SIEMENS Healthineers

Wrist arthrography

Multitom Rax Real3D[1] Hi-Res clinical case
University Hospital Wuerzburg, Germany

Study ID 5aac378

[1] Option

Clinical background and indication for Multitom Rax Real3D[1] Hi-Res arthrography

SIEMENS Healthineers

Patient
Male | *1982 | BMI 26.3 kg/m²

Anamnesis
The patient was involved in a bicycle accident, which caused him to fall on the outstretched left hand. He presented with pain and swelling over the radial side of the wrist in clinical examination.

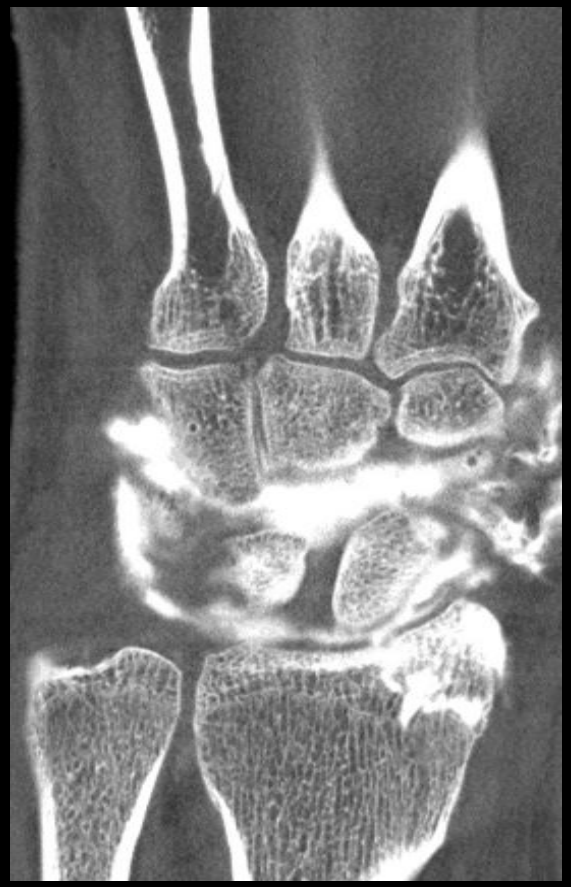
Indication for Real3D[1] Hi-Res arthrography
In standard radiography, a slightly displaced fracture of the radial styloid process could be ascertained (arrow). Before commencing surgical treatment of this Chauffeur type fracture, trauma surgeons requested pre-operative assessment of scapholunate ligament integrity.

Study ID 5aac389

Conventional X-ray examination

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

Multitom Rax Real3D[1] Hi-Res Settings



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Settings for tableside scan with Standard Protocol

Tube voltage	80 kV
Current time product	197 mAs
Dose area product	118 µGy·m²
Calculated value for $CTDI_{vol,32}$	1.6 mGy
Scan time	14 sec
Number of projections	318

Reconstruction settings for sectional views

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

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Multitom Rax Real3D[1] Hi-Res
Diagnostic findings

Fluoroscopy-guided, two-compartment wrist arthrography (midcarpal, radiocarpal) depicted no communicating lesions of the intrinsic carpal ligaments. Subsequent Real3D imaging visualized the Chauffeur fracture of the distal radius (arrow), while ruling out any discontinuity of the scapholunate interosseous ligament (circle). The patient remained in the same position for fluoroscopy and Real 3D imaging using the tableside scan trajectory for wrist imaging.

Fluoroscopy-guided injection

Coronal view

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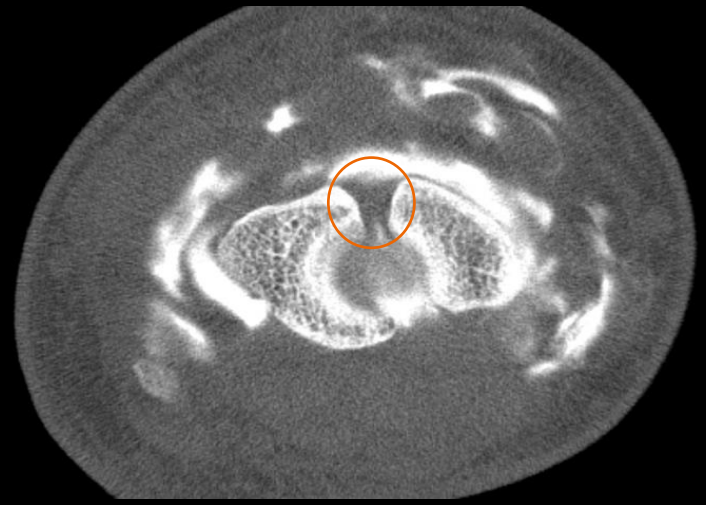
Multitom Rax Real3D[1] Hi-Res Diagnostic findings

Axial reformatting supported the presumed integrity of the scapholunate interosseous ligament. Particularly its dorsal segment, which functions as one of the key stabilizers of the proximal carpal row, appeared intact (circle). The lunotriquetral ligament displayed a subtle discontinuity in its proximal membranous portion. However, this finding is mostly associated with degenerative alterations and insignificant for carpal stability. While the patient underwent surgery for the re-fixation of the distal radius, the necessity for additional treatment of the scapholunate ligament could be ruled out in minimal invasive fashion using Multitom Rax Real3D arthrography.



Axial view

Coronal view

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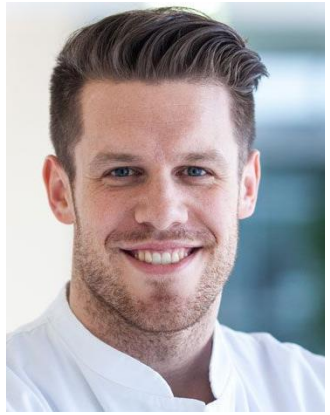

“Even with the radiation exposure reduction of the standard-dose acquisition protocol, Real3D images possess excellent spatial resolution with easily discernable bone microarchitecture. Adding fluoroscopy-guided arthrography before Real3D imaging allows for precise assessment of the intrinsic carpal ligaments.”[1]

Jan-Peter Grunz, MD
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[1] 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.

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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.