

Table E1 Clinical Data on 19 Patients with Displaced Fatigue Fracture of the Femoral Neck, Type of Primary Treatment, Early Complications, and Secondary Measures

Case No. and Year of Fracture	Age (yr.)/Affected Side	BMI* (kg/m ²)	Smoker	Duration of Military Service at Diagnosis of Fracture (mo.)	Activity Preceding Fracture	Triggering Event Leading to Fracture	Fracture Type**	Primary Treatment	Early Complications and Secondary Measures Within One Year After Primary Operation***
1/1975	20/right	20.2	-	6	Marching	Stumbling	III/type-31B2	Traction	Malunion (varus angulation)
2/1977	18/left	19.1	+	2	Combat training	None	IV/type-31B2	Angled plate	Delayed union with broken screws of the plate
3/1977	20/right	19.6	-	7	Marching	None	IV/type-31B2	DHS	Delayed union with broken screws of DHS plate
4/1977	18/left	17.7	-	5	Marching	Stumbling	IV/type-31B2	Angled plate	–
5/1978	20/right	20.6	+	4	Marching	Stumbling	IV/type-31B2	DHS	Nonunion, removal of hardware, and finally malunion
6/1979	19/left	21.0	-	3	Running	Stumbling	IV/type-31B2	Angled plate	Nonunion, refixation with DHS, and bone-grafting (6 mo.)
7/1981	20/right	20.1	-	4	Running	Riding hard on a bicycle	IV/type-31B2	Angled plate	Deep infection, removal of hardware, and bone-grafting (3 mo.)
8/1983	19/right	20.8	+	4	Combat training	Stumbling	IV/type-31B2	DHS	Heterotopic ossification
9/1983	20/right	19.6	-	2	Marching	Slipping	IV/type-31B2	DHS	Nonunion, intertrochanteric osteotomy, bone-grafting (7 mo.)
10/1983	20/left	23.5	-	3	Marching	Stumbling	IV/type-31B2	DHS	–
11/1983	23/left	18.6	+	5	Marching	None	III/type-31B2	DHS	–
12/1983	19/right	18.9	+	1	Bicycling	None	IV/type-31B1	DHS	Failure of fixation, refixation (1 mo.), delayed union, and finally malunion
13/1984	20/right	16.1	+	6	Running	Applying automobile brakes	III/type-31B2	DHS	–
14/1985	19/left	20.2	+	4	Marching	Stumbling	III/type-31B2	DHS	–
15/1986	20/right	26.1	-	2	Marching	Stumbling	IV/type-31B2	DHS	–
16/1991	19/right	26.2	+	3	Marching	None	III/type-31B2	DHS	–
17/1993	19/right	19.3	-	2	Running	None	III/type-31B2	DHS	–
18/1993	20/left	22.2	-	6	Marching	None	III/type-31B2	DHS	–
19/1994	27/right	24.0	-	6	Marching	None	III/type-31B2	DHS	Breakage of DHS
Mean:	20 years	20.7		3.9 months					
Range:	18-27 years	16.1-26.2		1-7 months					

*BMI = Body Mass Index, **Garden classification/classification system of the Orthopaedic Trauma Association, DHS = dynamic hip screw,

***– = no early complications or secondary measures within one year after primary operation

TABLE E2 Final Follow-up Data on the Patients

Case	Follow-up Time (yr.)	Late Complications and Reoperations More Than One Year After Primary Operation (Time of Reoperation in Months After Primary Operation)	Radiographic Findings		VAS Score (mm)	Profession or Employment At Time of Final Follow-up
			Shortening of the Femoral Neck (%)*	Grade of Osteoarthritis**		
1	26	OA	10	3	10	Assistant manager
2	9	–	0	0	NR	Lawyer
3	25	–	0	0	0	Projector
4	26	OFH and OA, THA (231 mo.) due to OFH	60	3 ***	NR	Engineer
5	23	OFH and OA	100	3	50	Serviceman
6	22	OFH and OA	10	3	13	Chief inspector
7	20	OA, THA (228 mo.) due to OA	10	3 ***	50	Master builder
8	19	OA	30	1	36	Plumber
9	18	OFH and OA, THA (172 mo.) due to OFH	100	3 ***	55	Retired
10	19	OFH and OA	20	3	NR	Engineer
11	19	OA	0	1	45	Lawyer
12	20	OFH and OA, 1) vascular bone graft (25 mo.) due to OFH, 2) osteotomy (59 mo.) due to OFH	50	3	28	Quality supervisor
13	22	–	0	0	25	Spare parts salesman
14	18	–	10	0	0	Appraiser
15	16	OA	11	2	2	Office manager
16	11	OA	4	1	0	Cook
17	9	–	0	0	61	Farmer
18	11	–	0	0	0	Waiter
19	8	OA	10	1	0	Technical manager
Mean:	18		22.4		23	
Range:	8-26		0-100		0-61	

*As compared with the uninjured hip, **According to Tönnis classification, ***Before total hip arthroplasty, – = no late complications or reoperations more than one year after primary operation, THA = total hip arthroplasty, NR = not reported, OA = osteoarthritis, OFH = osteonecrosis of the femoral head, VAS score = visual analogue scale score