

Supplementary data

Table 3. Combined fractures in the forearm with 1 fracture location in the radius and 1 fracture location in the ulna

Radius	Ulna					Total
	21u-E	21u-M	22u-D	23u-M	23u-E	
Infants/toddlers						
21r-E	–	–	–	–	–	–
21r-M	–	1	–	–	–	–
22r-D	–	–	10	–	–	–
23r-M	–	–	–	24	–	–
23r-E	–	–	–	–	–	–
						35
Pre-school children						
21r-E	–	1	–	–	–	–
21r-M	–	9	2	–	–	–
22r-D	–	–	70	9	–	–
23r-M	–	–	4	99	1	–
23r-E	–	–	–	6	1	–
						202
Schoolchildren						
21r-E	–	3	–	–	–	–
21r-M	–	3	1	–	–	–
22r-D	–	1	58	4	–	–
23r-M	–	1	2	153	23	–
23r-E	–	–	–	11	12	–
						272
Adolescents						
21r-E	–	–	–	–	–	–
21r-M	–	–	–	–	–	–
22r-D	–	–	26	4	–	–
23r-M	–	–	1	67	65	–
23r-E	–	–	–	3	51	–
						217
Total						726

D: diaphysis; E: epiphysis; M: metaphysis; r: radius; u: ulna.

Table 4. Distribution of child-specific fracture patterns in epiphyseal fractures of the upper extremity for each age class

Bone	Sub-segment	Code	Morphology – fracture pattern						Total	
			/1 SH I	/2 SH II	/3 SH III	/4 SH IV	/7 Lig. avulsion	/8 Flake		/9 Other
Infants and toddlers										
Humerus	Distal	13-E	–	–	1	–	–	–	–	1
Pre-school children										
Humerus	Proximal	11-E	–	3	–	–	n.a.	–	–	3
	Distal	13-E	–	–	5	36	1	–	–	42
Radius	Proximal	21r-E	–	2	–	–	n.a.	n.a.	–	2
	Distal	23r-E	–	1	–	–	n.a.	n.a.	–	1
Ulna	Distal	23u-E	–	–	–	–	–	n.a.	–	0
		Total (%)	0 (0)	6 (13)	5 (10)	36 (75)	1 (2)	0 (0)	0 (0)	48 (100)
Schoolchildren										
Humerus	Proximal	11-E	1	6	–	–	n.a.	–	–	7
	Distal	13-E	–	–	2	21	5	–	1	29
Radius	Proximal	21r-E	–	9	2	–	n.a.	n.a.	–	11
	Distal	23r-E	2	31	–	–	n.a.	n.a.	–	33
Ulna	Distal	23u-E	–	–	–	–	–	n.a.	–	0
		Total (%)	3 (4)	46 (58)	4 (5)	21 (26)	5 (6)	0 (0)	1 (1)	80 (100)
Adolescents										
Humerus	Proximal	11-E	4	14	–	–	n.a.	–	–	18
	Distal	13-E	1	–	2	9	2	4	3	21
Radius	Proximal	21r-E	1	3	–	–	n.a.	n.a.	–	4
	Distal	23r-E	9	39	1	–	n.a.	n.a.	1	50
Ulna	Distal	23u-E	–	–	–	–	1	n.a.	–	1
		Total (%)	15 (16)	56 (60)	3 (3)	9 (10)	3 (3)	4 (4)	4 (4)	94 (100)
Total (%)			18 (8)	108 (49)	13 (6)	66 (30)	9 (4)	4 (2)	5 (2)	222 (100)

E: epiphysis; n.a.: not applicable; r: radius; SH: Salter-Harris; u: ulna.

Table 5. Distribution of child-specific fracture patterns in metaphyseal fractures of the upper extremity for each age class

Bone	Sub-segment	Code	Morphology – fracture pattern					Total
			/2 Incomplete ^a	/3 Complete	/6 Monteggia ^b	/7 Lig. avulsion	/9 Other	
Infants and toddlers								
Humerus	Proximal	11-M	1	1	n.a.	n.a.	–	2
	Distal	13-M	n.a.	18	n.a.	–	1	19
Radius	Proximal	21r-M	1	–	n.a.	n.a.	–	1
	Distal	23r-M	31	1	n.a.	n.a.	–	32
Ulna	Proximal	21u-M	1	–	–	–	–	1
	Distal	23u-M	3	–	n.a.	n.a.	–	3
		Total (%)	38 (66)	20 (34)	0 (0)	0 (0)	1 (0)	58 (100)
Pre-school children								
Humerus	Proximal	11-M	7	7	n.a.	n.a.	–	14
	Distal	13-M	n.a.	154	n.a.	–	1	155
Radius	Proximal	21r-M	1	–	n.a.	n.a.	–	1
	Distal	23r-M	105	1	n.a.	n.a.	–	106
Ulna	Proximal	21u-M	13	2	8	–	–	23
	Distal	23u-M	–	–	n.a.	n.a.	–	0
		Total (%)	126 (42)	164 (55)	8 (3)	0 (0)	1 (0*)	299 (100)
Schoolchildren								
Humerus	Proximal	11-M	14	17	n.a.	n.a.	–	31
	Distal	13-M	n.a.	147	n.a.	14	2	163
Radius	Proximal	21r-M	8	12	n.a.	n.a.	–	20
	Distal	23r-M	316	29	n.a.	n.a.	–	345
Ulna	Proximal	21u-M	6	1	1	–	–	8
	Distal	23u-M	3	1	n.a.	n.a.	–	4
		Total (%)	347 (61)	207 (36)	1 (0 ^c)	14 (3)	2 (0*)	571 (100)
Adolescents								
Humerus	Proximal	11-M	8	21	n.a.	n.a.	–	29
	Distal	13-M	n.a.	13	n.a.	7	1	21
Radius	Proximal	21r-M	5	6	n.a.	n.a.	–	11
	Distal	23r-M	174	19	n.a.	n.a.	1	194
Ulna	Proximal	21u-M	2	7	1	1	2	13
	Distal	23u-M	3	1	n.a.	n.a.	–	4
		Total (%)	192 (71)	67 (25)	1 (0 ^c)	8 (3)	4 (1)	272 (100)
Total (%)			702 (58)	458 (38)	10 (1)	22 (2)	8 (1)	1,200 (100)

M: metaphysis; n.a.: not applicable; r: radius; u: ulna.
^a Torus/buckle, or greenstick.
^b Monteggia lesion with metaphyseal fracture of the ulna.
^c < 0.5%.

Table 6. Distribution of child-specific fracture patterns in diaphyseal fractures of the upper extremity for each age class

Bone	Code	Morphology - fracture pattern							Total
		/1	/2	/4 Complete transverse < 30°	/5 Complete oblique/ spiral > 30°	/6 Monteggia	/7 Galeazzi	/9 Other	
Infants and toddlers									
Humerus	12-D	n.a.	n.a.	–	2	n.a.	n.a.	–	2
Radius	22r-D	–	1	–	–	n.a.	–	–	1
Ulna	22u-D	–	–	–	–	–	n.a.	–	0
	Total (%)	0 (0)	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)	0 (0)	3 (100)
Pre-school children									
Humerus	12-D	n.a.	n.a.	2	6	n.a.	n.a.	1	9
Radius	22r-D	5	5	–	–	n.a.	–	–	10
Ulna	22u-D	2	3	1	1	8	n.a.	1	16
	Total (%)	7 (20)	8 (23)	3 (9)	7 (20)	8 (23)	0 (0)	2 (6)	35 (100)
Schoolchildren									
Humerus	12-D	n.a.	n.a.	2	2	n.a.	n.a.	–	4
Radius	22r-D	5	8	1	–	n.a.	–	–	14
Ulna	22u-D	3	5	–	2	7	n.a.	–	17
	Total (%)	8 (23)	13 (37)	3 (9)	4 (11)	7 (20)	0 (0)	0 (0)	35 (100)
Adolescents									
Humerus	12-D	n.a.	n.a.	8	3	n.a.	n.a.	–	11
Radius	22r-D	–	6	–	1	n.a.	–	–	7
Ulna	22u-D	–	3	–	1	1	n.a.	–	5
	Total (%)	0 (0)	9 (39)	8 (35)	5 (22)	1 (4)	0 (0)	0 (0)	23 (100)
	Total (%)	15 (16)	31 (32)	14 (15)	18 (19)	16 (17)	0 (0)	2 (2)	96 (100)

D: diaphysis; n.a.: not applicable; r: radius; u: ulna.

Table 7. Distribution of child-specific combined fracture patterns of the radius and ulna. Values are n (%)^a

Radius		Ulna					Total
Proximal, metaphyseal		/2 Incomplete ^b	/3 Complete	/6 Monteggia ^c			/9 Other
/2	Incomplete ^b	–	3 (23)	6 (46)	1	1	–
/3	Complete	–	–	2	–	–	–
/6	Monteggia ^c	–	–	–	–	–	–
/9	Other	–	–	–	–	–	–
							13 (100)
Diaphyseal		/1 Bowling	/2 Greenstick	/4 CT < 30°	/5 CO/S > 30°	/6 Monteggia ^c	
/1	Bowling	2	8	–	5	1	–
/2	Greenstick	10	54 (33)	6	6	–	–
/4	CT < 30°	1	13	19	24	–	–
/5	CO/S > 30°	3	3	1	8	–	–
/6	Monteggia ^c	–	–	–	–	–	–
							164 (100)
Distal, metaphyseal		/2 Incomplete ^b		/3 Complete			
/2	Incomplete ^b	218 (63)		2			–
/3	Complete	67		58			–
							345 (100)
Distal, epiphyseal		/1 SH I	/2 SH II	/3 SH III	/4 SH IV	/7 Lig. avulsion	
/1	SH I	1	–	–	–	5	–
/2	SH II	–	12	1	–	44 (69)	–
/3	SH III	–	–	–	–	–	–
/4	SH IV	–	–	–	–	1	–
/7	Lig. avulsion	–	–	–	–	–	–
							64 (100)

CO/S: complete oblique/spiral; CT: complete transverse; SH: Salter-Harris.

^a Percentages are only provided if they were greater than 20%.

^b Torus/buckle, or greenstick.

^c Monteggia lesion with metaphyseal fracture of the ulna.