



ICUC POSTER

Distal Radius Fractures

Comments by Prof. J. Jupiter

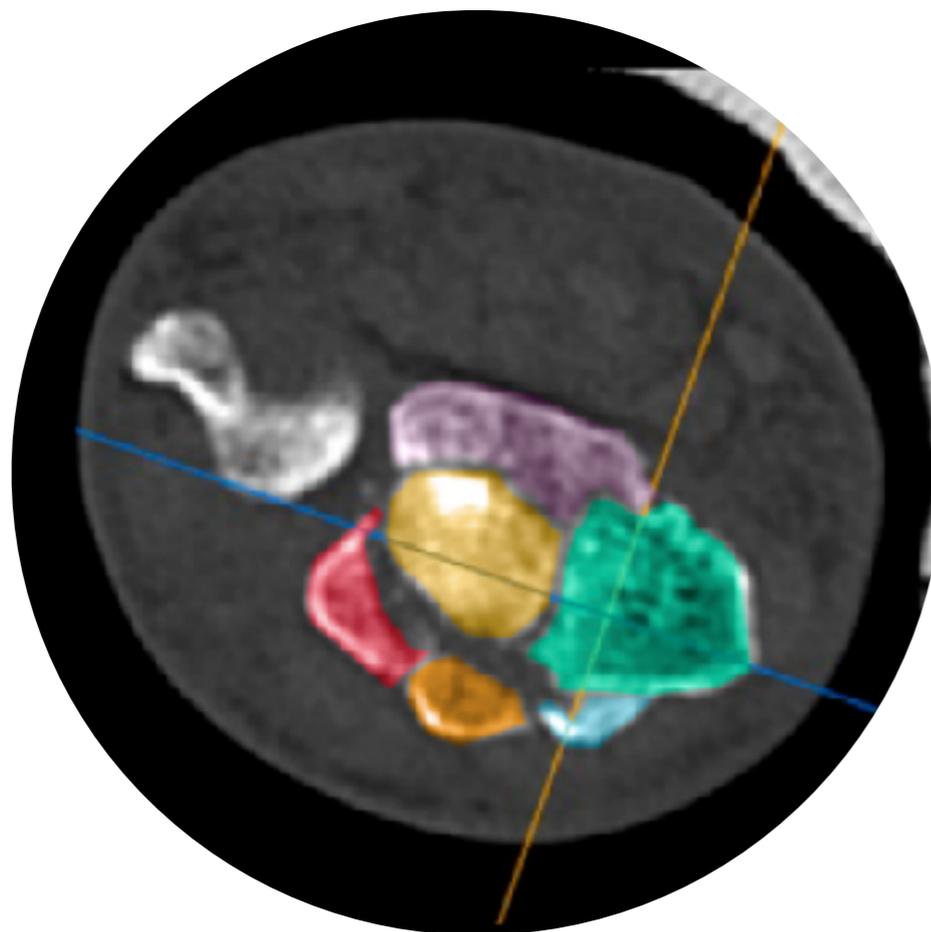
July 2020

*"I have many open questions
and very few answers."*

S.M. Perren, 2019

CAN DRF WHICH PRESENTED WITH MASSIVE INTRA-ARTICULAR COMMINUTION (MORE THAN 5 FRAGMENTS) BE DEALT WITH VOLAR PLATING ALONE?

A. Gavagnin, S. Lasa, A. Fernández, J. Jupiter



In this poster 42 cases
which presented with
massive articular
comminution are analyzed

Start-to-finish full
HD data
from each case is
available at ICUC
app or icuc.net



ICUC POSTERS

Integrated into a learning tool

Complete

Unchanged

Continuous

data of surgical procedures

*Improve your surgery by being
at the front line of the operating room*

Complete from start to finish,
unselected series of surgical cases
from world leading centers.



ICUC Posters are based on surgical cases taken from our library,
meaning the full set of data used by the authors is accessible through our platform.

BACKGROUND

We excluded all distal radius fractures that presented with:

massive intra-articular comminution and /or bone loss (i.e., more than five intra-articular fragments), as we believed that these could not be dealt with by volar plating alone.

M. Fok et al 2013

“This study showed that AO type C3 distal radial fractures, which have intra-articular comminution, had poorer clinical and radiographic outcomes than AO type C2 fractures, despite open reduction and palmar locking plate fixation.”

J.O. Yoon 2017

Massive intra-articular comminution (more than 5 fragments)

We found **42** cases of Dorsal Articular Impacted Fractures out of 177 Distal Radius-Fracture cases in the ICUC® App (July, 2017) **with massive intra-articular comminution**

These were all treated by a single surgeon, single surgical approach, and through application of a volar plate.

**Full set of data of the 42 patients is available at:
ICUC App (for iPad), or at ICUC® website**

Massive intra-articular comminution (more than 5 fragments)

We found **42** cases of Dorsal Articular Impacted Fractures **with massive intra-articular comminution** out of 177 Distal Radius-Fracture cases in the ICUC® App.

Cases ID's:



23-VC-022



23-VC-162



23-VC-189



23-VC-192



23-VC-335



23-VC-427



23-VC-502



23-VC-610



23-VC-620



23-VC-635



23-VC-949



23-VC-977



23-VC-981



23-DC-019



23-DC-025



23-DC-029



23-DC-035



23-DC-078



23-DC-100



23-DC-107



23-DC-201

Massive intra-articular comminution (more than 5 fragments)

We found **42** cases of Dorsal Articular Impacted Fractures **with massive intra-articular comminution** out of 177 Distal Radius-Fracture cases in the ICUC® App.

Cases ID's:



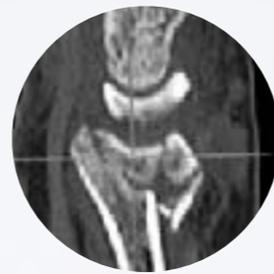
23-DC-221



23-DC-224



23-DC-236



23-DC-250



23-DC-256



23-DC-263



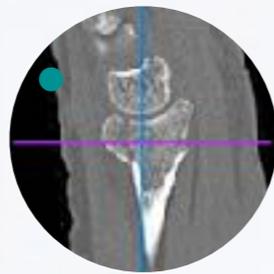
23-DC-313



23-DC-321



23-DC-456



23-DC-492



23-DC-494



23-DC-544



23-DC-572



23-DC-577



23-DC-591



23-DC-613



23-DC-626



23-DC-651



23-DC-675



23-DC-910



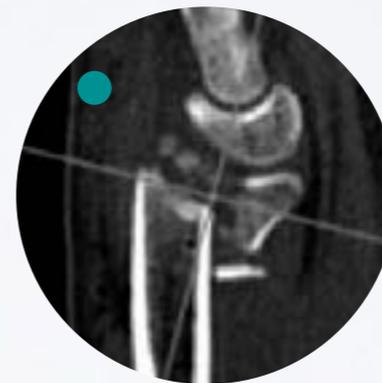
23-DC-972

Massive intra-articular comminution (more than 5 fragments)

Let's analyze 2 examples

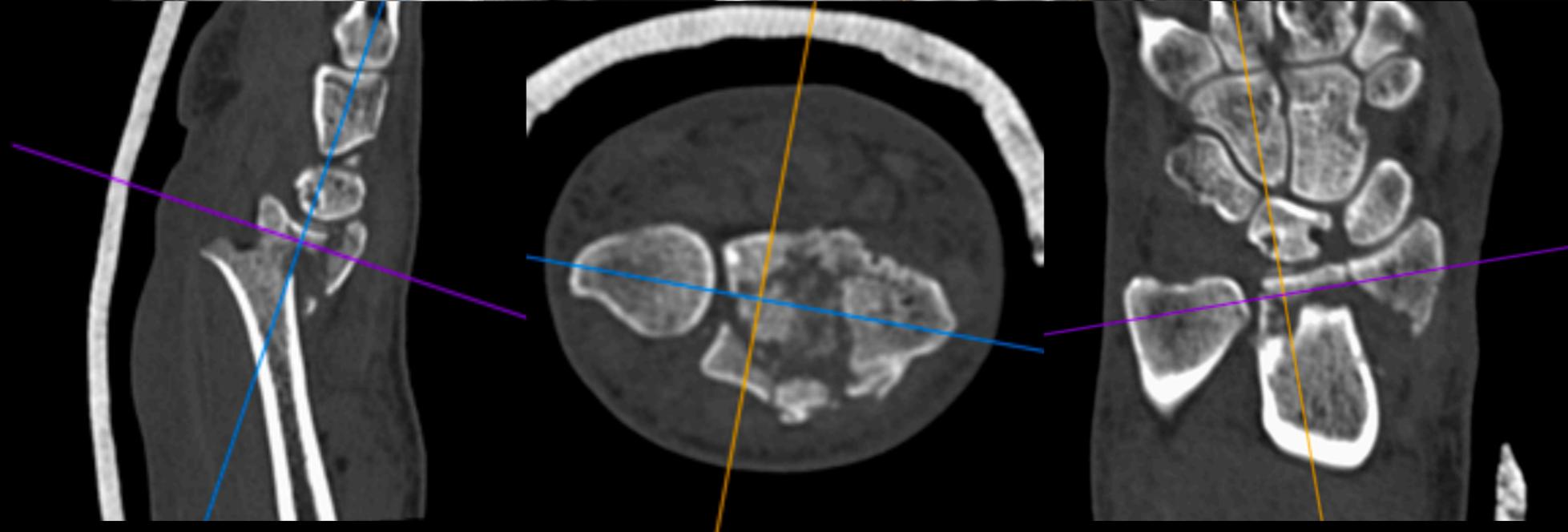


ICUC® ID:23-DC-613

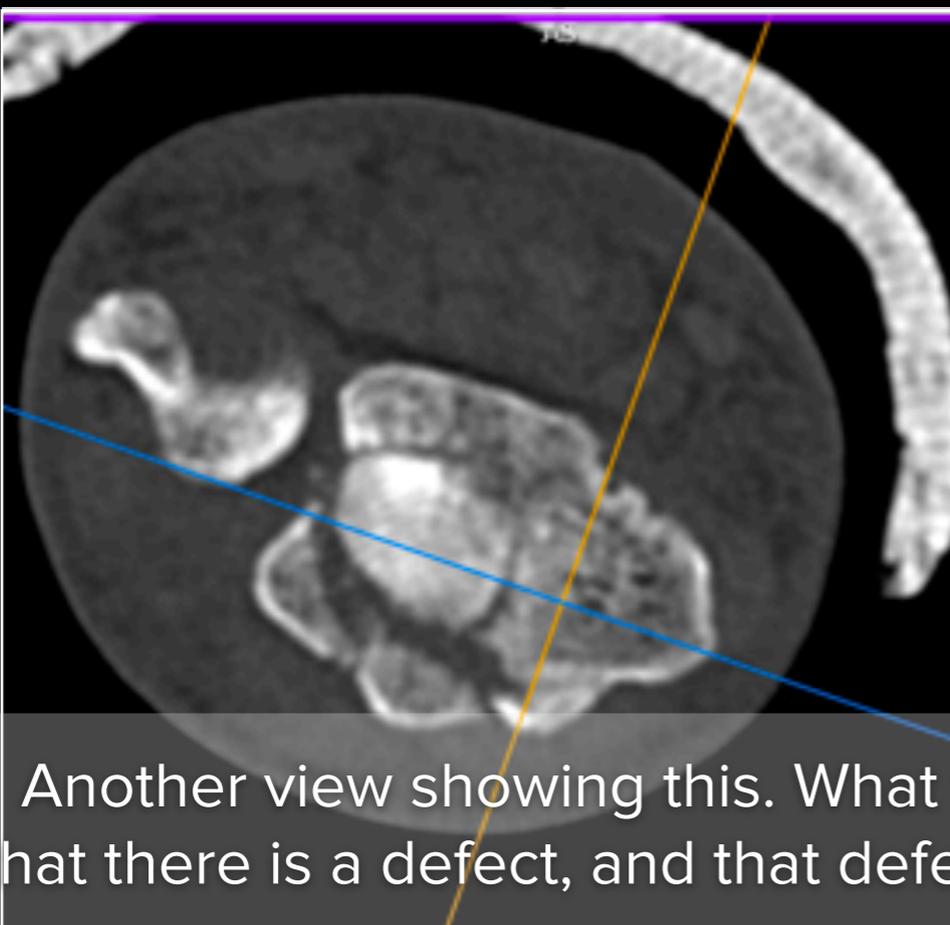


ICUC® ID: 23-VC-977

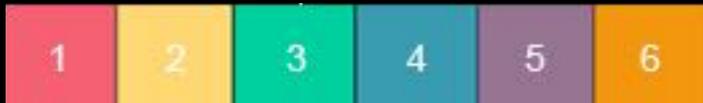
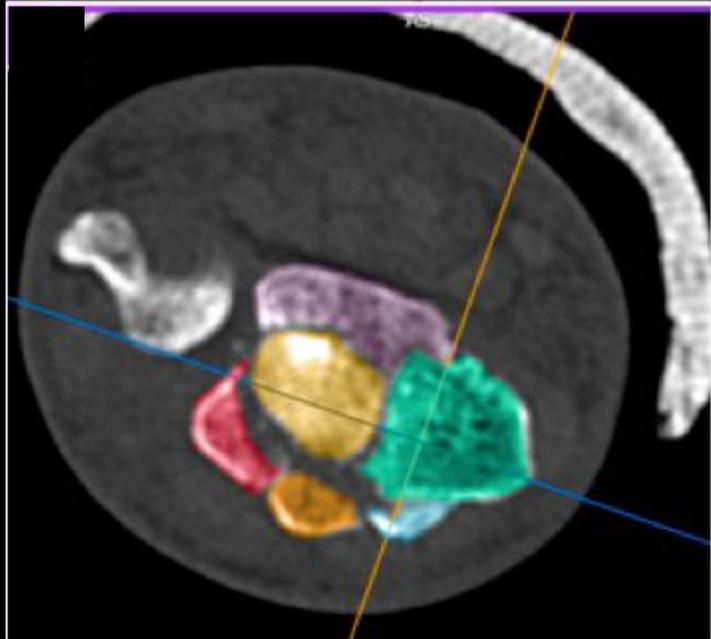
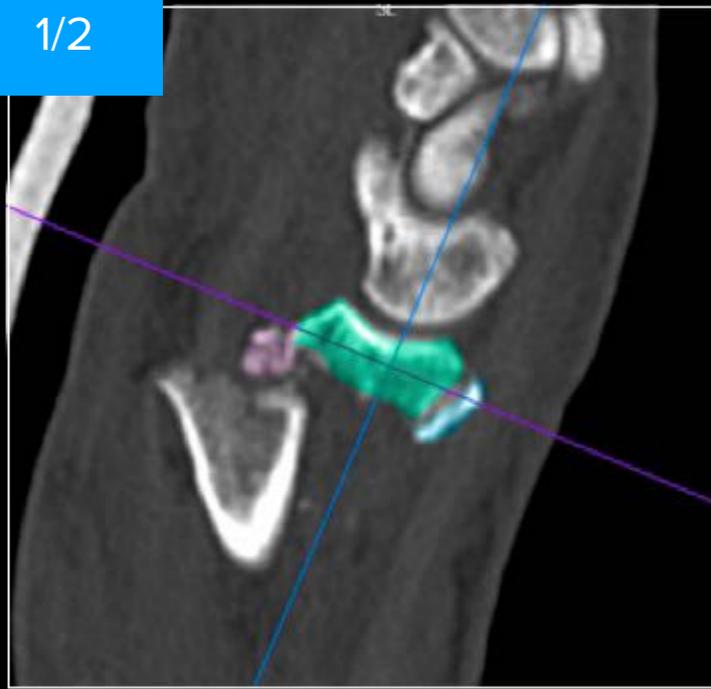
Start-to-finish full HD data
from each case is available
at ICUC app or icuc.net



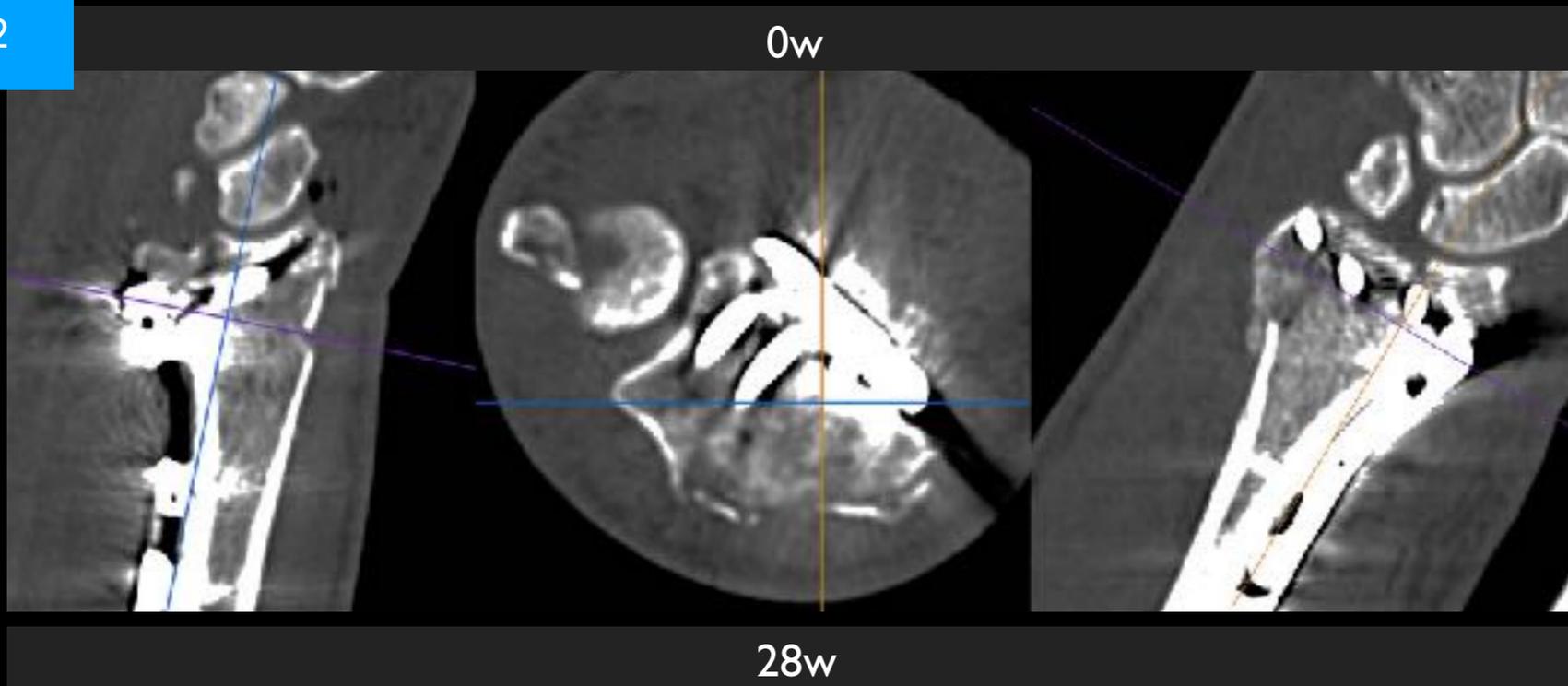
This 70 year old patient had a fall on an outstretched hand underlying osteoporosis. Look at the X-rays, which may not seem too concerning, but the value of CT scan, especially the coronal CT image, shows multiple articular components that are impacted and a dorsal displacement of the carpus with the dorsal fracture fragments.



Another view showing this. What you see on this frontal plane CT is that there is a defect, and that defect is due to impacted comminution.



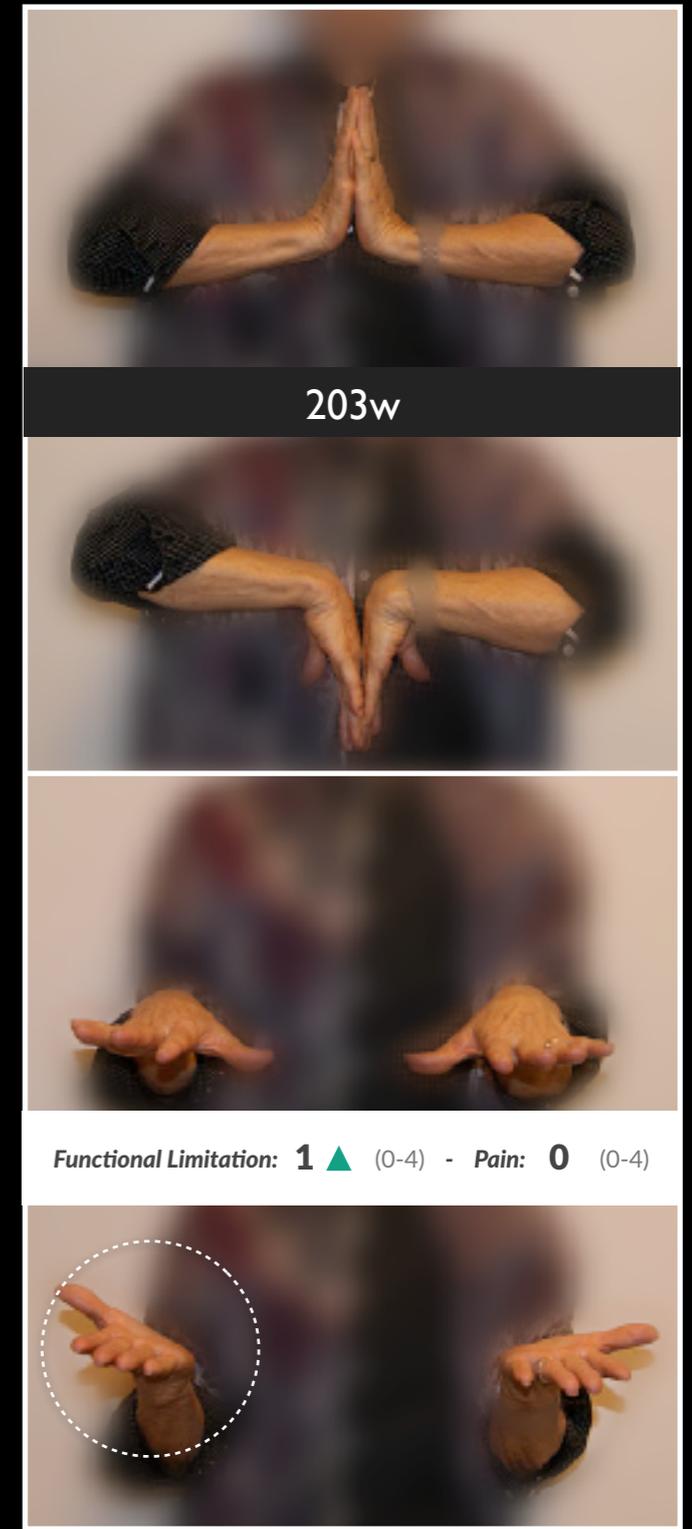
Remember this is a 70 year old patient treated with an anterior approach and a volar plate.



Volar tilt = 10°

Soong = 1

This is the immediate postop CT scan and, at 28 weeks postop with a realignment which is near anatomic, the plate is in a acceptable position, described by Soong and colleagues in looking at how this plate reflects its relationship to the perpendicular line of the radius. If this plate extended out here, it would be considered something that is a risk of flexor tendon rupture.



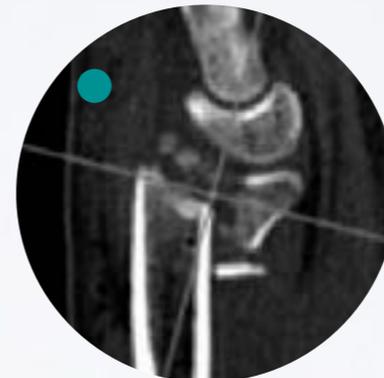
If you look at the ICUC score at 203 weeks, we see a score of pain and function.

Massive intra-articular comminution (more than 5 fragments)

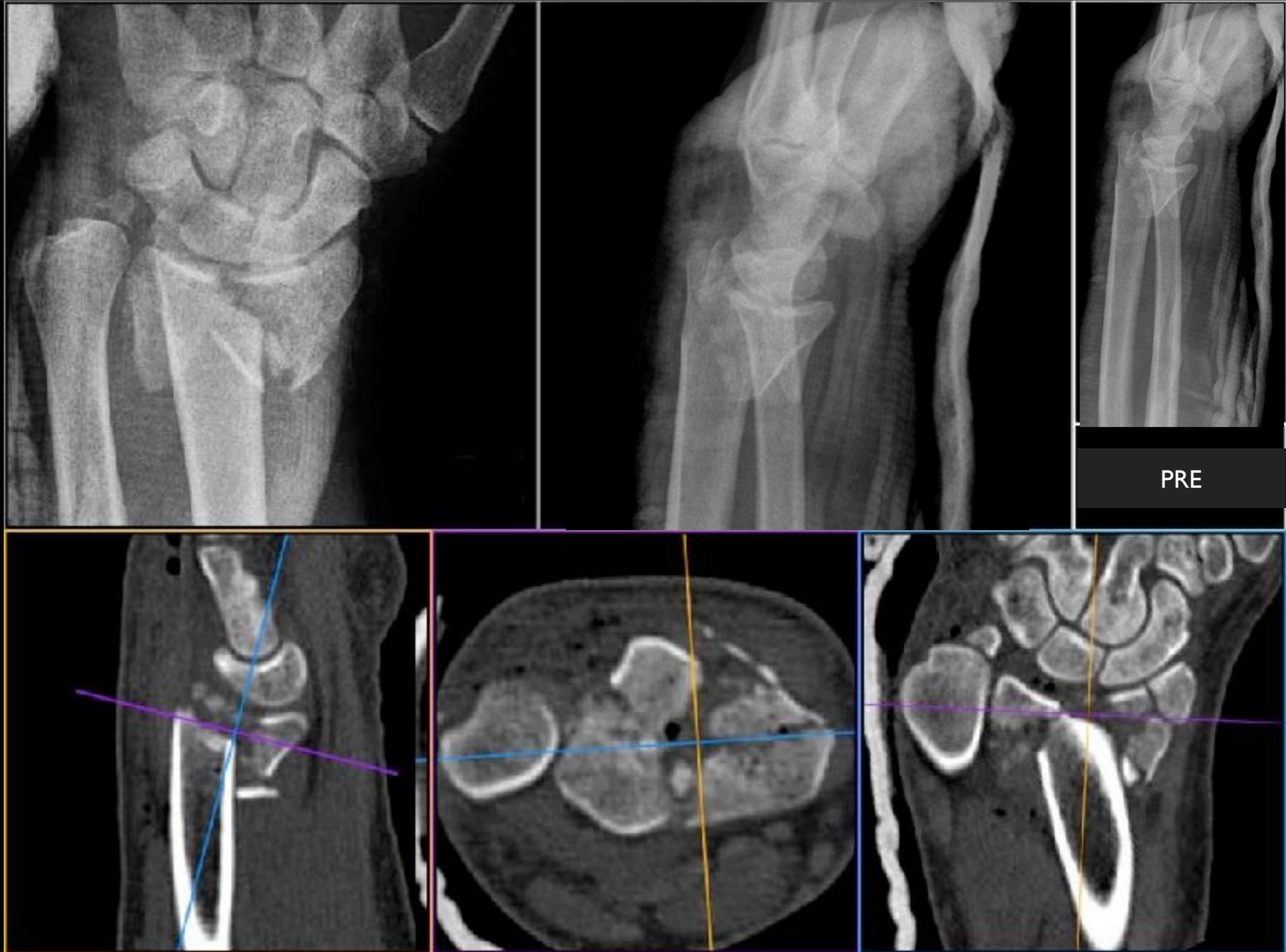
Let's analyze 2 examples



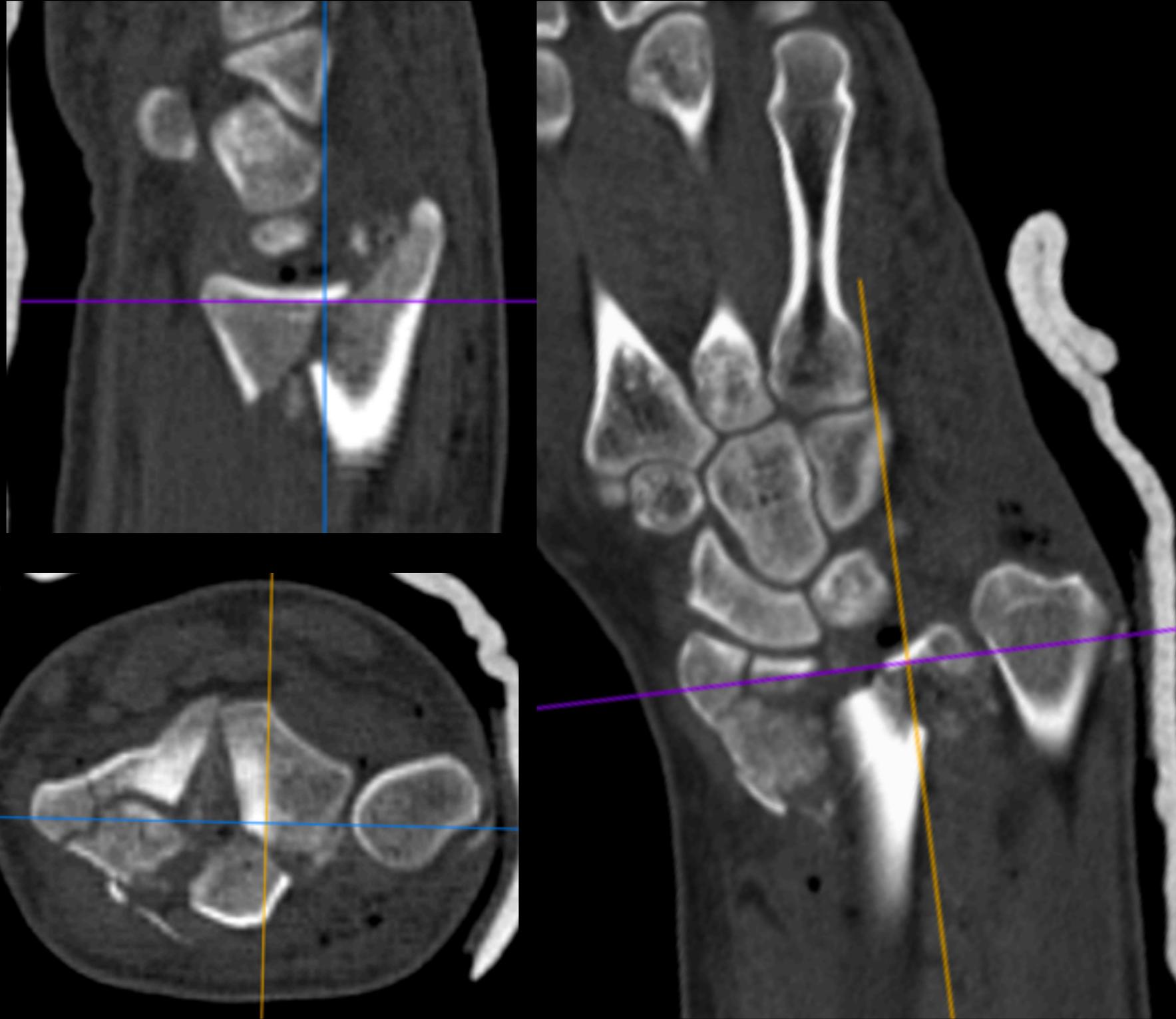
ICUC® ID:23-DC-613



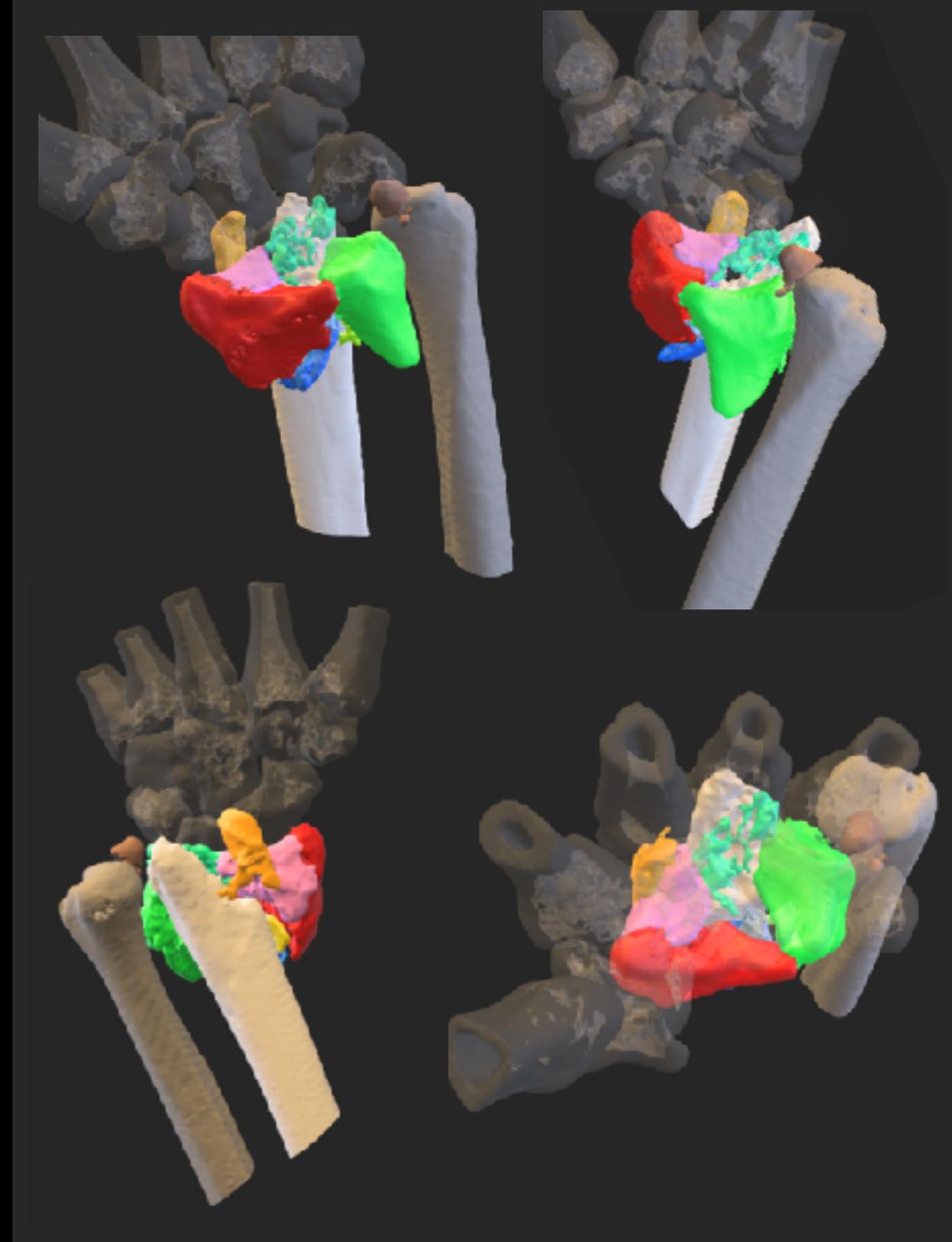
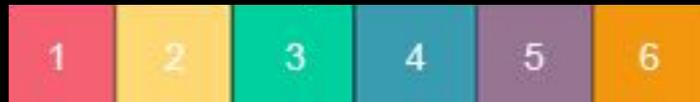
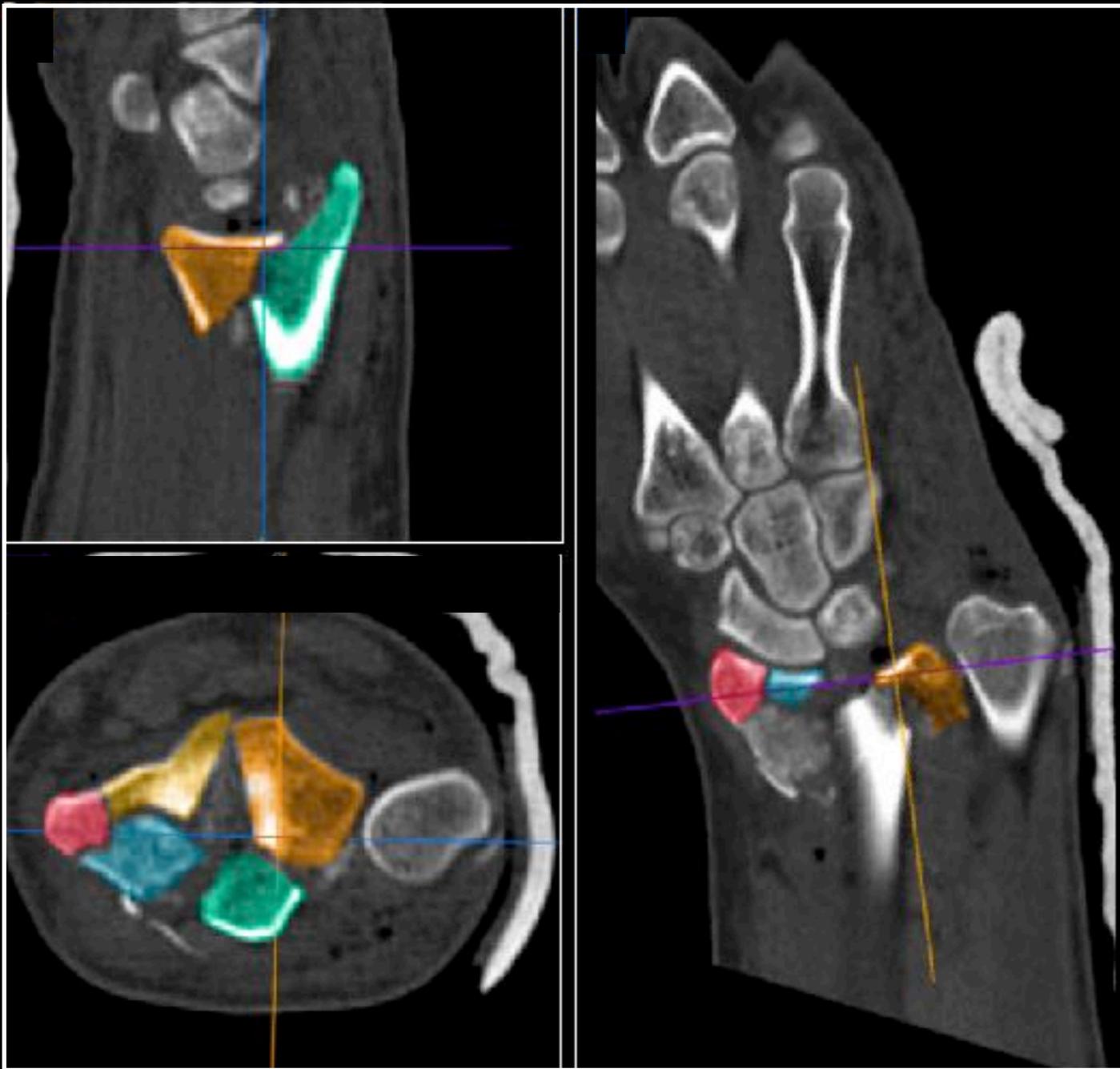
ICUC® ID: 23-VC-977



Here too in a high energy trauma in a 20 year old patient. Once again, at least five if not more fracture fragments, a distal ulnar styloid fracture, a large radial styloid fracture and central articular impaction and comminution.



In this coronal CT we see the substantial disruption.





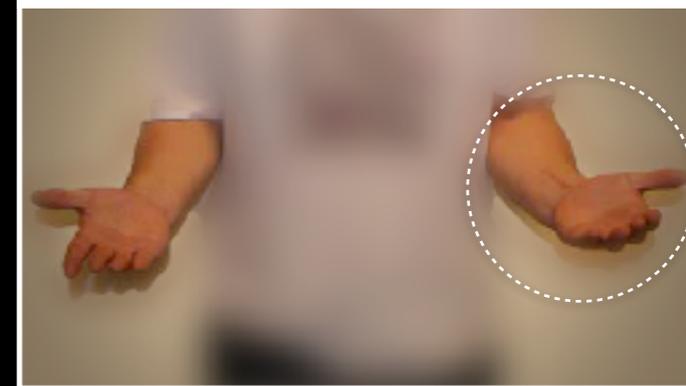
0w



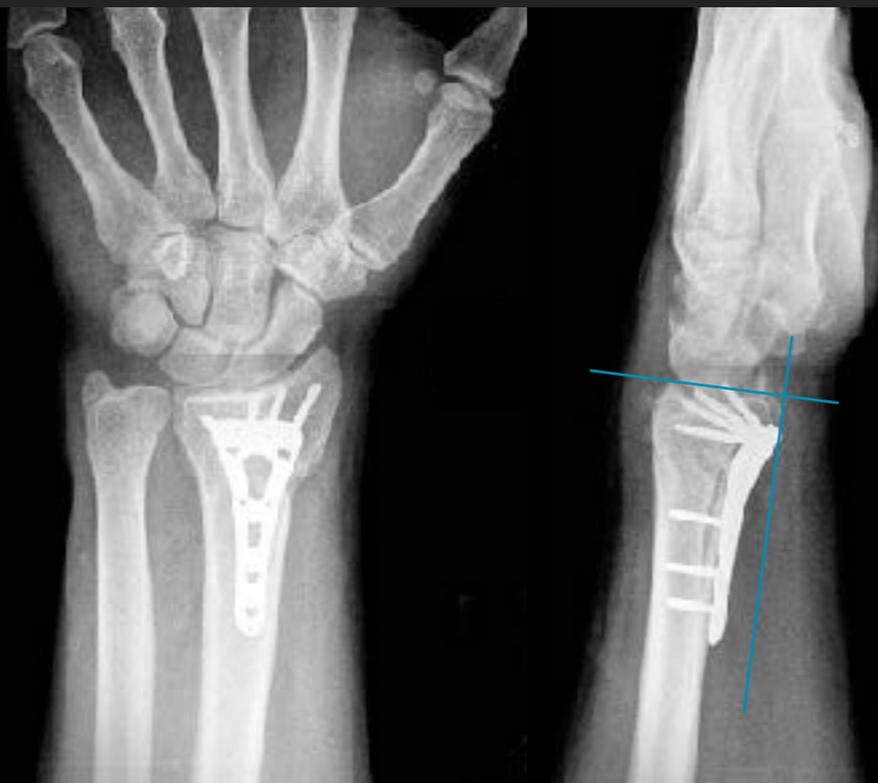
329w



Functional Limitation: 0 (0-4) - Pain: 0 (0-4)



13w after 3rd surgery | 25w after 2nd surgery | 28w after 1st surgery



Volar tilt = 0°

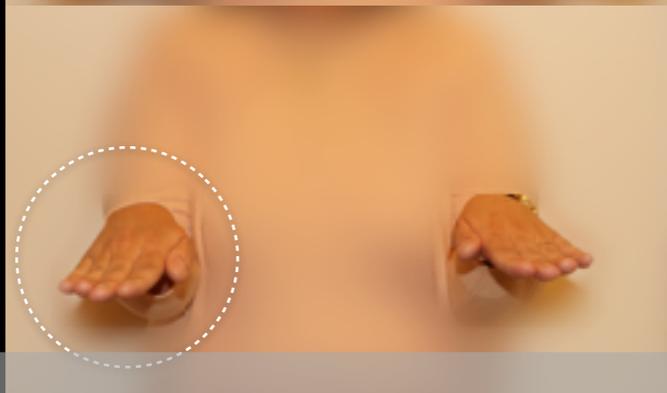
Soong = 1

The CT scan immediately postop. The restoration of the sigmoid notch, the restoration of the volar side and the dorsal side seen once again in the follow-up at 25 weeks, and a healed fracture and the function at 25 weeks. The volar tilt was not restored completely, placement of the plate is in an acceptable position and the ICUC[®] functional score was without pain and excellent functions.

ID: 23-VC-022 | 50y



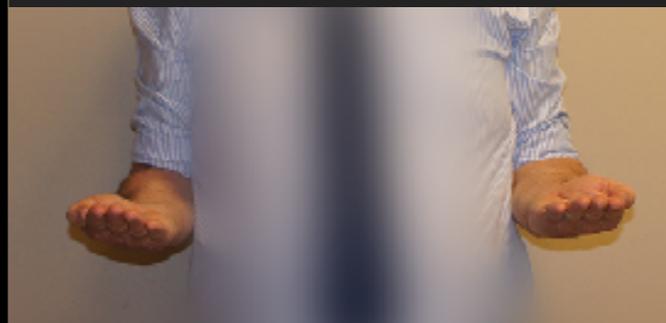
48w | FLO P0



ID: 23-VC-162 | 60y



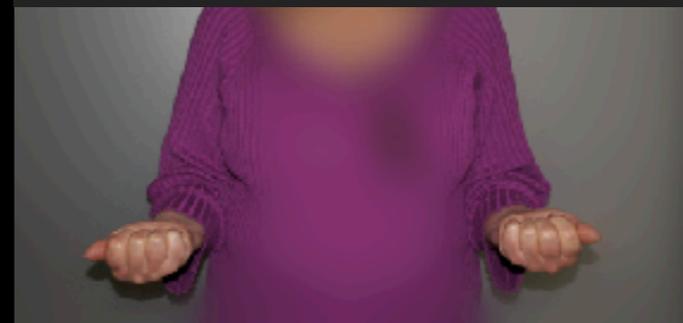
189w | FLO P0



ID: 23-VC-189 | 60y



21w



We have the opportunity to see functional outcome. And this gives you an idea of the patients, the 42 patients in this serie. You see at anywhere between a certain amount of weeks. 27 weeks, 42 weeks, 52 weeks and so forth. The patients are followed up very carefully and thoroughly.

ICUC Score

A perfect result is: Zero limitations and Zero pain

	PAIN						
		0	1	2	3	4	No Info
FUNCTIONAL LIMITATIONS	0	14	2				11
	1	2	9				
	2		3	1			
	3						
	4						

11 out of **42** patients with no ICUC Score information.

If we look at these patients and looking at some of the cases documented, we see that most have no functional limitations and modest amount of pain.

I think that this will demonstrate effectively
the hypothesis that you can treat
these comminuted multiple fragment fractures
through one approach,
the volar approach.



Jesse Jupiter's comments

July 2017

July 2020, 3 years later, no additional remarks to be made

FURTHER READINGS

[J Wrist Surg.](#) 2013 Aug; 2(3): 247–254.

doi: [10.1055/s-0033-1350086](https://doi.org/10.1055/s-0033-1350086)

PMCID: PMC3764245

PMID: [24436824](https://pubmed.ncbi.nlm.nih.gov/24436824/)

Volar Plate Fixation of Intra-Articular Distal Radius Fractures: A Retrospective Study

[Margaret W. M. Fok](#), MBChB, FRCSEd (Orth), FHKAM, FHKCOS,¹ [Melissa A. Klausmeyer](#), MD,¹

[Diego L. Fernandez](#), MD,¹ [Jorge L. Orbay](#), MD,² and [Alex Lluch Bergada](#), MD³

> [J Hand Surg Eur Vol.](#) 2017 Mar;42(3):260–265. doi: [10.1177/1753193416682943](https://doi.org/10.1177/1753193416682943).

Epub 2016 Dec 21.

Intra-articular comminution worsens outcomes of distal radial fractures treated by open reduction and palmar locking plate fixation

[J O Yoon](#)¹, [S L You](#)², [J K Kim](#)¹

Affiliations + expand

PMID: 28196444 DOI: [10.1177/1753193416682943](https://doi.org/10.1177/1753193416682943)

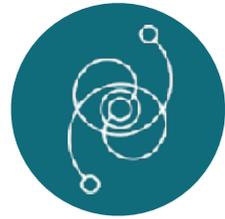
[Strategies Trauma Limb Reconstr.](#) 2006 Dec; 1(1): 2–17.

PMCID: PMC2780584

Published online 2006 Dec 14. doi: [10.1007/s11751-006-0001-5](https://doi.org/10.1007/s11751-006-0001-5)

The treatment of severely comminuted intra-articular fractures of the distal radius

[K. Mader](#)[✉] and [D. Pennig](#)



ICUC POSTERS

Integrated into a learning tool

Complete

Unchanged

Continuous

data of surgical procedures

*Improve your surgery by being
at the front line of the operating room*

Complete from start to finish,
unselected series of surgical cases
from world leading centers.



ICUC Posters are based on surgical cases taken from our library,
meaning the full set of data used by the authors is accessible through our platform.