

Mayo Clinic Grading System

This system uses three parameters and assigns values of 0 to 3 for each parameter for a maximum total score of 9. The parameters include the amount of echogenic filling of the right atrium (none is denoted by 0, less than half is denoted by 1, more than half is denoted by 2, and complete is denoted by 3), the duration of the embolic shower during a one-minute video segment (none is denoted by 0, a time of less than five seconds is denoted by 1, a time of five to thirty seconds is denoted by 2, and a time of more than thirty seconds is denoted by 3), and the size of the embolic particles (none is denoted by 0, a size of <5 mm is denoted by 1, a size of 5 to 10 mm is denoted by 2, and a size of >10 mm is denoted by 3). ■

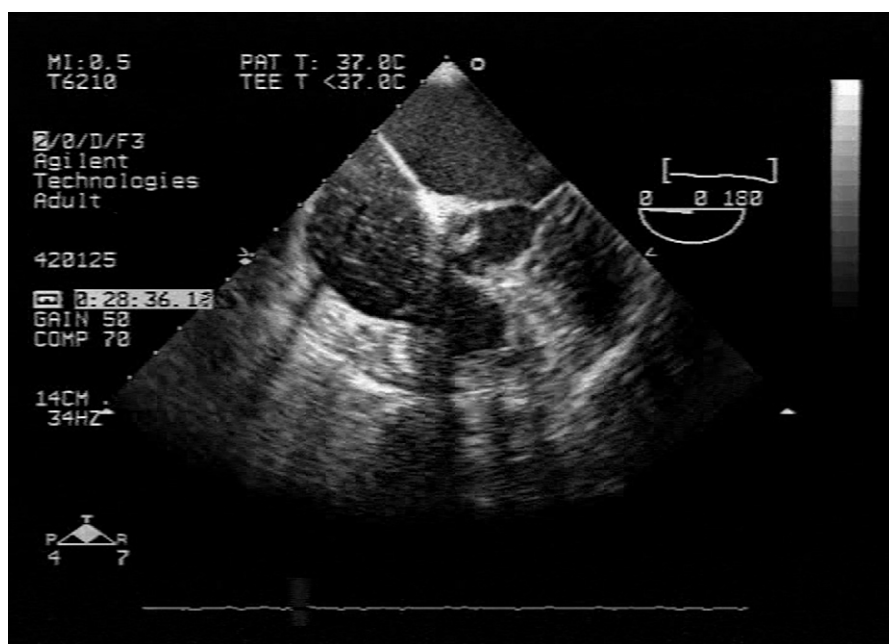


Fig. E-1A

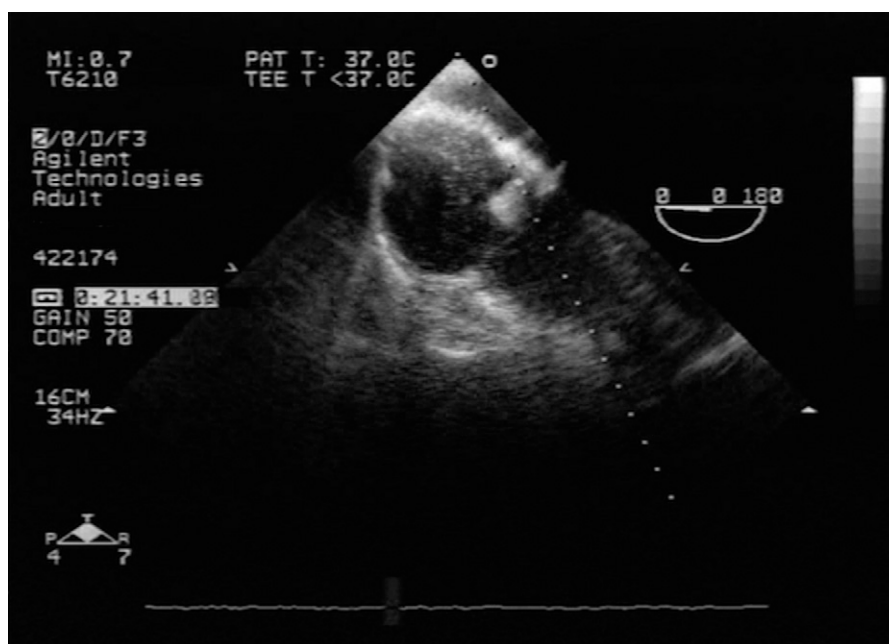


Fig. E-1B

Figs. E-1A and E-1B Transesophageal echocardiography (TEE). **Fig. E-1A** A coarse embolic shower in the right atrium and ventricle after tourniquet deflation. **Fig. E-1B** A large embolus traveling from the right atrium to the ventricle. PAT T = patient temperature, and TEE T = transesophageal echocardiography probe temperature.

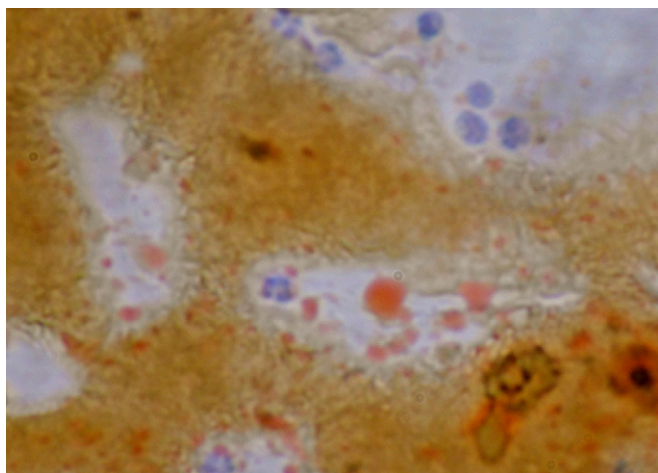


Fig. E-2A

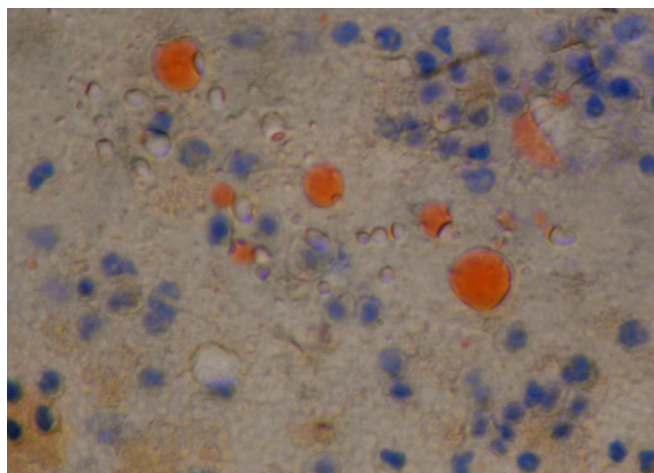


Fig. E-2B

Figs. E-2A and E-2B Oil-red-O-stained slides showing fat globules stained in buffy-coat smears after tourniquet deflation. **Fig. E-2A** At $\times 200$ magnification. **Fig. E-2B** At $\times 400$ magnification.

TABLE E-1 Variables During Different Steps of the Surgery

Variable	Step	
	0 (Baseline)	1 (Cutting)
Mean arterial pressure† (<i>mm Hg</i>)		
Conventional total knee arthroplasty group	88 ± 14	95 ± 13
Computer-assisted surgery group	89 ± 13	92 ± 14
Cardiac index† (<i>L/min/m²</i>)		
Conventional total knee arthroplasty group	2.2 ± 0.8	2.2 ± 1.0
Computer-assisted surgery group	1.9 ± 0.8	2 ± 1.0
Pulmonary vascular resistance‡ (<i>dyn-s/cm⁵</i>)		
Conventional total knee arthroplasty group	124 (29 and 470)	157 (40 and 365)
Computer-assisted surgery group	175 (44 and 431)	152 (20 and 409)
Systematic vascular resistance‡ (<i>dyn-s/cm⁵</i>)		
Conventional total knee arthroplasty group	1751 (980 and 3058)	1969 (706 and 3817)
Computer-assisted surgery group	1903 (749 and 3647)	2033 (599 and 3472)
Pulmonary vascular resistance index‡ (<i>dyn-s/cm⁵/m²</i>)		
Conventional total knee arthroplasty group	329 (44 and 470)	310 (43 and 535)
Computer-assisted surgery group	303 (92 and 797)	294 (55 and 817)
Pulmonary vascular resistance/systemic vascular resistance‡		
Conventional total knee arthroplasty group	0.075 (0.014 and 0.161)	0.083 (0.014 and 0.175)
Computer-assisted surgery group	0.088 (0.022 and 0.294)	0.075 (0.011 and 0.185)

*The p value is for the change in values after tourniquet deflation, in other words, from step 3 to step 4. †The values are given as the mean and the standard deviation. ‡The values are given as the median, with the minimum and maximum in parentheses.

TABLE E-1 (continued)

Step			P Value*
2 (Trial)	3 (Cementing)	4 (Tourniquet Release)	
92 ± 14	95 ± 12	84 ± 16	<0.01
96 ± 11	96 ± 14	84 ± 10	<0.01
2.2 ± 0.9	2.3 ± 1.0	2.5 ± 0.9	0.135
2 ± 1.3	2.2 ± 1.3	2.4 ± 1.4	0.179
175 (46 and 345)	145 (60 and 337)	135 (11 and 529)	0.797
172 (32 and 380)	134 (37 and 273)	158 (40 and 404)	0.696
1874 (205 and 3349)	1772 (786 and 3349)	1532 (1619 and 3052)	0.252
2230 (23 and 3579)	1934 (547 and 3529)	1608 (518 and 4478)	0.131
330 (116 and 535)	305 (133 and 480)	350 (44 and 794)	0.689
298 (92 and 682)	251 (86 and 615)	275 (91 and 723)	0.313
0.089 (0.03 and 0.578)	0.076 (0.039 and 0.147)	0.096 (0.012 and 0.198)	0.278
0.094 (0.02 and 0.744)	0.068 (0.018 and 0.146)	0.078 (0.026 and 0.220)	0.093