TABLE E1 Details on the Revision Cases

Case	Gender	Age at First Op.	Diagnosis at First Op.*	Stem†	Reason for Revision	Time In Situ *(mo)*	Revised‡	Implanted§
1	F	58	OA	SL-P	Infection	44	C+L+H+S	M-P
2	M	55	PTOA	SL-P	Infection	4	C+L+H+S	C-C
3	M	54	OA	TPP	Infection	17	C+L+H+S	C-P
4	F	52	OA	RHS	Infection	41	C+H +L	M-P
5	F	55	OA	RHS	Infection	37	C+L+H+S	Girdlestone
6	F	43	OASD	RHS	Infection	46	C+L+H	M-P
7	F	60	OA	SL-P	Aseptic loosening	68	C+L+H+S	Girdlestone
8	F	45	OA	SL-P	Aseptic loosening	10	C+L+H	M-P
9	F	53	OA	SL-P	Aseptic loosening	44	C+L+H	C-C
10	M	50	AFHN	SL-P	Aseptic loosening	87	C+L+H	M-P
11	F	57	OA	SL-P	Aseptic loosening	58	C+L+H	C-C
12	F	64	OA	SL	Aseptic loosening	86	C+L+H	M-P
13	F	36	AFHN	SL-P	Aseptic loosening	111	C+L+H	M-P
14	F	69	OA	SL-P	Aseptic loosening	27	C+L+H	M-P
15	M	64	OA	RHS	Aseptic loosening	87	C+L+H	C-P
16	F	66	OA	SL-P	Aseptic loosening	114	C+L+H	M-P
17	F	53	OA	TPP	Aseptic loosening	72	C+L+H+S	M-P
18	F	60	OA	SL-P	Aseptic loosening	39	S+H	M-M
19	M	54	OA	TPP	Aseptic loosening	73	L+H+S	C-C
20	F	59	RA	TPP	Aseptic loosening	50	L+H+S	C-C
21	F	59	OA	SL-P	Aseptic loosening	19	S+H	M-M
22	M	47	OA	TPP	Aseptic loosening	13	S+H	M-M
23	M	51	AFHN	TPP	Aseptic loosening	15	S+H	M-M
24	M	46	OA	TPP	Aseptic loosening	70	S	M-M
25	M	54	OA	TPP	Aseptic loosening	82	S	M-M
26	F	47	OA	SL-P	Aseptic loosening	70	C+L+H	M-P
27	F	66	OA	SL-P	Aseptic loosening	63	C+L+H+S	M-P
28	F	55	OA	SL-P	Aseptic loosening	55	C+L	M-P
29	F	61	OA	SL-P	Aseptic loosening	29	L+H+S	C-C
30	F	50	OA	RHS	Pain without loosening	49	C+L+H	M-P
31	F	58	OA	SL-P	Pain without loosening	76	L+H	M-P
32	F	41	OA	RHS	Recurrent dislocations	8	C+L+H	M-P
33	F	63	OA	RHS	Cup fracture	43	C+L+H	M-P
34	F	55	OA	SL-P	Inlay dissociation	65	C+L+H	C-C

*OA = osteoarthritis, PTOA = posttraumatic osteoarthritis, OASD = osteoarthritis secondary to dysplasia, AFHN = aseptic femoral head necrosis, and RA = rheumatoid arthritis. †SL-P = SL-Plus (Plus Orthopedics), RHS = Ribbed Hip System (Link), TPP = Thrust Plate Prosthesis (Allopro), SL = self-locking (Lima, Milan, Italy). ‡C = metal cup, L = polyethylene liner with metal inlay, H = head, and S = stem. §M-M = metal-on-metal, M-P = metal-on-polyethylene, C-P = ceramic-on-polyethylene, and C-C = ceramic-on-ceramic bearing.

TABLE E2 Wear Parameters and Clearances of the Retrieved Femoral Heads and Acetabular Inlays

		Linear Wear				Volumetric Wear				
Case*	Time In Situ *(yr)*	Head *(μm)*	Inlay *(μm)*	Total *(μm)*	Total Wear Rate *(μm/yr)*	Head *(mm^3)*	Inlay *(mm^3)*	Total *(mm^3)*	Total Wear Rate *(mm^3/yr)*	Clearance *(μm)*
7	5.7	1.9	32.9	34.8	6.10	5748.603	4682.102	0.13	0.02	85.7
10	7.3	10.6	42.1	52.7	7.53	5747.851	4676.516	2.15	0.29	85.7
26	5.8	5.0	29.2	34.2	5.89	5746.801	4675.068	0.55	0.09	86.0
29	2.4	16.4	5.6	22.0	9.17	5749.849	4676.700	3.91	1.63	85.5
30	4.1	3.2	9.6	12.8	3.13	5745.553	4681.751	0.43	0.10	95.2
27	5.3	34.3	45.9	80.2	15.13	5752.609	4696.190	8.58	1.61	120.7

*The numbers correspond with the case numbers shown in Table E1.

TABLE E3 Time In Vivo, Grading of Metal Particles, Diffuse and Perivascular Lymphocytic Infiltration According to System of Willert et al.[14], and Presence of Osteolysis

			Grade of Lymphocytic Infiltration		Osteolysis	
Case*	Time In Situ *(mo)*	Grade of Metal Particles	Diffuse	Perivascular	Linear	Expansile
7	68	2+	−	−	−	+
8	10	1+	3+	2+	−	−
10	87	2+	4+	2+	+	−
12	86	1+	2+	1+	−	−
13	111	2+	1+	−	+	+
14	27	2+	3+	−	−	−
15	87	2+	2+	1+	+	+
16	114	2+	2+	2+	−	−
17	72	2+	4+	3+	−	−
20	50	4+	4+	3+	−	−
21	19	2+	2+	2+	+	−
25	82	3+	2+	−	+	−
26	70	1+	−	−	+	−
27	63	2+	−	−	+	+
29	29	2+	1+	−	+	−
30	49	1+	−	−	−	−
31	76	2+	3+	2+	+	+

*Numbers refer to revision cases in Table E1.

TABLE E4 Literature Data on Clinical Results of Metal-on-Metal Bearings

Reference	Bearing	Acetabular Component*	No. of Hips	Mean age *(yr)*	Duration of Follow-up† *(yr)*	No. of Revisions (No. of Failures)	Survival Rate
1	Metasul	Weber cup	100	59	3.5 (2-7)	5	
5	Metasul	Weber cup	74	71	2.2 (0.5-4)	1	
2	Metasul	Weber cup	56	70	5.2 (4-6.8)	3 (1)	98.2% at 7 yr for loosening of cup; 94.1% at 7 yr for any reason
6	Metasul	47 conical, 28 all-metal cups	75	49	5 (3.6-7.3)	3	
7	Metasul	Metasul cups	88	62	7	2	97.5% at 8 yr
8	Metasul	47 APR, 114 IntraOp cups	161	55	6.5 (2-9)	5	
9	Metasul	Hemisph. cup	39	39	5.7 (5.1-6.6)	0	100% at 5 yr
3	Metasul	CSF cup	100	60	6 (1.4-10.5)	5	98.7% (81.%) at 8 yr for any reason for hip without (with) sleeve
32	Biomet	M2a cup	78	49	3.29 (1.64-5.40)	10	
33	Biomet	M2a cup	53	50	5.7 (5-8)	10	100% at 5 yr
28	Biomet	PPF System	148	NA	8.2	34 (16)	77% at 8.2 yr
31	Ultima	Ultima cup	95	53	3.9 (3.0-5.7)	1	
30	Sikomet	Bicon–Plus cup	350	55	4.3 (3.1-7.7)	8	99.4% for cup; 96.8% for stem at 7.6 yr

*PPF = proximal press fit, CSF = cementless self-fixation, and APR = anatomic porous replacement. †The data are given as the mean, with the range in parentheses.