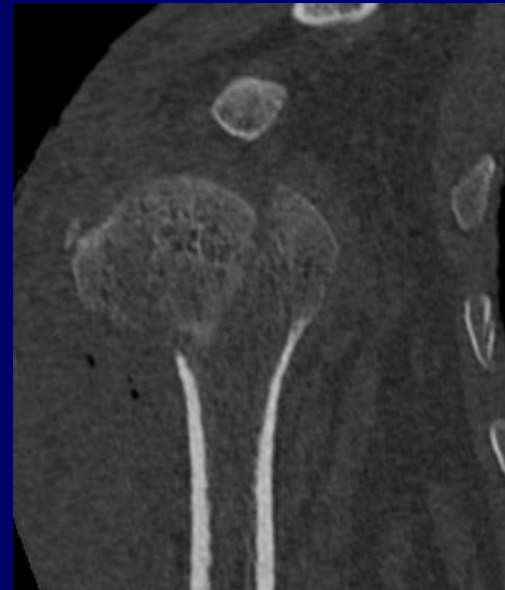


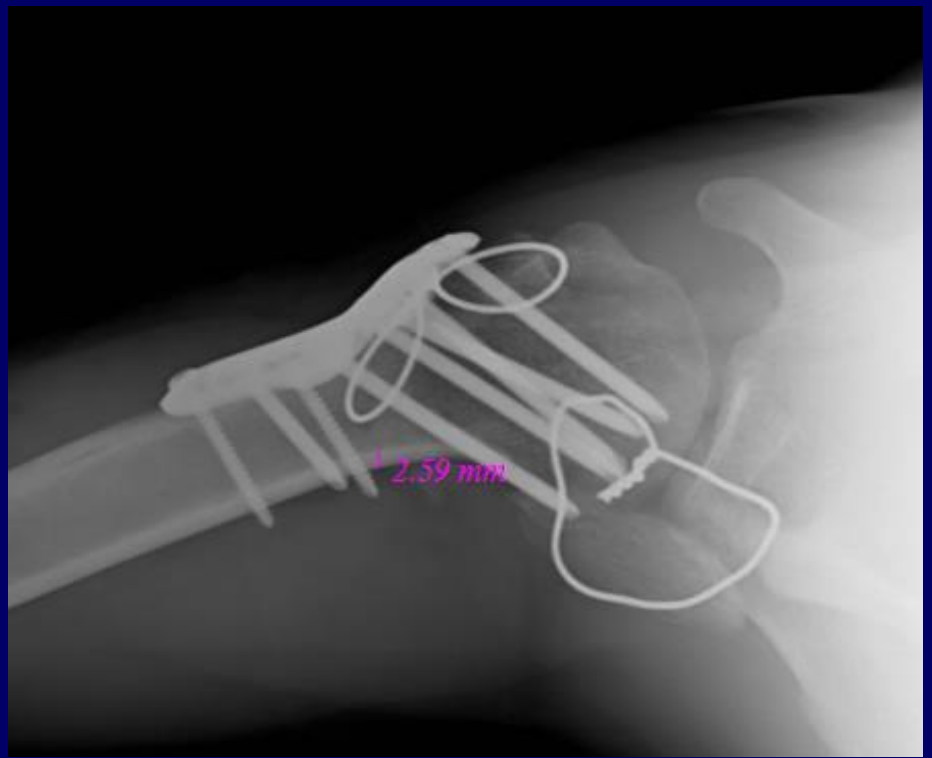
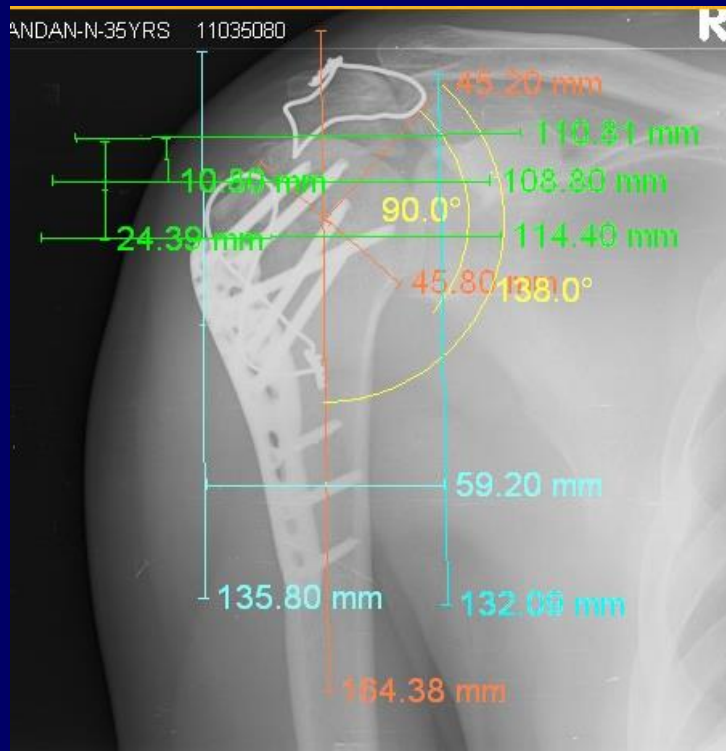




Lesson 8 – Medial Communiton

Case example





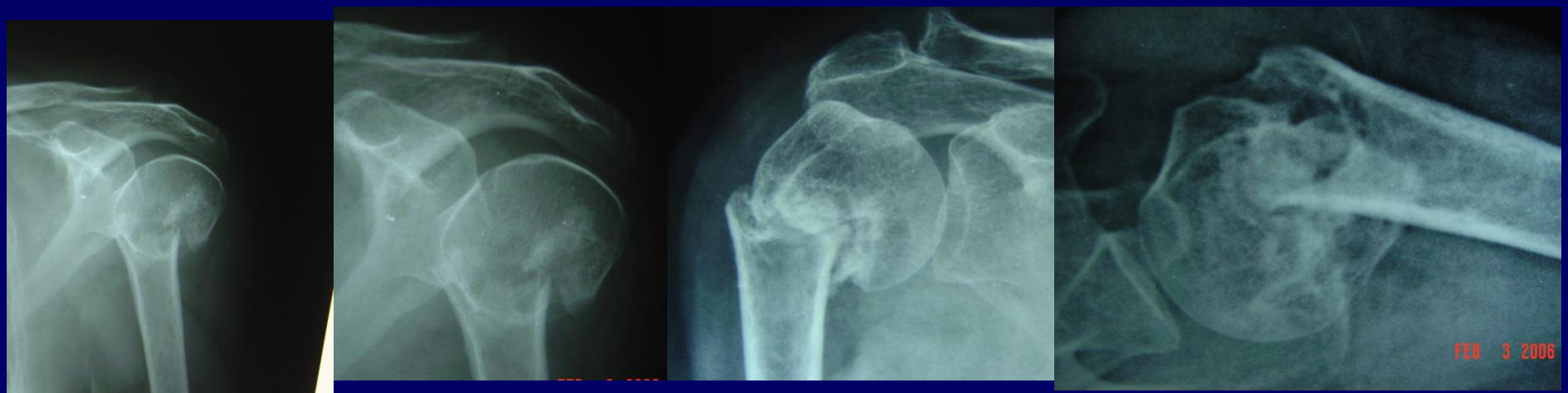


Medial Support

- Fractures in which no medial column support was obtained reduction loss and articular screw penetration occurred in 29% of cases.
- The vertical height of the humeral head decreased by 6 mm relative to the plate

Lesson 9 –

Is internal fixation beneficial?



Court –Brown; JOT, 2000

1027 consecutive adult Proximal humerus fractures

503(49%) minimal displaced

524(51%) displaced

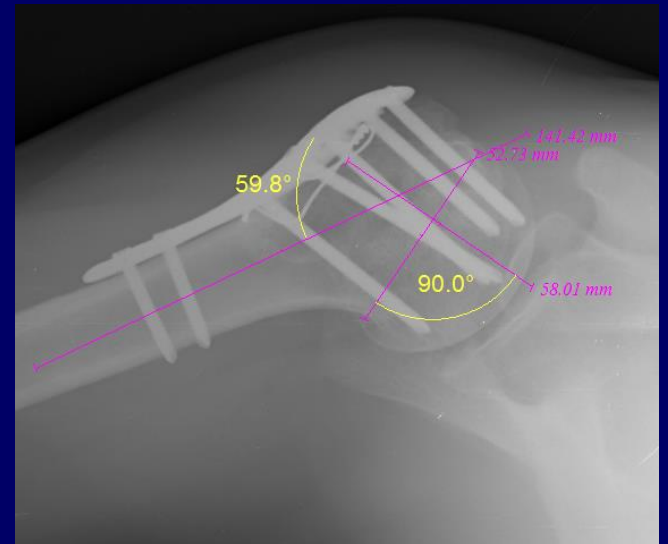
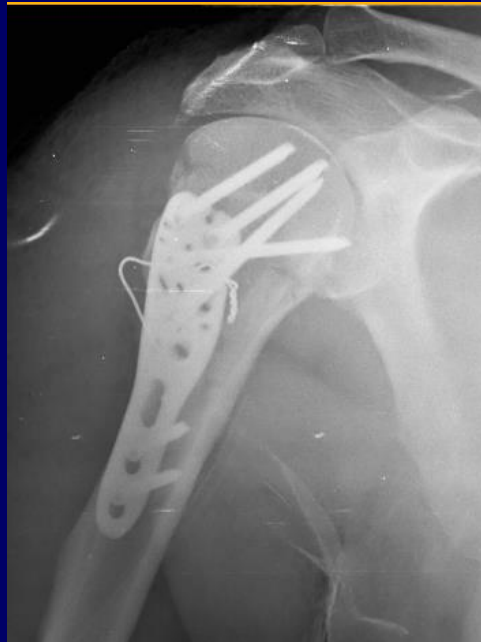
116 treated operatively

Age was primary determinant
Surgery did not affect results

Surgery in the elderly group does not improve outcome!!

Should we operate these fractures?

Lesson 10 – Rotator cuff tears





Constant Score **Poor Result**
55

DASH Score
40.83

There is also need to evaluate the cuff integrity in these patients

<u>Surgical Approaches</u>	<u>Fracture / Fixation</u>
Deltopectoral	All Fractures surgeon choice
Deltoid Splitting	Greater Tuberosity, Some Surgical Neck if using IM fixation
Posterior	scapula, glenoid, occasional posterior articular fracture
Percutaneous	Fractures amenable to pinning or nailing

Delto Pectoral Approach

Supine position

shoulder at edge

Arm rest

Able to stand close

**C-arm Must acquire
AP & LATERAL views**



Deltopectoral Incision

----- Axillary groove the focus

The coracoid process
is the "lighthouse"
providing a palpable guide

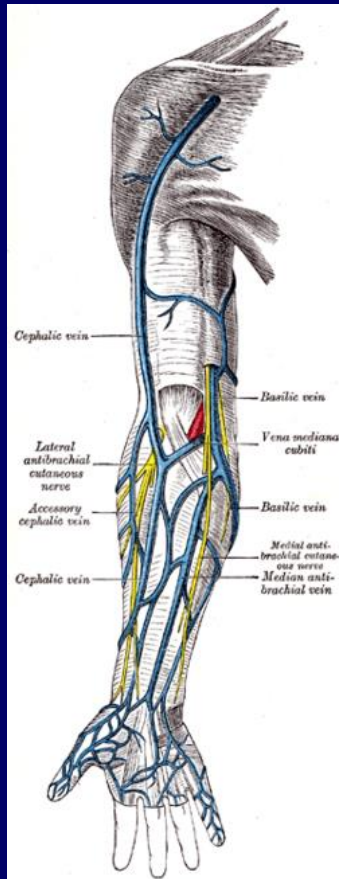
to the deltopectoral
groove,
that separate

the lateral "safe side"
From
the medial "suicide"

where the brachial plexus
and major vessels lie.

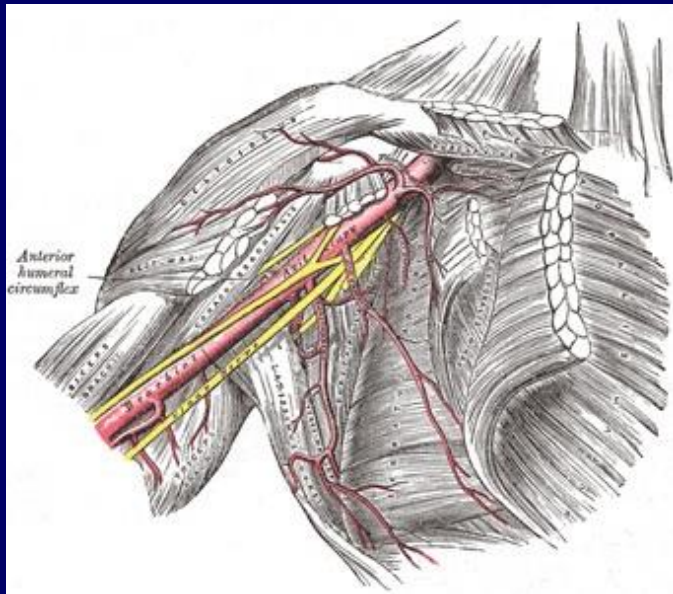
Medial to deltoid insertion, neutral rotation and abduction, Fatpad

Cephalic vein



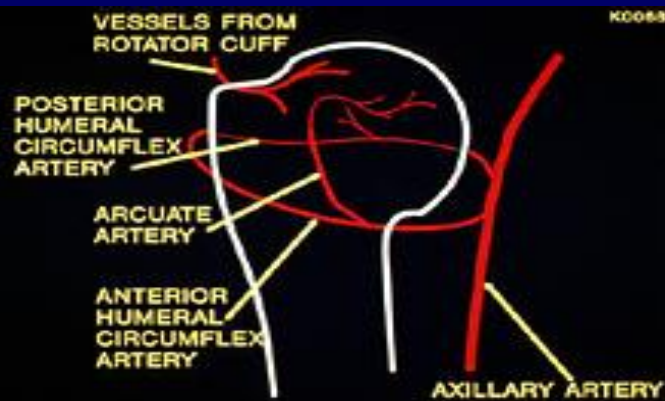
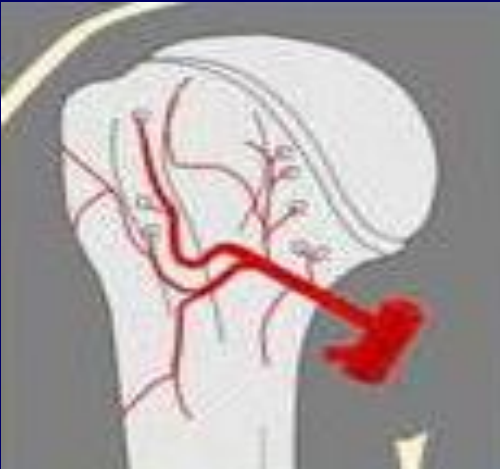
Medial V/S Lateral mobilisation

Thoracoacromial Artery



Deltoid branch

Avascular Necrosis

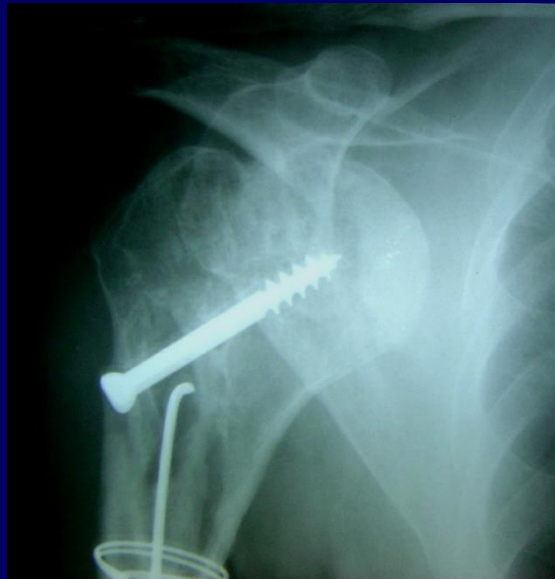


Biceps the landmark

*Tuberosities

*Rotator interval

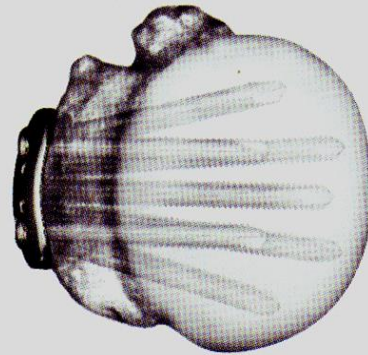
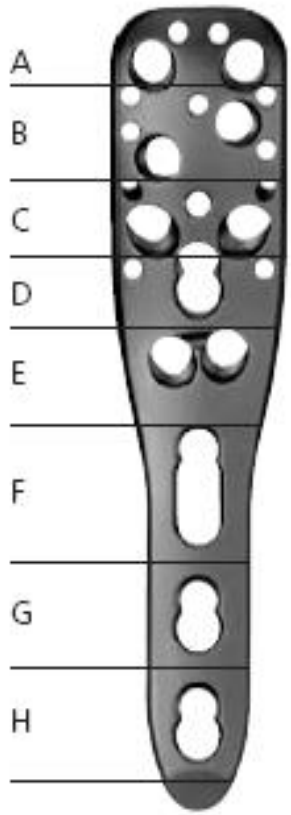
*Interposition



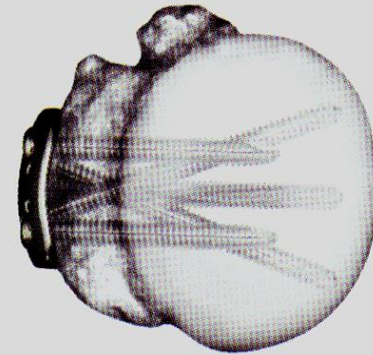
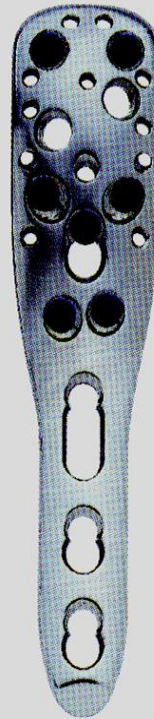
Keep the Arm Abducted



PROXIMAL HUMERAL PLATE



A, C, D and E level screws for a "diverging" screw pattern



A, B, and D level screws for a "converging" screw pattern



THANK YOU