Involvement of the palmar lunate facet in intra-articular distal radius fractures

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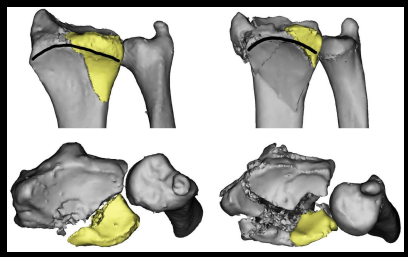
Palmar lunate facet fragment

Sustentaculum lunatum



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Displacement and subluxation

3

Aims of the study

-common fracture patterns of the intermediate column

-prevalence of the palmar lunate facet fragment in intra-articular fractures

-size of the palmar lunate facet fragment - stable fixation?

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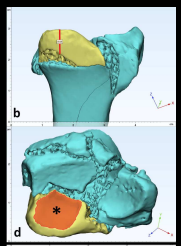
Methods

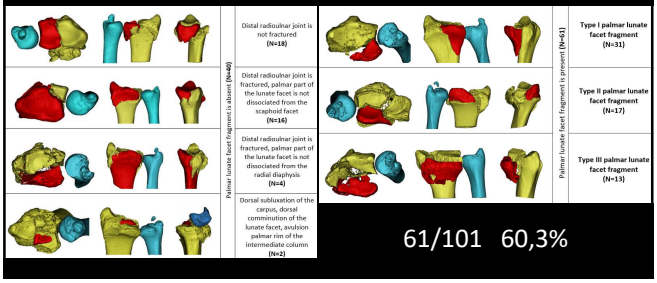
-101 intra-articular fractures
-2012-2018
-preop. CT
-Mimics software (Materialise)



-postop. radiographs of 42 fractures treated with palmar plate
-displacement
-subluxation

5

Results: fracture patterns of the intermediate column



61/101 60,3%

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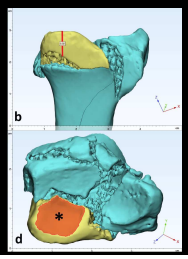
Results: size of the palmar lunate facet fragment



Palmar lunate facet fragment types		Palmar cortex length (mm)	Lunate facet surface (mm²)
Palmar lunate facet fragment with long cortex (Type I) N=31	Mean (range)	16.8 (9.2, 26.9)	118 (31, 238)
Palmar lunate facet fragment with short cortex (Type II) N=17	Mean (range)	7.2 (3.0, 10.0)	104 (31, 267)
Palmar lunate facet and palmar part of the scaphoid facet (Type III fragment) N=13	Mean (range)	14.0 (4.7, 22.3)	123 (47, 214)
Total N=61	Mean (range)	13.5 (3.0, 26.9)	115 (31, 267)

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Results: palmar plate and locking screws

42/61 palmar plate

5/42 displacement of palmar lunate facet fragment

2/5 palmar subluxation of the carpus

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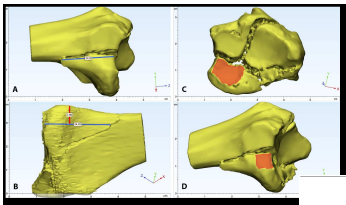

Results

length of the palmar cortex of the palmar lunate facet fragment

9 mm or shorter

	Complete cohort N=42 Mean (range)	Fractures with reduction loss N=5 Mean (range)	Fractures without reduction loss N=37 Mean (range)	p-value
Palmar cortex length (mm)	14.9 (4.0-26.9)	7.6 (6.1-9.0)	15.9 (4.0-26.9)	0.001
Ulnar cortex length (mm)	10.3 (0.0-23.8)	12.0 (7.7-20.5)	10.0 (0.0-23.8)	0.520
Articular surface lunate facet (mm²)	110.8 (31.1-237.9)	87.2 (64.8-105.0)	114.0 (31.1-237.9)	0.155
Articular surface sigmoid notch (mm²)	35.6 (0.0-89.9)	29.8 (15.8-39.7)	36.4 (0.0-89.9)	0.404

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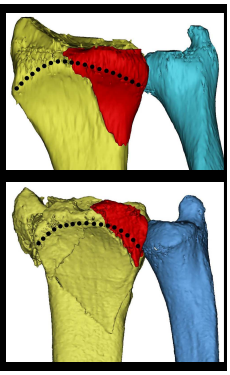
Conclusion

-prevalence of palmar lunate facet fragment is high (60%)

-evaluation of key fragments on preop. CT scans is crucial

-small palmar lunate facet fragment - alternative fixation techniques



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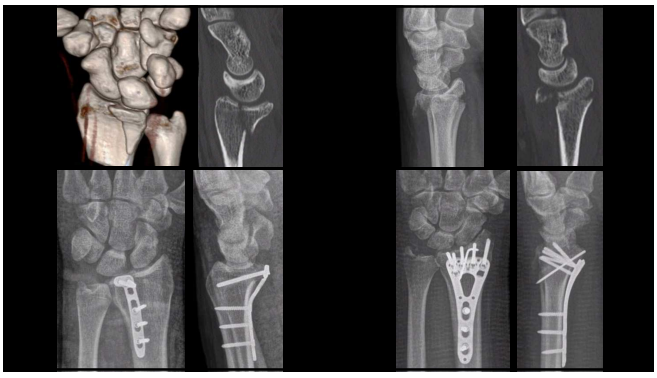

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