Case Presentation

Bilateral Distal End Radius.

History

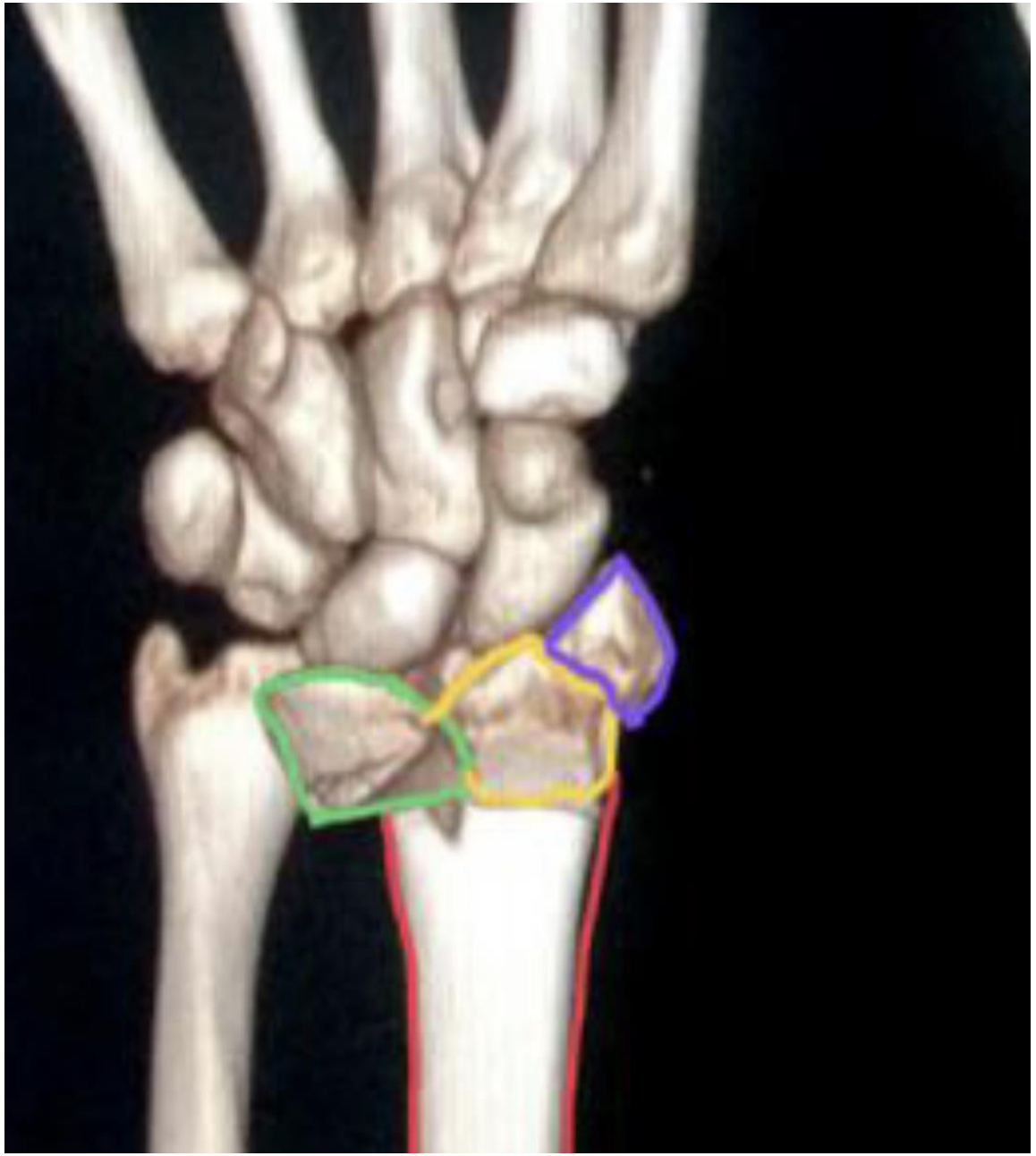
- 23 y Male, an IT professional by occupation, came to the opd, complaining of pain in bilateral wrists since 2 hours.
- He had suffered a high velocity road traffic accident, and eventual fall on outstretched hands.
- He had no distal neuro-vascular deficits.

Radiological evaluation

AP and Lateral radiographs of the Right wrist.

AP and lateral radiographs of the Left wrist

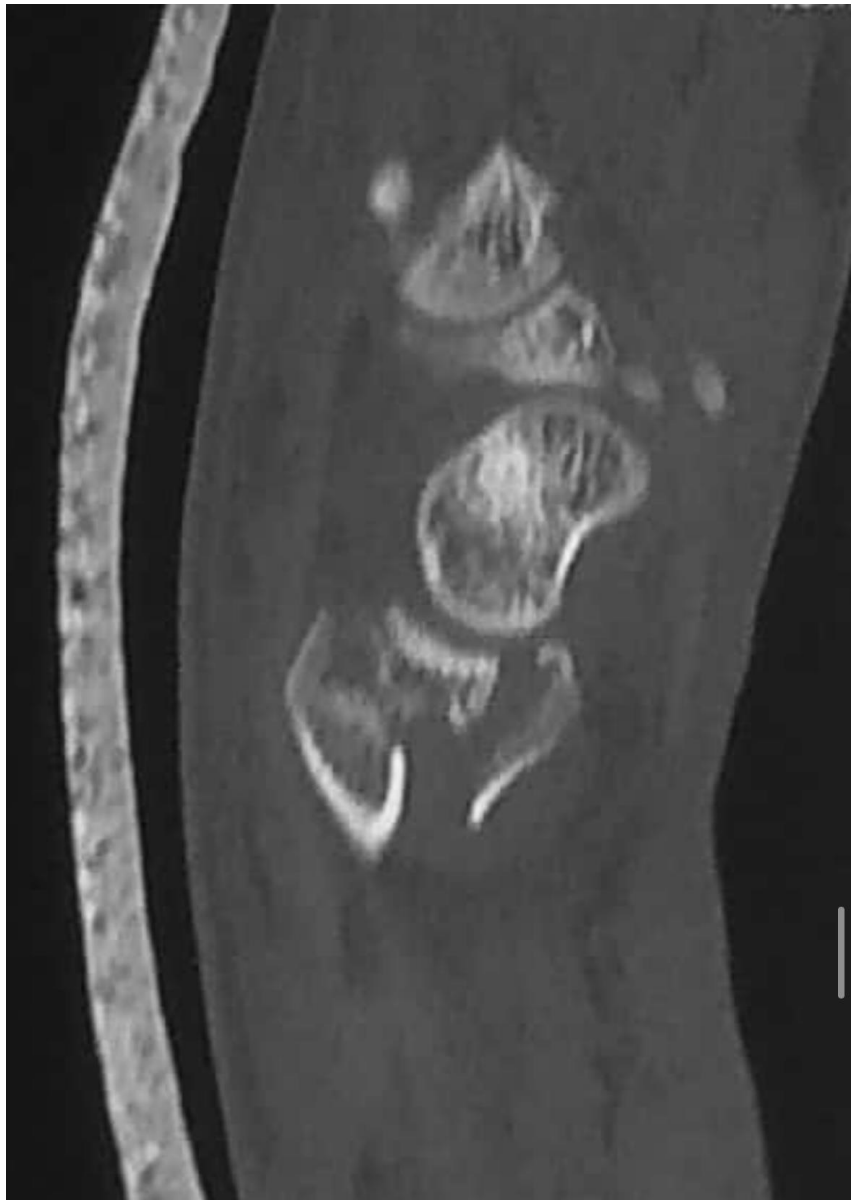
CT scans of the Right wrist

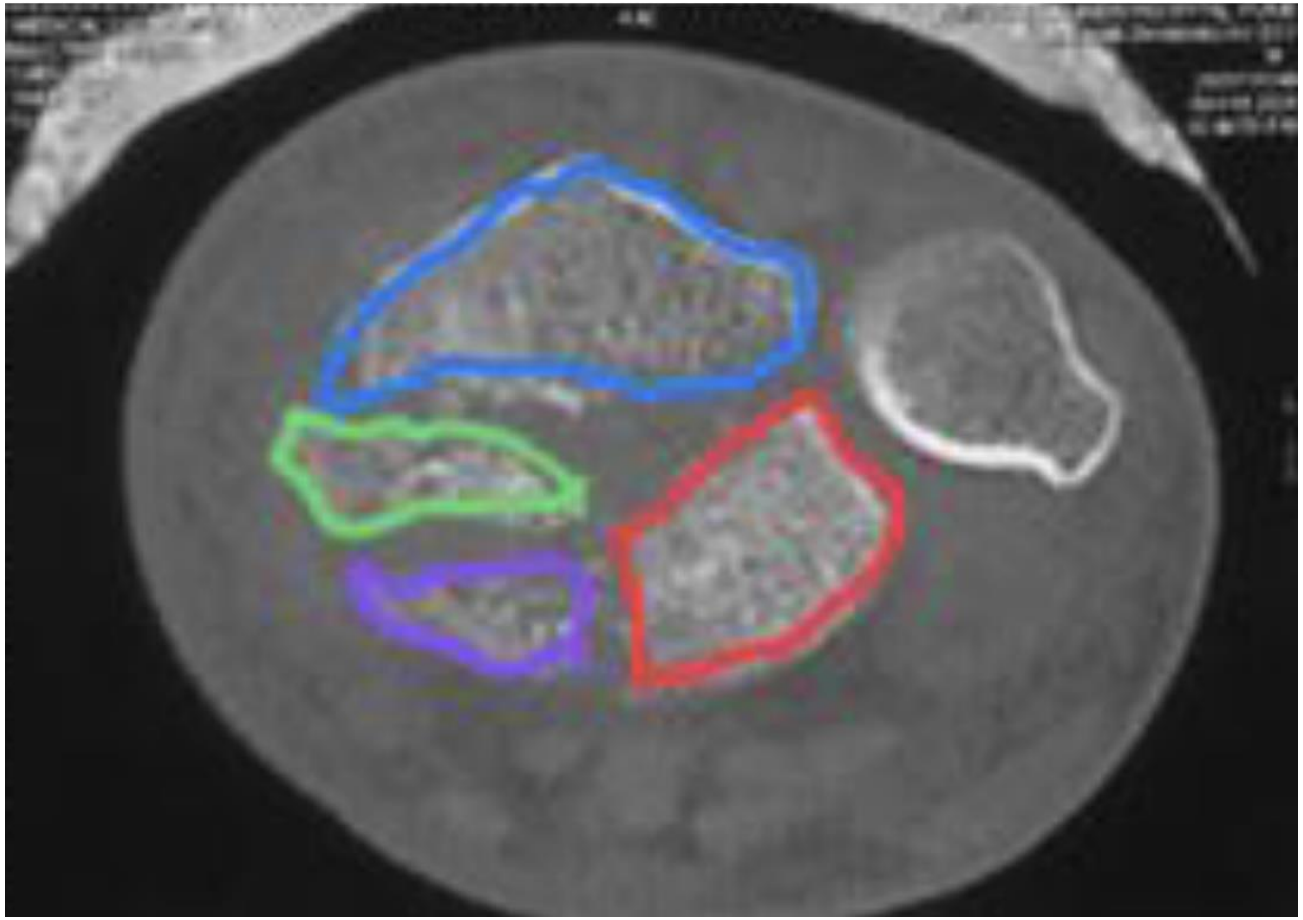


A 3D CT cut showing communition of the Right distal end radius with the following fracture fragments:

1. Green: Ulnar volar fragment.
2. Yellow: Radial volar fragment.
3. Purple: Radial styloid.
4. Red: Radial shaft.

According to Malone's classification;
It is a type 4 fracture.





Axial cut of the right distal end radius showing the following:

Blue: Shaft of Radius

Green: Radial styloid

Purple: Volar radial fragment

Red: Volar Ulnar fragment.

CT scans of the Left wrist.

A 3D cut showing the the fracture of the Left intra articular distal end radius a Volar lip fracture with lunate fossa involvement.

According to the Malone’s classification, it is a type 2 fracture.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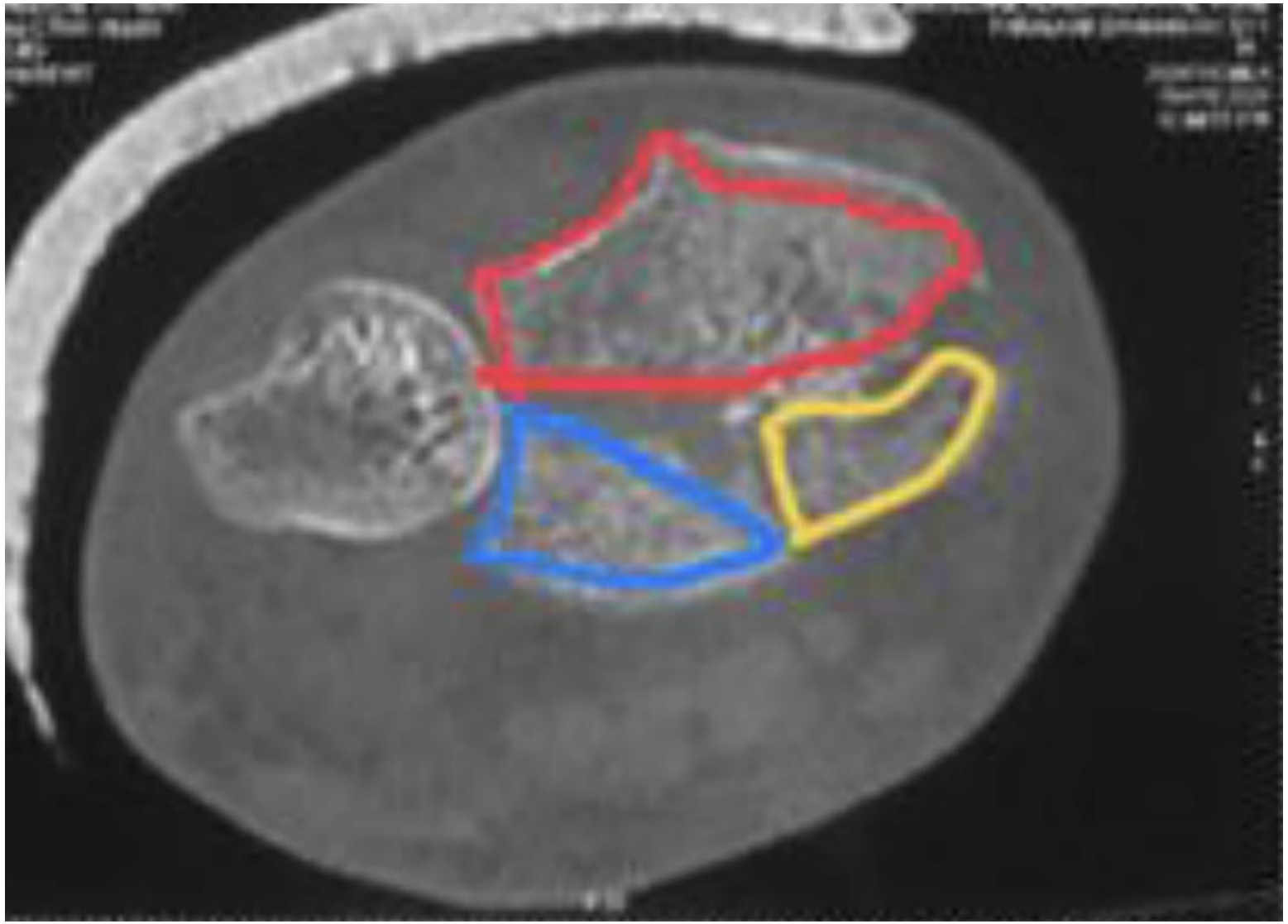


An axial cut of the Left distal end radius showing the fragments over the articular margin:

1. Yellow: Scaphoid fossa
2. Red: Distal radius with styloid
3. Blue: Lunate fossa

Goals to achieve:

- Articular congruency
- Maintain the radial tilt
- Radial height
- In short, a perfect anatomical reduction of the articular surface of both the wrists and encourage early range of motion.

Surgical options as per literature

- External fixation with ligamentotaxis.
- Combination of limited open reduction, Kirschner wire (K-wire) augmentation and bone grafting.
- **Open Reduction and Internal Fixation with plating**.

Why Surgery O.R.I.F.?

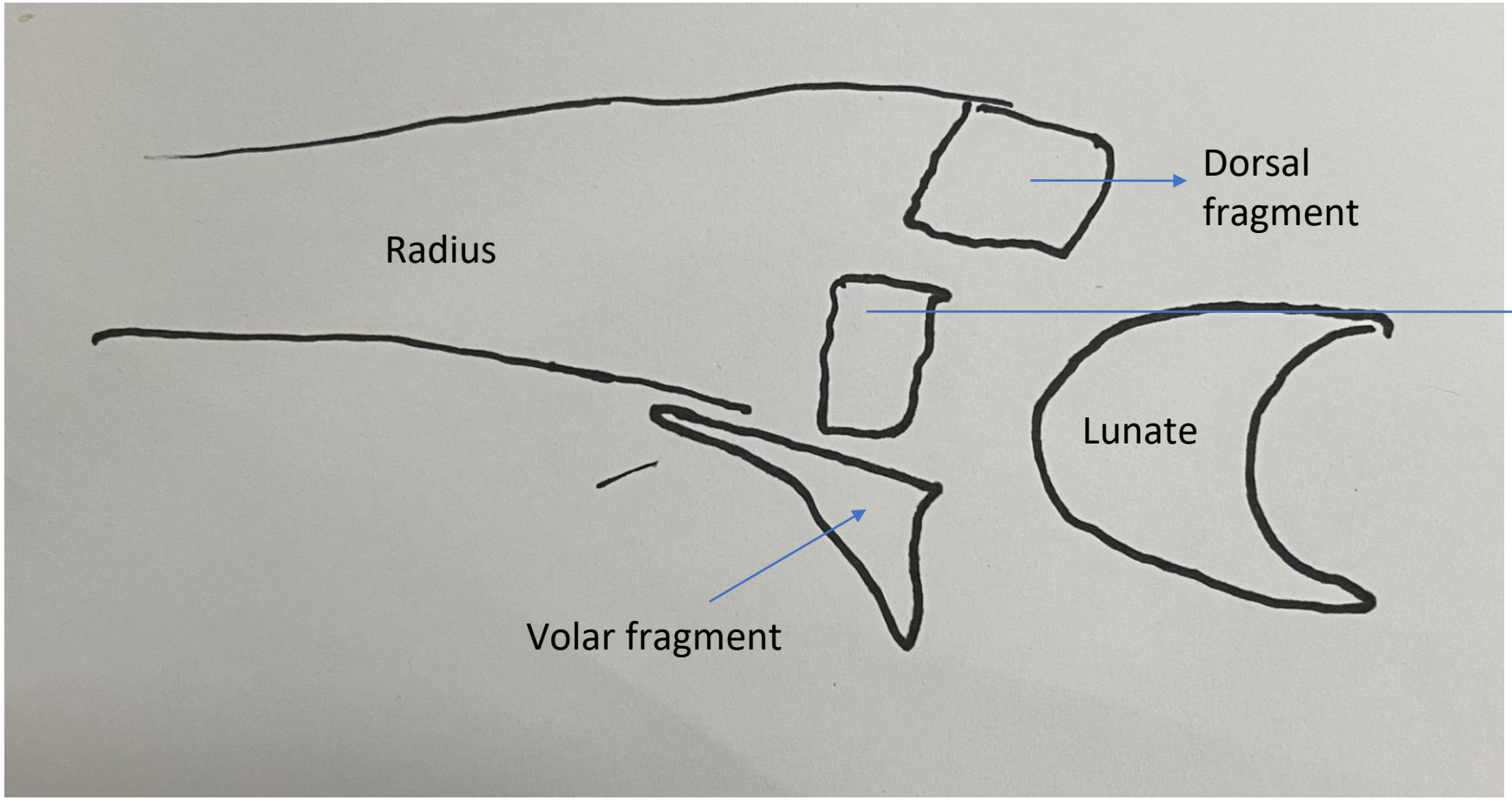
- Intra-articular fractures of the distal radius represent a therapeutic challenge as compared with unstable extra-articular fractures.

- Apart from being more difficult to reduce and stabilize with internal fixation, these injuries frequently result in malunion, which may result in a less satisfactory long-term functional outcome, if not anatomically reduced.

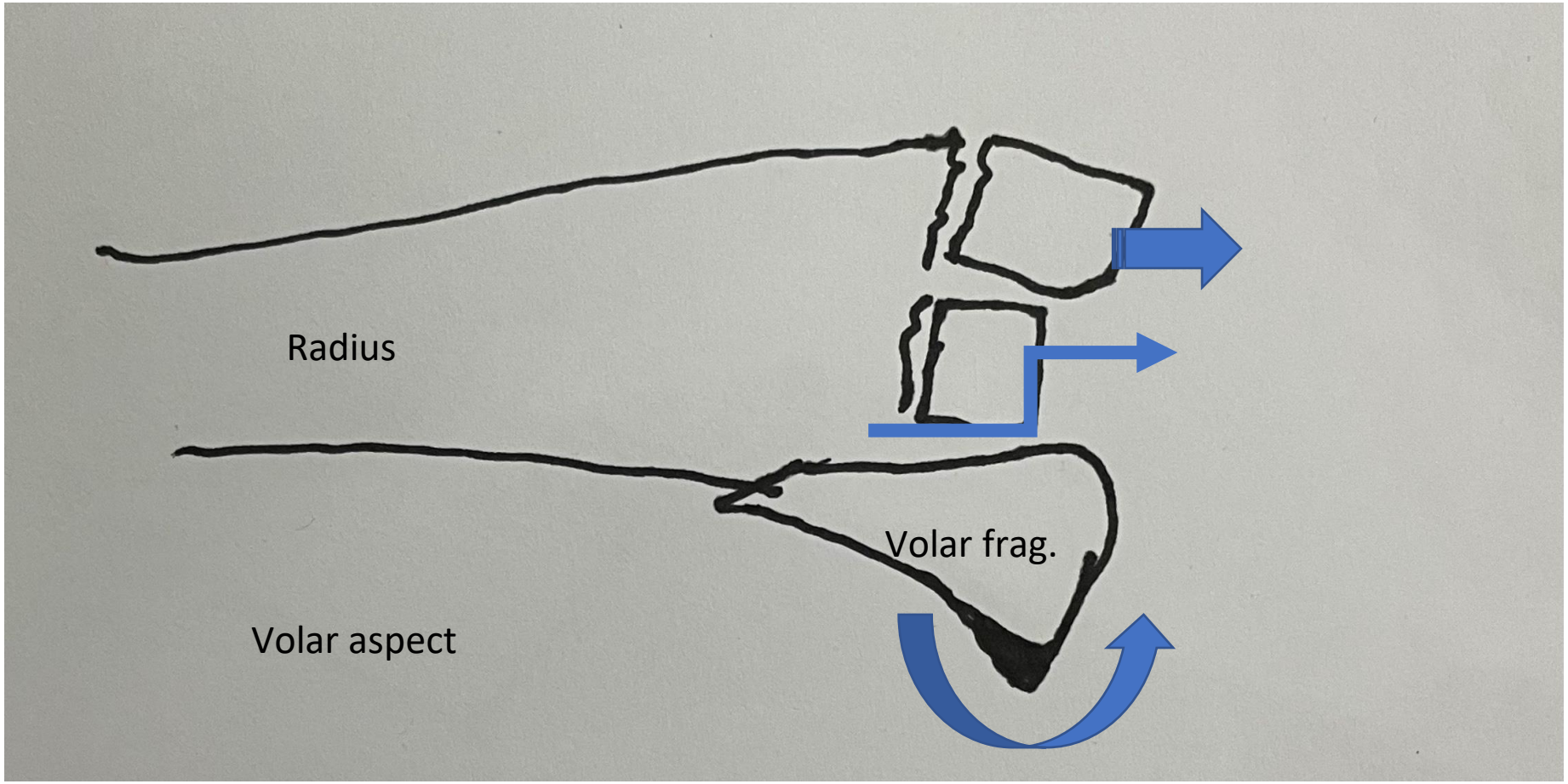
- Anatomical reduction is extremely difficult to achieve, when there is fracture communition as seen in this case.

- Open reduction and internal fixation (ORIF) using volar variable-angle plates have shown to be a brilliant treatment option for unstable, displaced distal radial fracture.

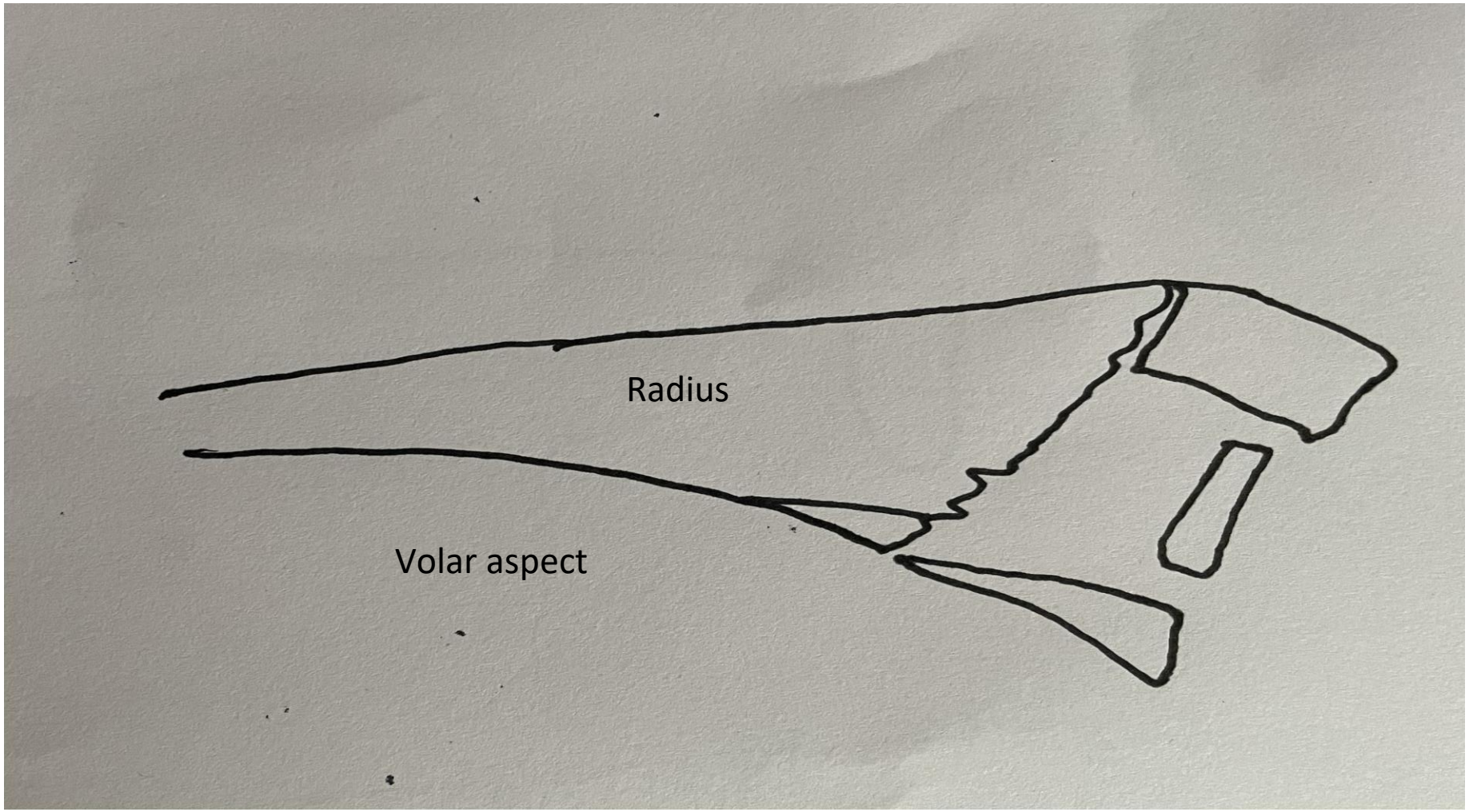
Fragment orientation of the right wrist fracture.



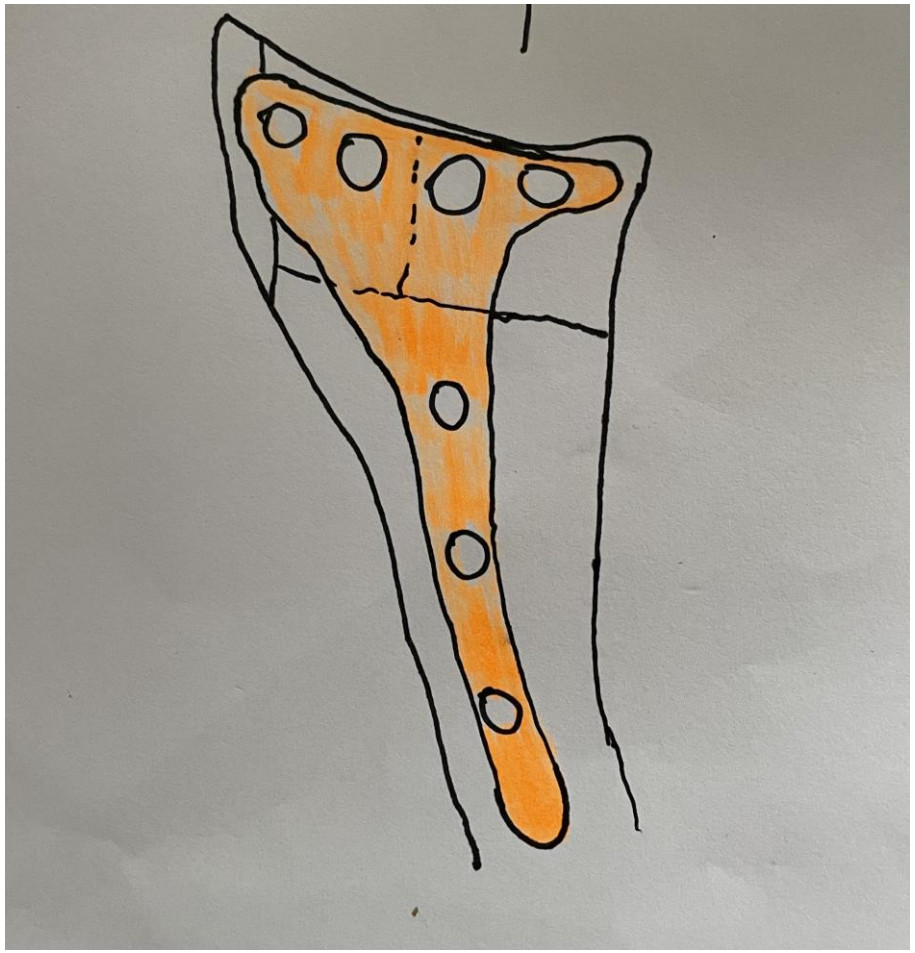
The method of reduction

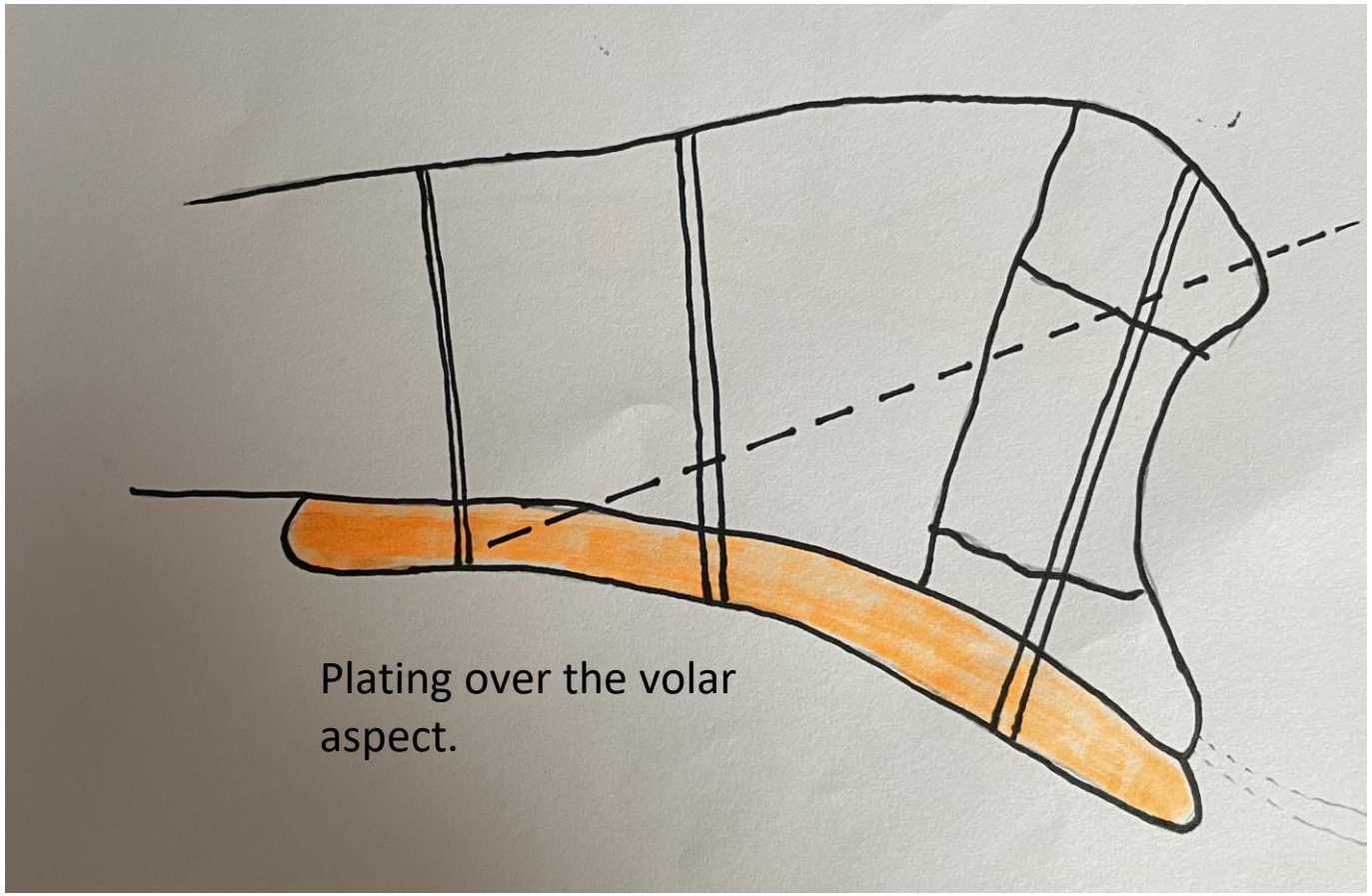


The final fragment alignment



Schematics of the fracture fixation.



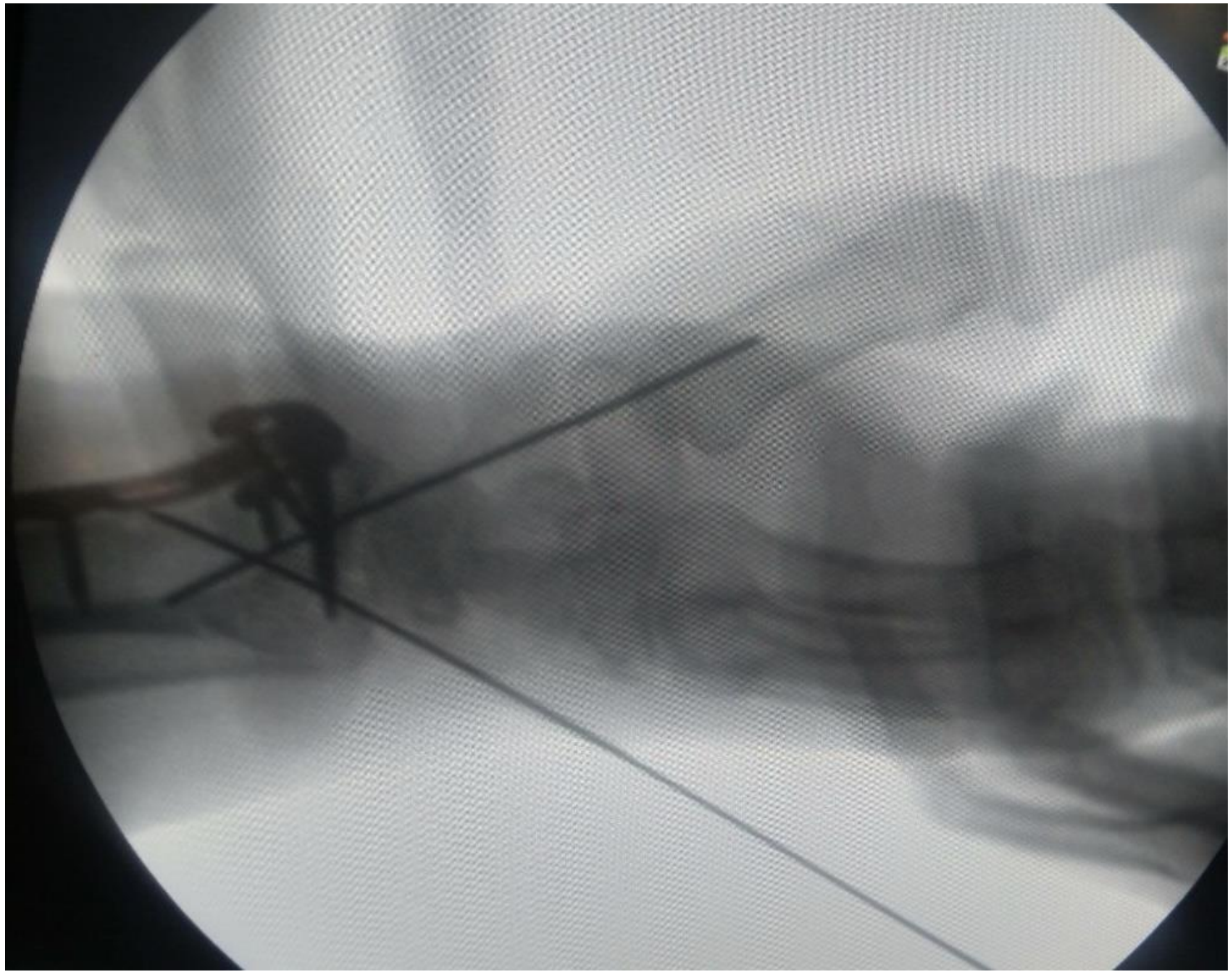


Implants used

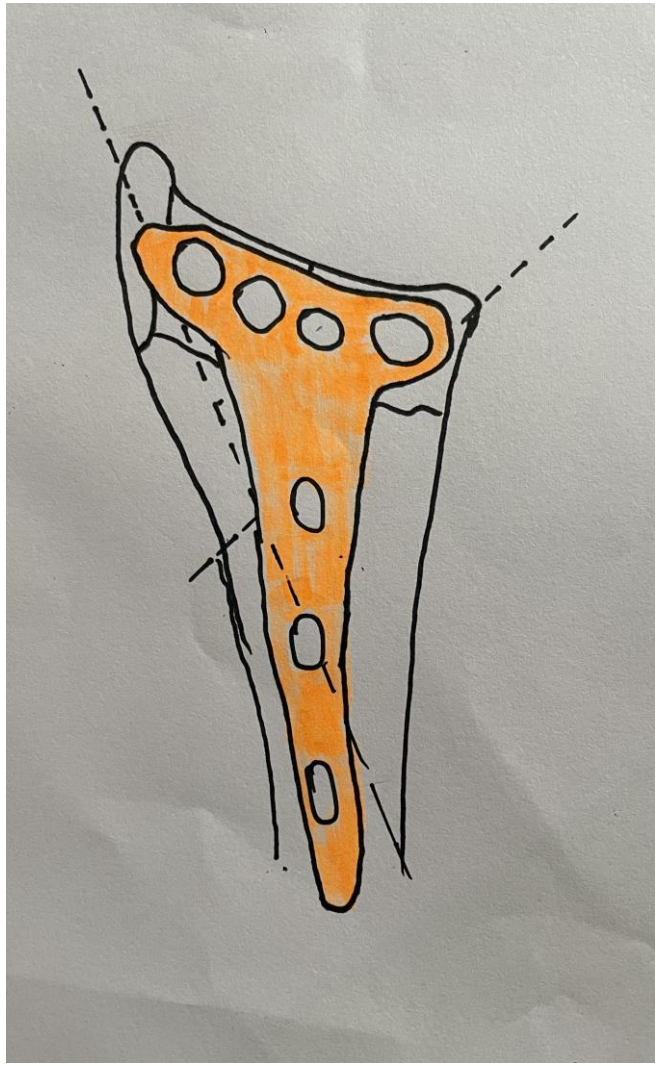
Variable angle volar distal end radius plate.

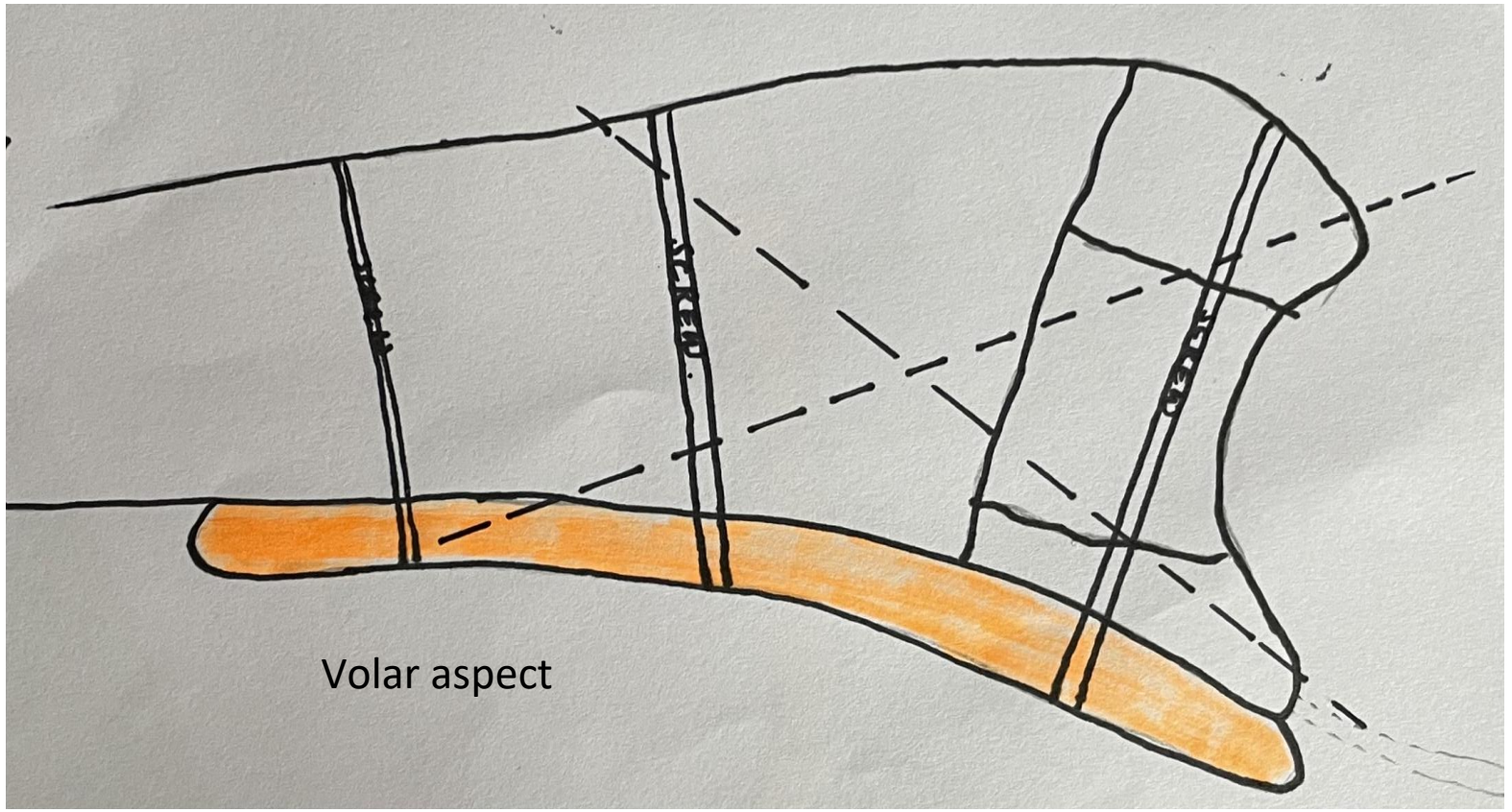
Variable angle distal radius rim plate.

- The first K wire was inserted through the radial styloid, dorsal to volar, to hold the styloid in place.

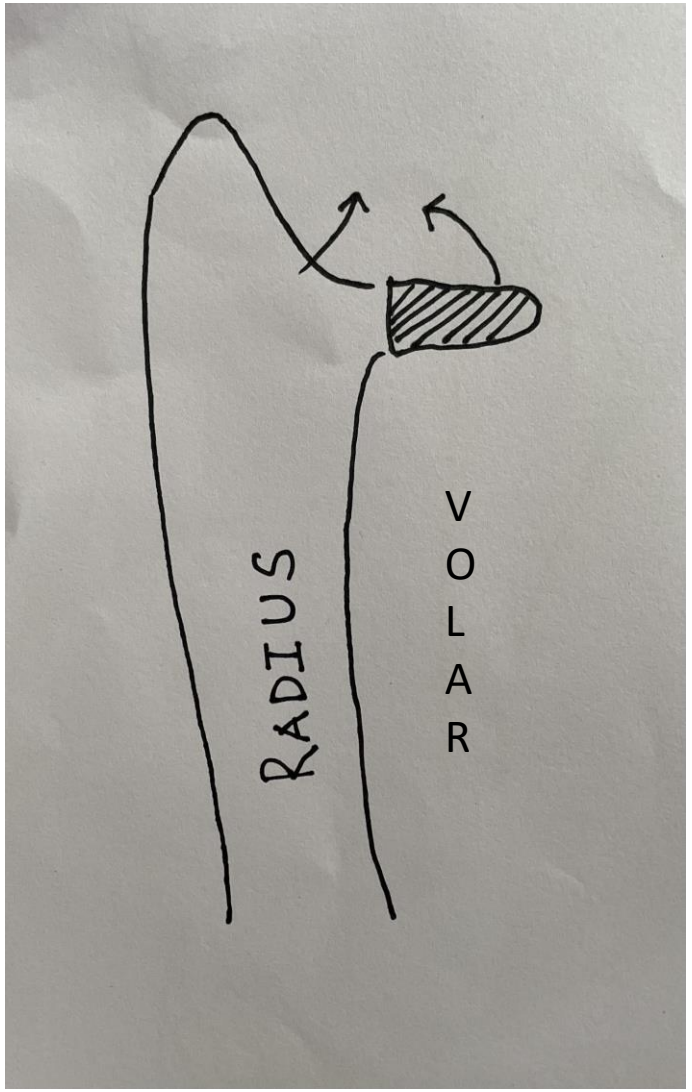


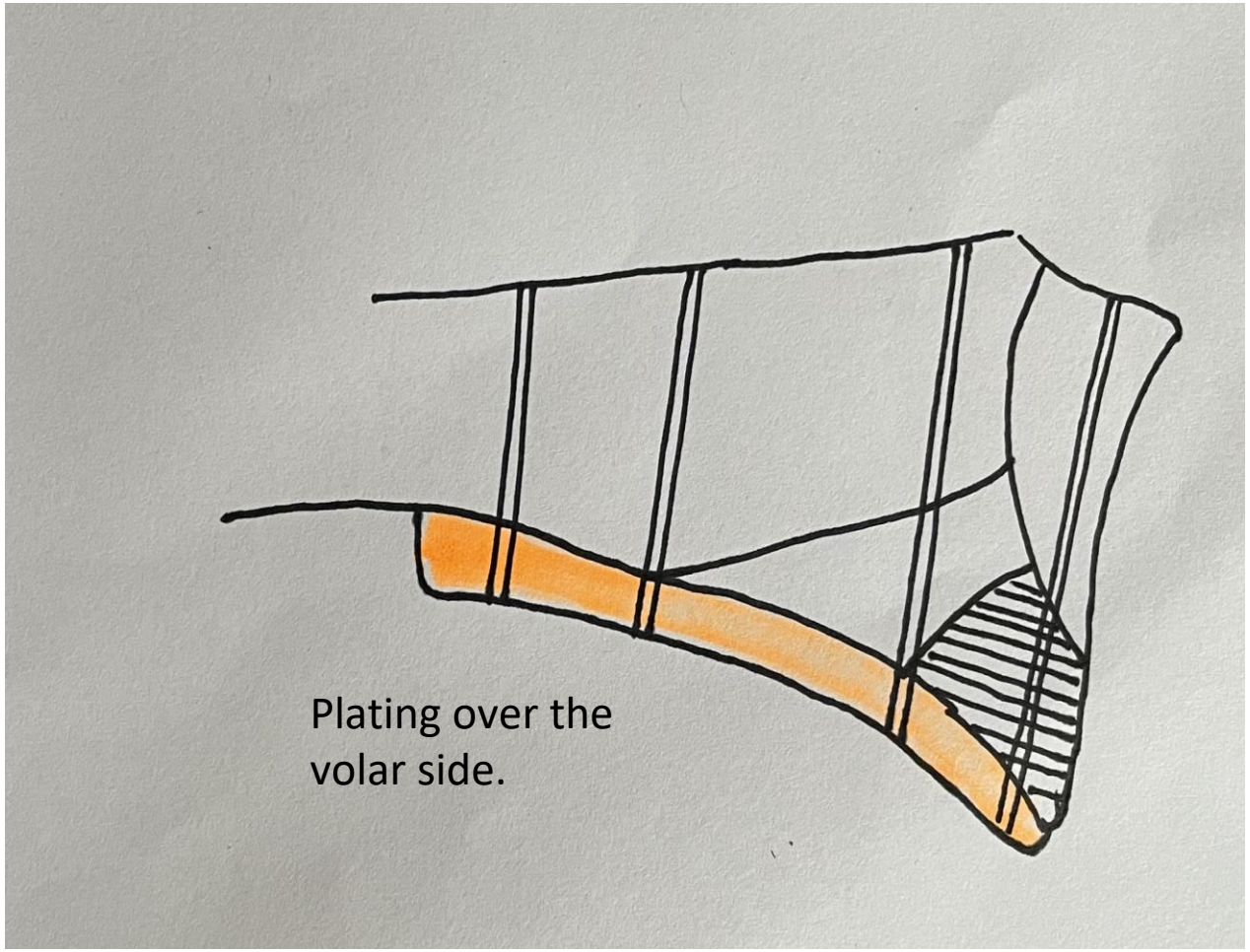
Schematic diagram of the post op fixation- AP view and Lateral view.





Schematic diagram of the fixation of the Left wrist.





Post operative radiographs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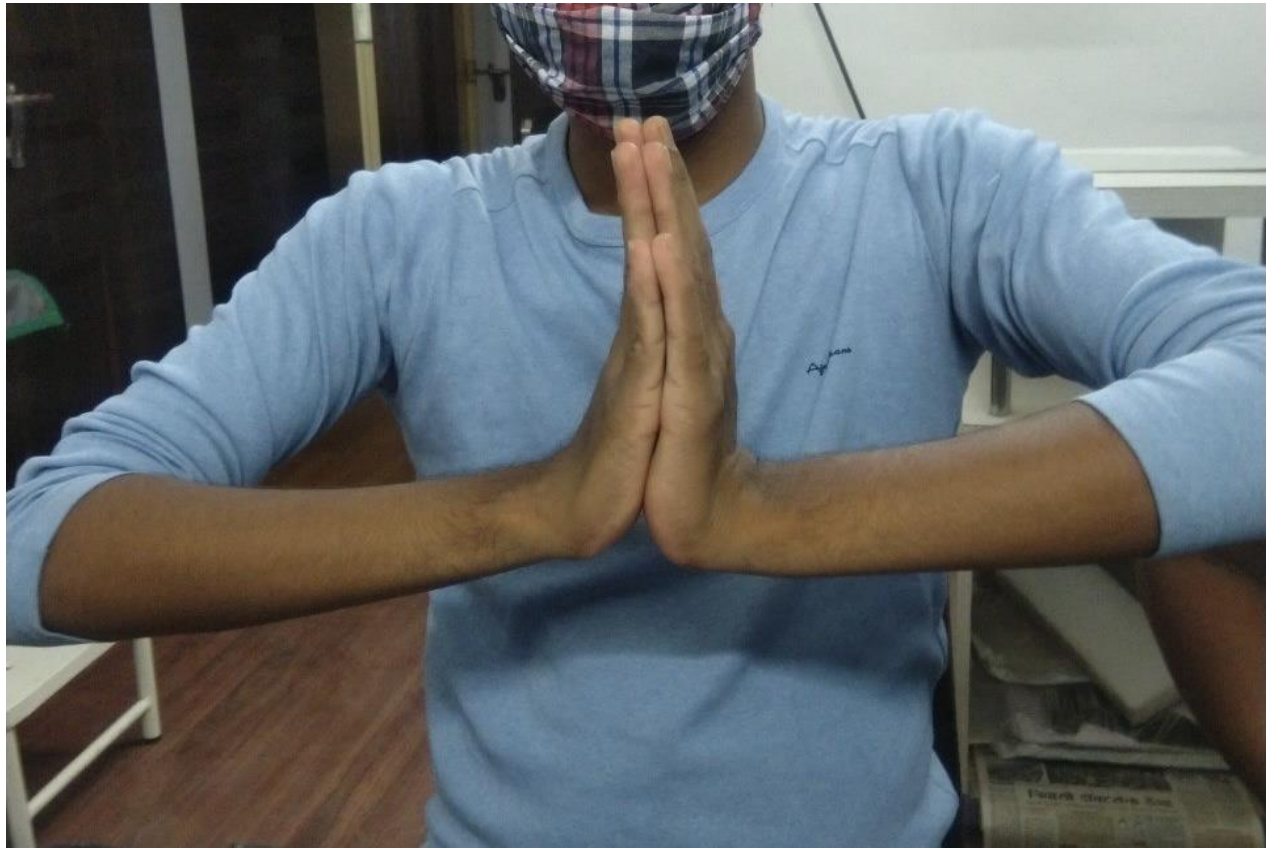
Post operative care

- At 2 weeks, the sutures were removed.
- Active wrist motion was begun by 3 weeks of the left wrist and by 4 weeks of the right wrist.
- A removable splint was worn for 6 weeks.

AP- Radiographs 8 weeks post op

Lateral Radiographs 8 weeks post op

Range of motion at 4 months post op.



Thank you.