

Supplementary article data

Histology of 8 atypical femoral fractures

Remodeling but no healing

Jörg Schilcher¹, Olof Sandberg¹, Hanna Isaksson², and Per Aspenberg¹

¹Orthopedics Section, Department of Clinical and Experimental Medicine, Faculty of Health Science, Linköping University; ²Division of Solid Mechanics and Department of Orthopedics, Lund University, Sweden.

Correspondence: jorg.schilcher@lio.se

Submitted 13-08-04. Accepted 14-02-20

Appendix Table 2. Histological findings at a glance

Histology	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
Width of the fracture gap (µm)	190	170	NA	NA	NA	150	NA	200
Loose bone fragments	Yes	Yes	NA	NA	NA	Yes	NA	Yes
Mainly empty osteocyte lacunae	Yes	No	Yes	No	Yes	No	Yes	No
Woven bone close to the fracture line	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cartilage adjacent to fracture line	Yes (-)	Yes (+)	No	No	No	No	No	No
Osteoclasts	Yes (+)	Yes (+)	Yes (-)	Yes (+)	No	Yes (+)	Yes (-)	Yes
Giant osteoclasts	Yes (+)	Yes	No	Yes (+)	No	Yes (+)	No	No

- = sparse
+ = frequent

Appendix Table 3. Laboratory values. * New reference levels: 1.6-6.9 pmol/L

Lab values	Reference levels	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
CTX	<1000 ng/L	NA	NA	282	202	65	463	75	372
PINP, µg/L	< 80 females < 45 males	NA	NA	NA	13	12	26	15	56
Osteocalcin	<50 µg/L	NA	NA	5.7	5.5	3.7	11	1.4	5.5
25-OH-Vitamin D	75–250 nmol/L	NA	NA	80	70	55	34	30	20
ALP	<26 µg/L	NA	NA	6.4	5.9	11	12	6.1	NA
Creatinine	45–90 µmol/L	75	73	72	82	63	63	91	50
Calcium	2.15–2.50 mmol/L	2.32	NA	2.28	2.43	2.28	Ca ion: 1.2	Ca ion: 1.1	2.22
PTH	15–65 ng/L	NA	NA	42	93	44	6.2	14	11*
TSH	0.40–4.0 mU/L	1.7	NA	0.58	6.0	NA	NA	8.3	1.8
T3	3.5–6.0 pmol/L	13.8	NA	3.1	4.5	3.7	4.7	2.4	NA
T4	11–24 pmol/L	NA	NA	17.7	NA	NA	NA	NA	15.3
ESR	1–20 mm	7	NA	27	66	53	24	32	7

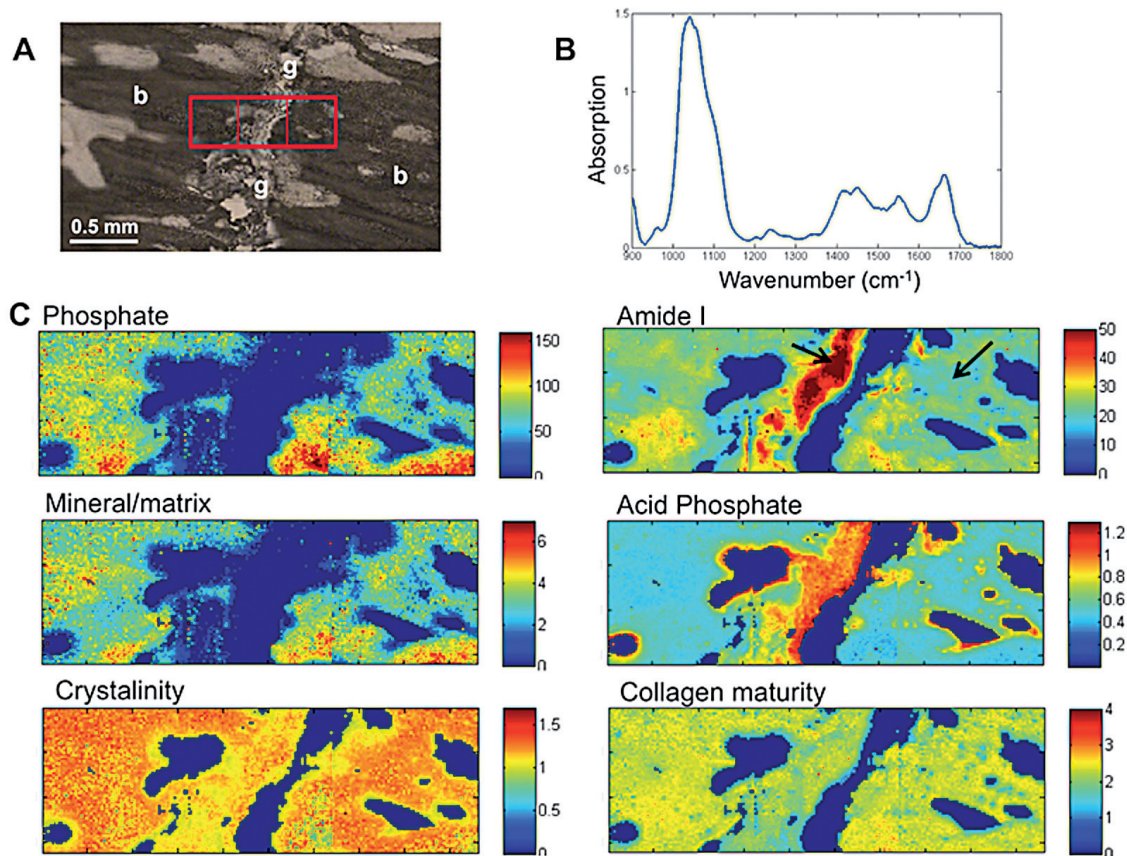


Figure 8. A: Microscope view and indicated measurement region with Fourier-transformed infrared imaging comprising both the fracture (g) and the bone (b). B: Typical absorptions spectra obtained from the bone. C: Maps of compositional parameters displaying phosphate and Amide I absorption, and calculated mineral-to-matrix, acid phosphate, crystallinity and collagen maturity ratios. The arrows in the Amide I map indicates the difference between the amorphous material and the normal bone tissue.