

# Fracture pattern analysis

Multitom Rax Real3D<sup>1</sup> Hi-Res clinical case  
University Hospital Wuerzburg, Germany



<sup>1</sup>Option



# Clinical background and indication for Multitom Rax Real3D<sup>1</sup> Hi-Res examination

## Patient

Female | \*1934 | BMI 26.6 kg/m<sup>2</sup>

## Anamnesis

The elderly patient fell onto her outstretched left hand during kitchen work. Arriving at the emergency department, she reported extensive wrist pain and swelling with overall limited mobility.

## Indication for Real3D<sup>1</sup> Hi-Res examination

Conventional radiography depicted an extension fracture of the distal radius with metaphyseal impaction and post-traumatic positive ulnar variance. After attempted reposition and cast immobilization, displacement was still clearly visible. Real3D imaging was requested to assess the fracture pattern for surgical planning.

The products/features (mentioned herein) are not commercially available in all countries. Their future availability cannot be guaranteed.

<sup>1</sup> Option

*Before reposition*



*After reposition*

*Conventional X-ray examination*



# Multitom Rax Real3D<sup>1</sup> Hi-Res Settings



## Settings for tableside scan with Standard Protocol

<i>Tube voltage</i>	80 kV
<i>Current time product</i>	197 mAs
<i>Dose area product</i>	118 $\mu\text{Gy}\cdot\text{m}^2$
<i>Calculated value for <math>\text{CTDI}_{\text{vol},32}</math></i>	1.6 mGy
<i>Scan time</i>	14 sec
<i>Number of projections</i>	318

## Reconstruction settings for sectional views

<i>Pixel size</i>	0.2 mm
<i>Reconstruction kernel</i>	very sharp (equivalent to Ur77)
<i>Slice thickness</i>	1 mm

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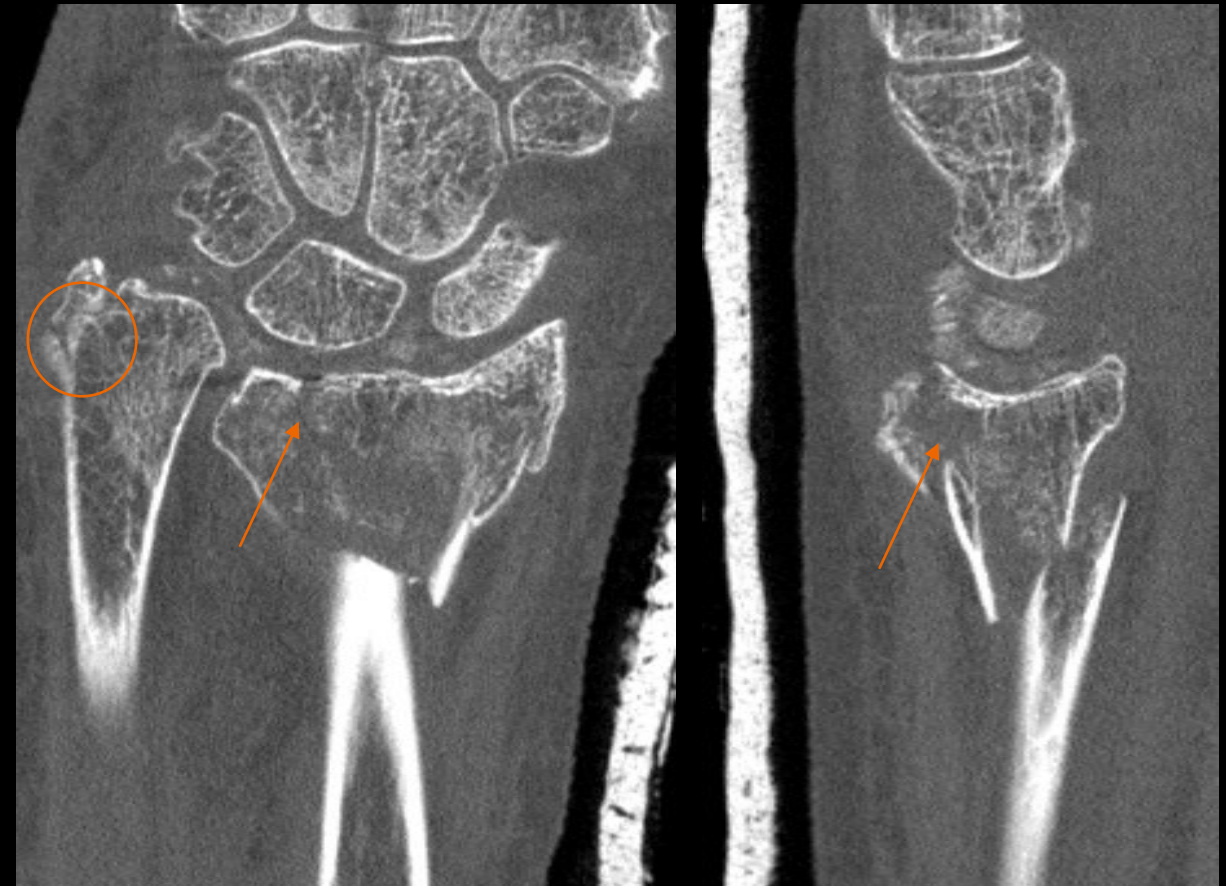
<sup>1</sup> Option

# Multitom Rax Real3D<sup>1</sup> Hi-Res

## Diagnostic findings

In accordance with the previous radiographs, the Real3D examination depicted significant dorsal dislocation and metaphyseal impaction of the distal radius fracture (Colles type). The multi-fragmentary pattern involved the distal joint surface of the radial bone in the lunate fossa (arrows). In addition, a non-displaced fracture of the ulnar styloid process could be ascertained (circle).

As secondary findings, the patient displayed osteopenia and multiple soft tissue calcifications, e.g., in the radiocarpal joint cavity and the ulnocarpal compartment, suggesting chondrocalcinosis.



Coronal view

Sagittal view

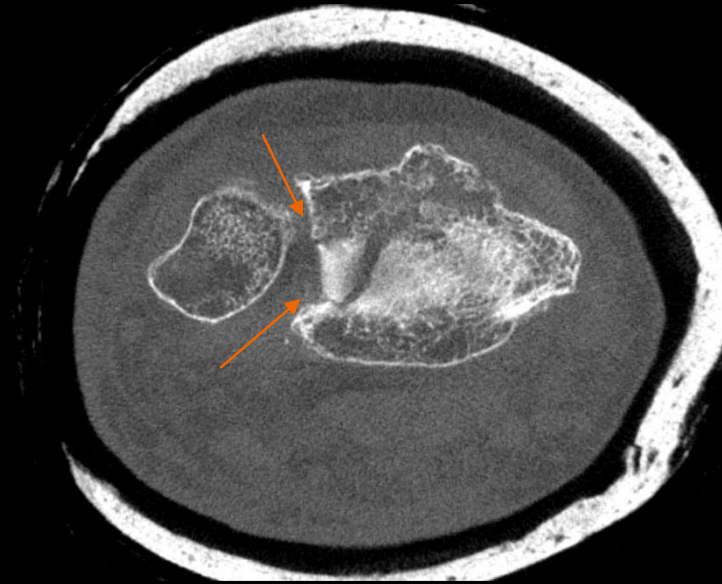
Study ID 5aac380

# Multitom Rax Real3D<sup>1</sup> Hi-Res

## Diagnostic findings

Besides the radiocarpal joint affliction, axial reformatting displayed fracture involvement of the ulnar notch of the distal radius (arrows). Therefore, the fracture was classified as Frykman type VIII. Additional VRT was prepared for surgical planning.

Due to extensive dislocation and impaction, as well as the multi-fragmentary fracture pattern with articular affliction, the patient received open reposition and internal fixation using palmar plate osteosynthesis.



*Axial view*



*VRT view*

Study ID 5aac380



*“The Hi-Res scan mode is routinely used for detection of occult fractures or visualization of dislocated fracture patterns for surgical planning. The standard-dose scan protocol was used despite the patient’s osteopenia and cast immobilization due to its excellent image quality in preclinical studies.”<sup>1</sup>*

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<sup>1</sup>The statements by Siemens Healthineers customers described herein are based on results that were achieved in the customer’s unique setting. Since there is no “typical” hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.



The products/features (mentioned herein) are not commercially available in all countries. Their future availability cannot be guaranteed.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Dr. Jan-Peter Grunz is employed by an institution that receives financial support from Siemens Healthineers for collaborations.