

Treatment Approach To Cases Of Nonunion Intercondylar Fracture Humerus

Dr. Vikas Agashe

Dr. Vivek Shetty

Dr. Anurag Awasthy

*P. D. Hinduja National Hospital & Medical Research Center,
Veer Savarkar Marg, Mahim, Mumbai – 400016.*

Nonunions in cases of intercondylar fractures of Humerus (T-Y fractures or C3 fractures) are not uncommon in young & middle aged. They are symptomatic & disabling.

The common causes of nonunion are

1. High energy trauma,
2. Bone loss,
3. Osteoporosis
4. Inadequate fixation.

Either of the above causes or combinations of them are responsible for the final outcome. Salvaging such painful & functionless limbs is a challenging job.

Treatment options :

1. Internal fixation with bone grafts
2. Total elbow arthroplasty
3. Arthrodesis
4. Accept pseudoarthrosis.

We have addressed this problem by adopting a technique described in OCNA 2002 for fresh intercondylar fractures in an article titled **Management of smashed elbow.**

Position : Lateral

Incision : Incorporating the previous incision

Exposure : Through trans olecranon approach or trap incision depending on whether the articular surface realignment is required.

Implants :

- Reconstruction plates,

- 3.5 mm corticle screws,
- Cannulated cancellous screws
- 1.5/2.0 mm k wires

Image intensifier : Useful but difficult to operate.

Salient features of technique :

1. Restoration of articular congruity & temporary stabilization with K wires.

2. Excision of avascular bone even if it creates significant bony defect or loss of olecranon fossa.

3. Collapsing the fractured ends into one another after suitably shaping the proximal fragment so as to have stable bone contact.

4. Use of two well contoured plates one on medial & one on lateral side.

5. Good anchorage in the small distal, which is often osteoporotic fragment. This is achieved by passing more than one screw each side & through a plate. Each screw is passed through the plate.

6. Proximal temporary fixation followed by compression at non union site as illustrated, followed by formal fixation of plates.

7. Creation of olecranon fossa using burr.

8. Bone grafts at fractures site if there is a defect & between the plates & non union site.

9. Early mobilization - in 2 -3 weeks

Points to remember :

1. Extensive dissection required.
2. Plate esp. lateral plate has a tendency to hang outside posteriorly in proximal fragment.

3. Anterior - posterior angulation needs to be checked well.

4. Use of 'C' Arm is difficult hence one has to be careful while passing more than one screw in distal segments. Usually K wires are replaced by the screws .

5. Bone grafts have a tendency to get displaced anteriorly & causes anterior bone block as illustrated. However we have observed that this does disappear with time.

6. As the plates are parallel to each other screws on either sides need to be directed in different direction or a few holes should not be utilized.

7. If the plates ends at the same level, that region may become a stress riser hence the plates should end at different levels

Post-operative protocol :

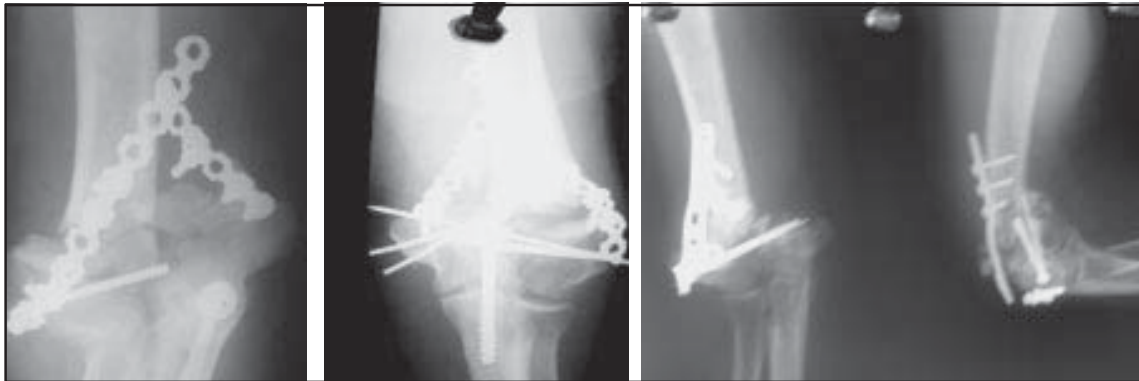
Above elbow slab for 3-4 weeks

Assisted active and passive physiotherapy after removal of slab.

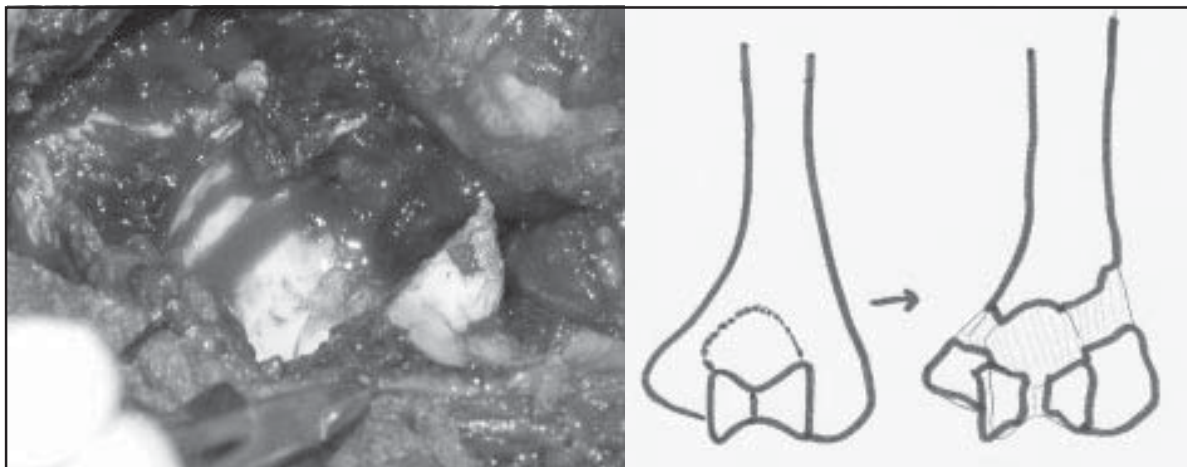
Check x-rays every month till union.



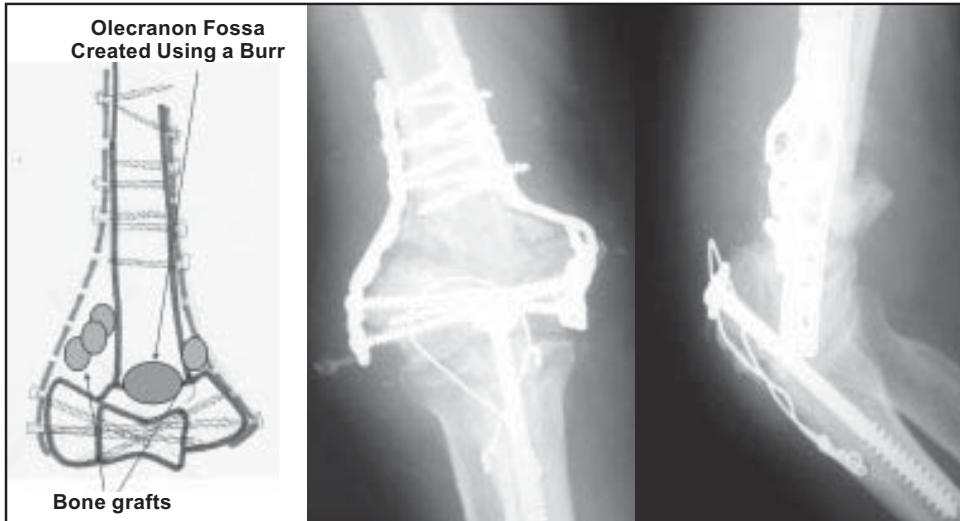
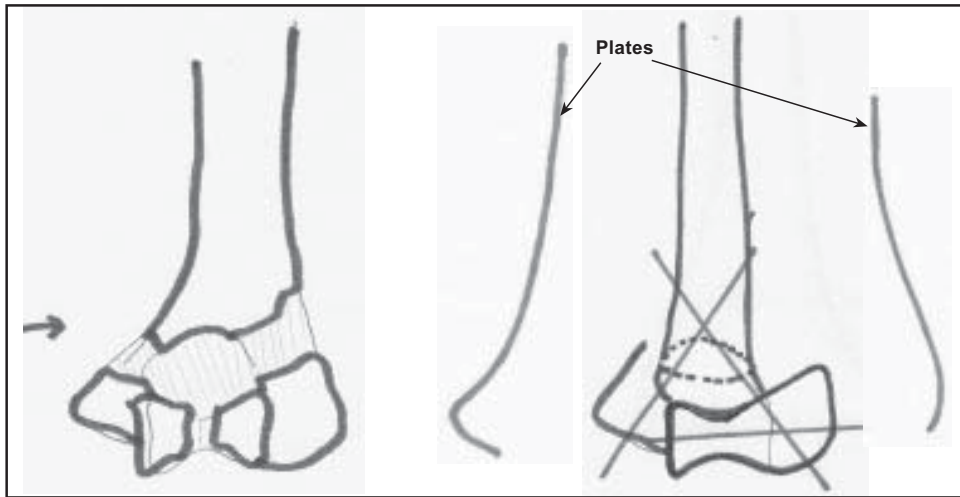
Three Attempts By The Same Surgeon



Injury And Repeated Surgical Procedures Had Resulted In Loss Of Significant Part Of Bone



Excision Of Avascular Bone , Docking Of The Remaining Fragments, And Using Pre Contoured Plates



Three Months



At Three Months



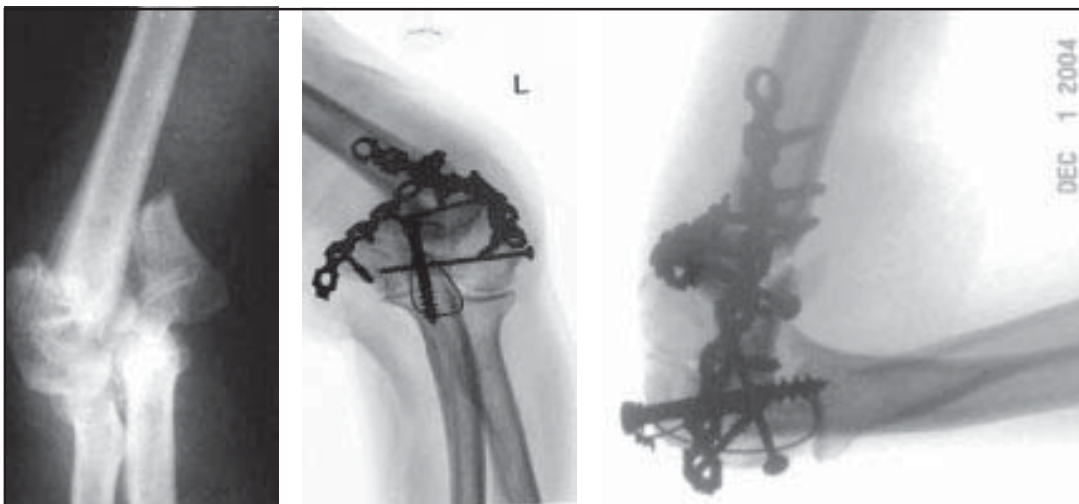
At Three Months And Fifteen Months

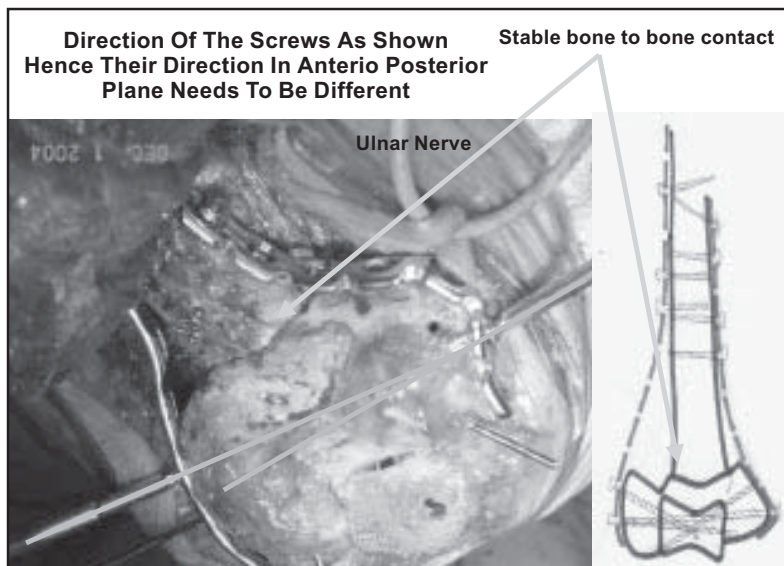
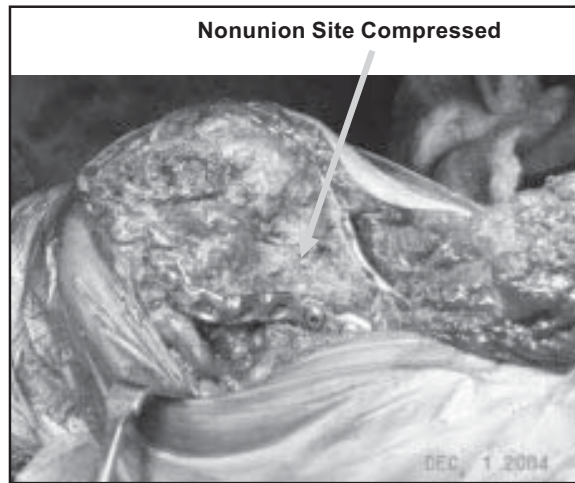
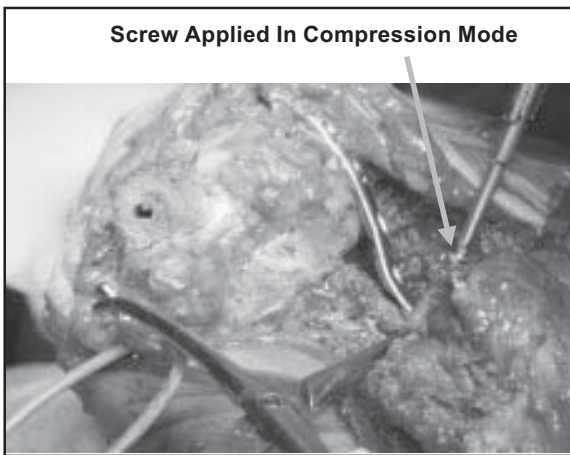
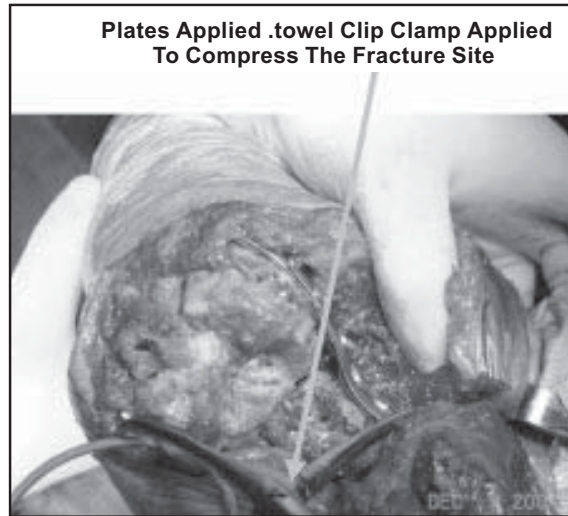
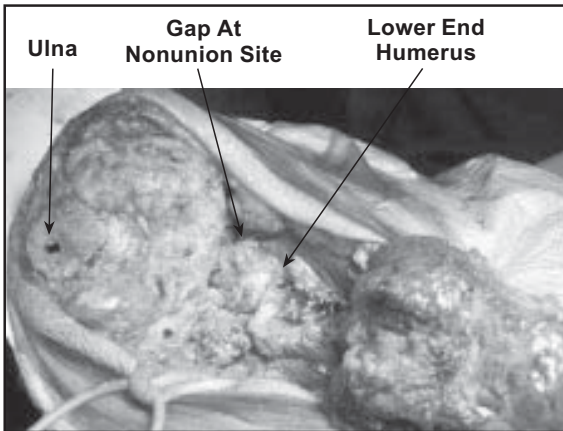


At Fifteen Months

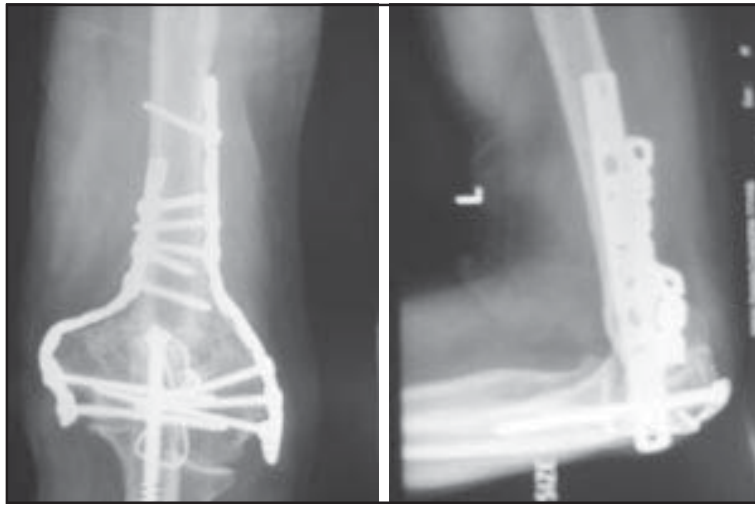


Case Two X Rays On Day Of Injury And At Presentation To Us

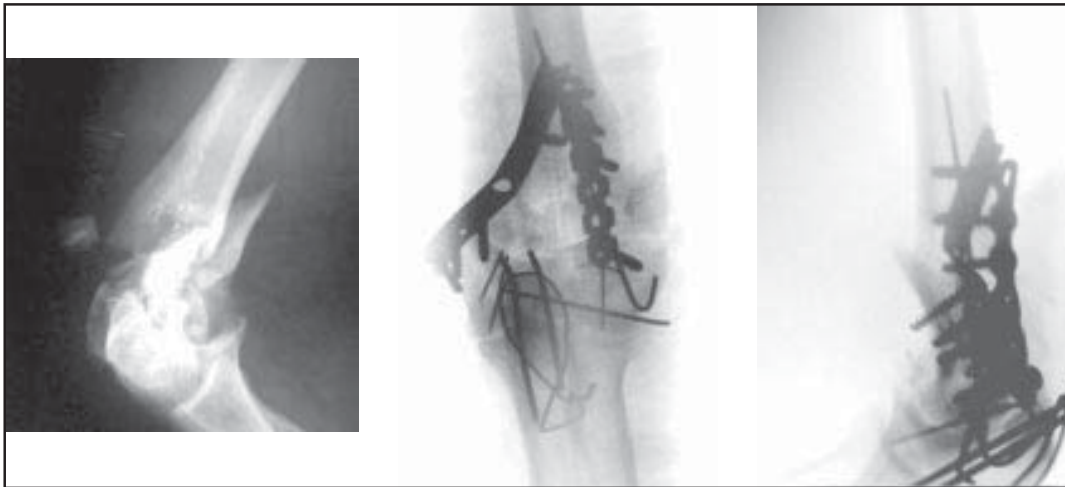




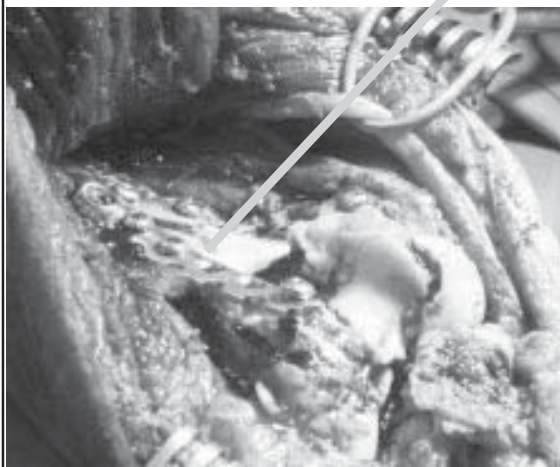
After Three Months



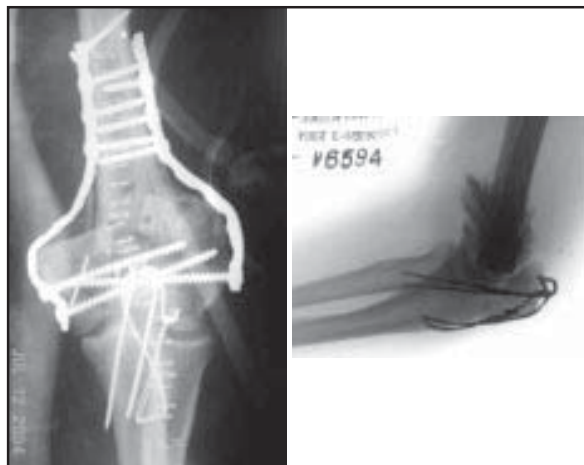
Case 3 Fracture and Non Union After Internal Fixation



Inadequate Fixation and Broken Plate



Post Op X Ray



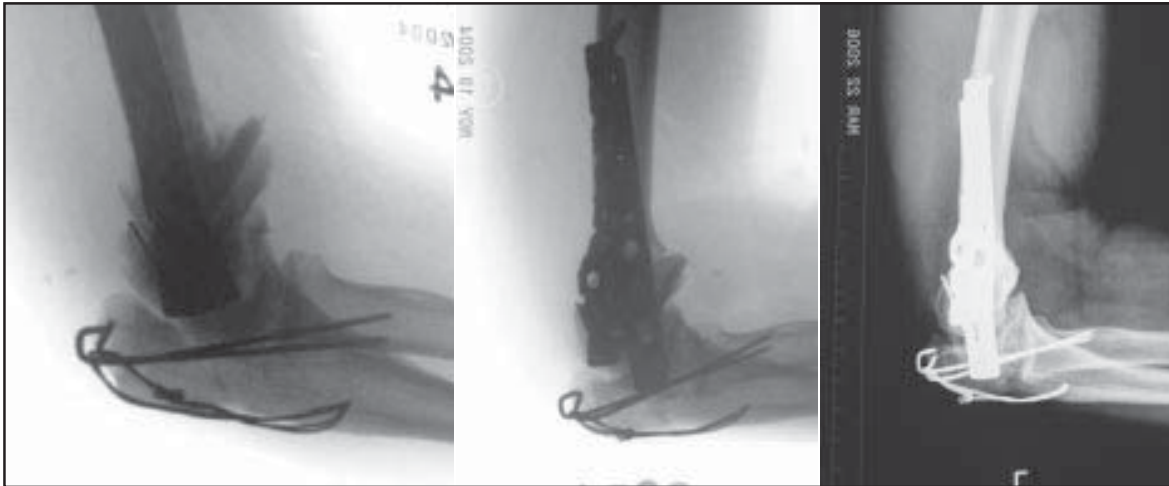
After Three Months



After One Year



The Anterior Bone Block Gradually Disappeared



Function At One Year

