

**On-Line Table 1: Gross and histologic findings in porcine CCAs after testing of alumina-tipped microcatheters with various durations of microcoil current application under x-ray or XMR imaging: magnetic microcatheter II**

Subject No.	XMR or X-Ray Only	Range of Current to Microcoils (mA)	Duration of Current to Microcoils (min)	Work (J)	Saline Drip to Guide Catheter (mL/min)	Gross/Histologic Findings	
1	XMR					Left CCA: normal arterial flow	
		300	0.5	14.8	6	No thrombus, no damage to arterial wall	
		300	1.0	29.7	6	No thrombus, no damage to arterial wall	
		300	5.0	148.5	6	No thrombus, no damage to arterial wall	
		0	0.5	0	6	No thrombus, no damage to arterial wall	
		0	1.0	0	6	Mild vacuolization	
		0	5.0	0	6	Poorly preserved slide limits histologic evaluation	
							Right CCA: zero arterial flow
		300	0.5	14.8	6	No thrombus, no damage to arterial wall	
		300	5.0	148.5	6	No thrombus, no damage to arterial wall	
300	1.0	29.7	6	No thrombus, no damage to arterial wall			
2	XMR					Left CCA: zero arterial flow	
		300	1.0	29.7	0	No thrombus, no damage to arterial wall	
		300	5.0	14.8	0	No thrombus, no damage to arterial wall	
		600	0.5	59.4	0	Poorly preserved slide limits histologic evaluation, clot in lumen	
		600	1.0	118.8	0	No thrombus, no damage to arterial wall	
		600	2.0	237.6	0	No thrombus, no damage to arterial wall	
		600	5.0	594.0	0	No thrombus, no damage to arterial wall	
							Right CCA: normal arterial flow
		300	1.0	29.7	6	No thrombus, no damage to arterial wall	
		300	5.0	14.8	6	No thrombus, no damage to arterial wall	
		600	0.5	59.4	6	No thrombus, no damage to arterial wall	
		600	1.0	118.8	6	Focal media disruption	
		600	2.0	237.6	6	No thrombus, no damage to arterial wall	
		600	5.0	594.0	6	No thrombus, no damage to arterial wall	
*3	X-ray only					Left CCA: normal arterial flow	
		600	1.0	118.8	1.2	Thrombus in lumen	
		600	2.0	237.6	1.2	Thrombus in lumen	
		600	5.0	594.0	1.2	No thrombus, no damage to arterial wall	
		600	10.0	1188.0	1.2	No thrombus, no damage to arterial wall	
		600	10.0	1188.0	1.2	No thrombus, no damage to arterial wall	
							Right CCA: zero arterial flow
		600	0.5	59.4	1.2	No thrombus, no damage to arterial wall	
		600	1.0	118.8	1.2	No thrombus, no damage to arterial wall	
		600	5.0	594.0	1.2	No damage, thrombus in lumen	
		600	10.0	1188.0	1.2	Vacuolization of media	
		600	10.0	1188.0	1.2	Vacuolization & blood in media, wall disruption	
		700	10.0	1617.0	1.2	Mild vacuolization of media	

**Note:**—XMR indicates combination x-ray and MR imaging guidance.

**On-Line Table 2: Gross and histologic findings in porcine CCAs after testing of alumina-tipped microcatheters with various durations of microcoil current application under x-ray or XMR imaging: magnetic microcatheter III**

Subject No.	XMR or X-Ray Only	Range of Current (mA)	Duration of Current (min)	Work (J)	Saline Drip to Guide Catheter (mL/min)	Gross/Histologic Findings	CC3 Staining Findings	Baseline Temp. (°C)	Max Temp. (°C)
4	X-ray only	300	1.0	13.5	6	No thrombus, no arterial wall damage	Left CCA: zero arterial flow	34.7	45.1
		300	1.0	13.5	6	No thrombus, no arterial wall damage	NA	35.1	45.3
		300	1.0	13.5	6	No thrombus, no arterial wall damage	NA	34.6	41.9
		300	2.0	27.0	6	Adhesion of inflammatory cells to intima	Apoptotic & inflammatory cells present in media, compression of media	34.5	41.1
		300	5.0	67.5	6	Endothelial damage, intra-arterial hemorrhage	Apoptotic & inflammatory cells present in media, compression of media	34.6	41.1
		300 <sup>a</sup>	5.0	67.5	6	Endothelial damage, intra-arterial hemorrhage	Apoptotic & inflammatory cells present in media, compression of media	33.9	39.4
		150	1.0	3.3	6	No thrombus, no arterial wall damage	Right CCA: normal arterial flow	35.4	37.9
		150	1.0	3.3	6	No thrombus, no arterial wall damage	No apoptotic or inflammatory cells present	35.5	37.7
		150	1.0	3.3	6	No thrombus, no arterial wall damage	NA	35.5	38.1
		150	2.0	6.75	6	Endothelial damage, intra-arterial hemorrhage	Apoptotic & inflammatory cells present in media, compression of media	35.3	36.3
		150	5.0	16.8	6	Endothelial damage, intra-arterial hemorrhage	Apoptotic & inflammatory cells present in media, compression of media	35.2	36.0
		150	10.0	33.7	6	Endothelial damage, intra-arterial hemorrhage	Apoptotic & inflammatory cells present in media, compression of media	34.9	35.9
5	XMR	300	1.0	13.5	6	No thrombus, no arterial wall damage	Left CCA: normal arterial flow	37.5	49.1
		300	1.0	13.5	6	No thrombus, no arterial wall damage	NA	37.5	37.4
		300	1.0	13.5	6	Questionable damage	NA	37.5	41.9
		300	1.0	13.5	0	No thrombus, no arterial wall damage	NA		
		300	1.0	13.5	0	No thrombus, no arterial wall damage	NA		
		600	1.0	13.5	0	Irregularity in endothelial lining, no damage	NA	37.6	42.3
		600	1.0	13.5	0	Endothelial damage, intra-arterial hemorrhage	NA	37.6	42.1
		600	1.0	13.5	0	Endothelial damage, intra-arterial hemorrhage	NA	37.6	55.8
		300	1.0	13.5	6	Poorly preserved slide limits histologic evaluation	Right CCA: normal arterial flow	36.6	42.0
		300	1.0	13.5	6	No thrombus, no arterial wall damage	NA	36.6	41.7
		600	1.0	54.0	6	No thrombus, no arterial wall damage	NA	37.2	40.1
		600	1.0	54.0	6	No thrombus, no arterial wall damage	NA	37.1	53.7
0	1.0	0	6	No thrombus, no arterial wall damage	NA	37.0	38.6		
0	1.0	0	6	No thrombus, no arterial wall damage	NA	37.1	38.2		
6	X-ray only	0	5.0	0	6	No thrombus, no arterial wall damage	Left CCA: zero arterial flow	32.6	32.6
		0	5.0	0	0	No thrombus, no arterial wall damage	NA	32.3	33.1
		0	5.0	0	0	No thrombus, no arterial wall damage	NA	32.8	32.9
		0	5.0	0	6	No thrombus, no arterial wall damage	NA	30.7	31.7
		0	5.0	0	0	No thrombus, no arterial wall damage	NA	28.5	31.0
		0	7.0	0	6	No thrombus, no arterial wall damage	Right CCA: normal arterial flow	34.1	34.1
		0	5.0	0	6	No thrombus, no arterial wall damage	NA	33.9	34.0
		0	2.0	0	6	No thrombus, no arterial wall damage	NA	33.7	33.8
		0	5.0	0	6	No thrombus, no arterial wall damage	NA	31.1	31.1
		0	5.0	0	0	No thrombus, no arterial wall damage	NA	32.7	33.2
		0	5.0	0	0	No thrombus, no arterial wall damage	NA	32.8	32.8
		0	5.0	0	6	No thrombus, no arterial wall damage	NA	32.9	32.9

**Note:**—CC3 indicates cleaved caspase 3; XMR, combination x-ray and MR imaging guidance; NA, not applicable.

<sup>a</sup>Left CCA opened to allow normal arterial flow.

**On-Line Table 3: Gross and histologic findings in porcine CCAs after testing of alumina-tipped microcatheters with various durations of microcoil current application under x-ray or XMR imaging: magnetic microcatheter IV**

Subject No.	XMR or X-Ray Only	Range of Current (mA)	Duration of Current (min)	Work (J)	Saline Drip to Guide Catheter (mL/min)	Gross/Histologic Findings	CC3 Staining Findings	Baseline Temp.(°C)	Maximal Temp.(°C)	
7	X-ray only	600	1.0	54.0	6	No thrombus, no arterial wall damage	NA	35.2	72.6	
		600	1.0	54.0	6	No thrombus, no arterial wall damage	NA	35.2	51.8	
		600	1.0	54.0	6	No thrombus, no arterial wall damage	NA	34.5	51.7	
		600	2.0	108.0	6	No thrombus, no arterial wall damage	NA	34.2	52.9	
		600	2.0	108.0	6	Endothelial & smooth muscle damage	Infiltration of inflammatory cells, apoptotic cells present	34.6	52.4	
		600	2.0	108.0	6	Endothelial damage	Infiltration of inflammatory cells, apoptotic cells present	34.0	52.0	
		600	5.0	270.0	6	No thrombus, no arterial wall damage	NA	34.2	53.8	
		300	1.0	13.5	6	No thrombus, no arterial wall damage	Left CCA: normal arterial flow	NA	41.0	45.6
		300	1.0	13.5	6	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	35.4	37.9
		300	1.0	13.5	6	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	36.0	42.0
		300	1.0	13.5	6	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	35.6	39.6
		300	1.0	13.5	6	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	35.4	40.6
		300	1.0	13.5	6	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	35.3	39.8
		300	1.0	13.5	6	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	35.3	39.3
8	XMR	600	1.0	54.0	0.85	No thrombus, no arterial wall damage	NA	35.0	41.4	
		600	1.0	54.0	0.85	No thrombus, no arterial wall damage	NA	35.0	48.7	
		600	1.0	54.0	0.85	Intra-arterial hemorrhage, endothelial damage	Clear apoptosis, infiltration of inflammatory cells	35.4	49.8	
		600	2.0	108.0	0.85	No thrombus, no arterial wall damage	NA	35.8	50.7	
		600	2.0	108.0	0.85	Poorly preserved slide, clear vascular damage	NA	35.6	51.4	
		600	2.0	108.0	0.85	Endothelial & smooth muscle damage	NA	35.8	52.1	
		600	5.0	270.0	0.85	Intra-arterial hemorrhage, endothelial damage	Clear apoptosis, infiltration of inflammatory cells	36.0	51.6	
		300	1.0	13.5	0.85	No thrombus, no arterial wall damage	Left CCA: normal arterial flow	NA	35.6	38.3
		300	1.0	13.5	0.85	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	35.2	41.4
		300	1.0	13.5	0.85	No thrombus, no arterial wall damage	No thrombus, no arterial wall damage	NA	35.2	38.6
		300	1.0	13.5	0.85	No thrombus, no arterial wall damage	NA	32.5	37.4	
		300	1.0	13.5	0.85	No thrombus, no arterial wall damage	NA	36.4	36.4	
		300	1.0	13.5	0.85	No thrombus, no arterial wall damage	NA	35.4	38.7	
		300	1.0	13.5	0.85	No thrombus, no arterial wall damage	NA	35.3	38.7	

**Note:**—XMR indicates combination x-ray and MR imaging guidance; NA, not applicable.