

TABLE E-1 Parameters of MRI of the Hip at 1.5 T*

	STIR	Axial, Sagittal, and Coronal FSE	Coronal MAVRIC SL
TR (<i>msec</i>)	4500	4000-6000	4000-6000
TE (<i>msec</i>)	18	24-34	21-43
TI	150	—	—
BW (<i>kHz</i>)	83-100	83-100	±125
NEX	2	4-6	0.5
FOV (<i>cm</i>)	34-36	18-24	20-24
Matrix	256 × 192	512 × 256-384	320-512 × 256-384
Slice thickness (<i>mm</i>)	5	3-4	3-4.5

*STIR = short-tau inversion recovery, FSE = fast spin echo, and MAVRIC = multi-acquisition variable-resonance image combination, TR = repetition time, TE = echo time, TI = inversion time, BW = receiver bandwidth, NEX = number of excitations, and FOV = field of view.

TABLE E-2 Histological Findings in Subjects with Revision Surgery

Subject	Group	Necrosis/ Infarct.	Fibrinous Exudate	Lymphocytes*	Plasma Cells*	Histiocytes with Inclusions/Metal*	Eosinophils*	Neutrophils*	Metal	Corrosion Products (Large Particles)	ALVAL Score†
1	Unexplained pain		Yes	+++		+++				Yes	6 (2+3+1)
2	Unexplained pain	Yes	Yes	++		++					7 (2+3+2)
3	Unexplained pain	Yes	Yes	+++		+					10 (3+4+3)
4	Unexplained pain	Yes	Yes	+++	++	+	+	+	Lim. tissue ‡	Yes	10 (3+4+3)
5	Unexplained pain			++		++				Yes	3 (0+2+1)
6	Unexplained pain		Yes	+		++			Yes		4 (1+2+1)
7	Unexplained pain			+		++					3 (0+2+1)
8	Unexplained pain		Yes	++		++			Yes	Yes	6 (2+3+1)
9	Mechanical cause					++				Yes	1 (0+1+0)
10	Mechanical cause										Lim. tissue‡
11	Mechanical cause		Yes			++				Yes	3 (1+1+1)
12	Mechanical cause		Yes	+		+	+				3 (1+1+1)
13	Mechanical cause		Yes			++					3 (1+1+1)

*+, ++, and +++ = cellular concentration per high-power field. †As defined by Campbell et al.²⁰. ‡Limited tissue available for analysis.

TABLE E-3 Subset Analysis of Subjects with Revision Surgery

	Diagnosis at Revision Surgery	
	Adverse Local Tissue Reaction (N = 6)	No Adverse Local Tissue Reaction (N = 7)
Demographic data		
Age* (<i>yr</i>)	54.7 ± 6.1 (48.3 to 61.1)	52.1 ± 12.1 (41.0 to 63.3)
Sex (M:F) (<i>no.</i>)	1:5	5:2
Duration of implantation* (<i>mo</i>)	34.5 ± 17.0 (16.7 to 52.3)	21.0 ± 17.9 (4.5 to 37.5)
Radiographic measurements		
Safe:non-safe† (<i>no.</i>)	1:5	6:1
Serum ion levels* ($\mu\text{g/L}$)		
Chromium	51.2 ± 55.8 (0 to 109.7)	2.9 ± 2.3 (0.5 to 5.3)
Cobalt	59.5 ± 64.6 (0 to 127.3)	2.0 ± 1.2 (0.8 to 3.3)
MRI findings		
No. with synovitis	6	4
Volume of synovitis* (cm^3)	53.0 ± 45.4 (5.3 to 100.6)	5.6 ± 9.6 (0 to 20.9)
No. with osteolysis	1	0
No. with extracapsular disease	1	0

*The values are expressed as the mean and standard deviation with the 95% confidence interval in parentheses. †Safe and non-safe acetabular component positioning as defined by Lewinnek et al.¹⁹.