

Supplement Table 1. Patient demographics and clinical characteristics

Number of patients	n = 1171
Gender	
Male	358/1171(30.4%)
Female	813/1171(69.6%)
Age (year mean)	53.9±11.4
Co-morbidities	
Hypertension	397/1171(33.9%)
Diabetes	63/1171(5.4%)
Hyperlipidemia	42/1171(3.6%)
Coronary heart disease	67/1171(5.7%)
Alcohol abuse	144/1171(12.3%)
Smoking	308/1171(26.3%)
Aneurysm Presentation	
Incidental	425/1171(36.3%)
Symptomatic	704/1171(60.1%)
Ruptured (history of SAH)	42/1171(3.2%)
Pretreatment mRS	
≤2	1060/1171(90.5%)
> 2	111/1171(9.5%)
Blood thinners	
Pre-PED implant dual-antiplatelet therapy >3 days	915/1171 (78.1%)
Post-PED implant dual-antiplatelet therapy >6 months	676/1171 (57.7%)
mRS score at follow-up	
≤2	1111/1171(94.9%)
> 2	60/1171(5.1%)

Abbreviations: PED: Pipeline embolization device embolization

SAH: Subarachnoid hemorrhage

Supplement Table 2. Aneurysm characteristics

Number of treated aneurysms	n= 1322
Morphology	
Saccular	1099/1322 (83.1%)
Fusiform	109/1322 (8.2%)
Dissecting	83/1322 (6.3%)
Blister	31/1322 (2.3%)
Maximal diameter in mm	12.79±8.75
≤7mm	436/1322 (33.0%)
7-15mm	470/1322 (45.6%)

>15mm	416/1322 (31.4%)
Aneurysm location	
Carotid artery	1105/1322 (83.6%)
Distal Circle of Willis	48/1322 (3.6%)
Vertebral artery	133/1322 (10.1%)
Basilar artery and other posterior circulation	36/1322 (2.7%)
Previous treatment	33/1322 (2.5%)
Coiling	11/33 (33.3%)
Stent assistant coiling	22/33 (66.7%)
Clipping	2/33 (6.1%)

Supplement Table 3. Procedure details, complications, and outcomes

Procedure details	n = 1322
Treatment modality	
PED alone	685/1322 (51.8%)
PED adjunctive coiling	637/1322 (48.2%)
Loose packing	504/637 (79.1%)
Dense packing	133/637 (20.9%)
PED Model	
PED Classic	596/1319 (45.2%)
PED Flex	723/1319 (54.8%)
Multiple aneurysms treated with one PED	178/1322 (13.5%)
Patients with multiple PED	75/1322 (5.7%)
Device deployment to target site	
Successful	1241/1319 (94.1%)
Successful after adjustment	68/1319 (5.1%)
Failed	10/1319 (0.8%)
Number of covered collateral arteries	927/1322 (70.1%)
Status of covered collateral arteries	
Patency	627/927 (67.6%)
Stenosis	54/927 (5.9%)
Occlusion	26/927 (2.8%)
Parent artery status	
Patency	1211/1322 (91.6%)
Stenosis	93/1322 (7.0%)
Occlusion	18/1322 (1.4%)
Last radiographic follow-up time, months (mean; IQR) (exclude the perioperative death)	8.96±7.50

Imaging follow-up	967/1322(73.1%)
Occluded or near completely occluded (90-100%)	789(81.6%)
Incompletely occluded (<90%)	178(18.4%)
Recurrence	0
Thromboembolic complications	85/1171(7.3%)
Perioperative period	74/85(87.1%)
Cerebral infarction	44/74(59.5%)
TIA/minor stroke	30/74(40.5%)
Follow-up period	11/85(12.9%)
Cerebral infarction	7/11(63.6%)
TIA/minor stroke	4/11(36.4%)
Hemorrhagic complications	47/1171 (4.0%)
perioperative period	46/47 (97.9%)
DAR	23/46(50%)
DIPH	23/46(50%)
Follow-up period	1/47(2.1%)
DAR	1/1(100%)
DIPH	0
Other Procedure and medication related complications	
Neurological compressive symptoms	51/1171 (4.4%)
Death	18/1171 (1.5%)
perioperative period	15/18 (83.3%)
follow-up	3/18 (16.7%)

Abbreviations: PED: Pipeline embolization device embolization

DAR: Delayed aneurysm rupture

DICH: Distal intraparenchymal hemorrhage

TIA: Transient ischemic attack

Supplement Table 4. Comparison of the PED alone and PED combined with coiling groups after 1:1 propensity score matching

Variable			
No. of aneurysms (%)	304	304	
Age (years)			
Mean (SD)	53.24(±11.73)	52.79(±12.07)	0.714
Female	225 (74.0%)	233 (72.4%)	0.714
Co-morbidities			
Hypertension	97(31.9%)	96 (31.2%)	1
Diabetes	10(3.3%)	19(6.2%)	0.128
Hyperlipidemia	8(2.6%)	7(2.3%)	0.811
Coronary heart disease	13(4.3%)	12(3.9%)	1

Alcohol abuse	36(11.8%)	39(12.8%)	0.835
Smoking	68(22.4%)	66(25.0%)	0.504
Aneurysm Presentation			0.208
Incidental	150 (49.3%)	131 (43.1%)	0.143
Symptomatic	140 (46.1%)	162 (53.3%)	0.088
Ruptured (history of SAH)	14 (4.6%)	11 (3.6%)	0.684
Pretreatment mRS			1
≤2	296(90.4%)	280(89.1)	
> 2	36(9.6%)	33(10.9%)	
Multiple aneurysms	90 (29.6%)	99 (32.6%)	0.422
Ruptured aneurysms	14 (4.6%)	11 (3.6%)	0.683
morphology			0.152
Saccular	257 (84.5%)	264(86.8%)	0.487
Fusiform	25 (8.2%)	24 (7.9%)	1
Dissecting	19 (6.2%)	9 (3.0%)	0.08
Blister	3 (1.0%)	7 (2.3%)	0.34
Maximal diameter in mm (mean)	11.81 (±8.18)	12.35 (±7.52)	0.409
≤7mm	110 (36.2%)	98 (32.2%)	0.305
≤15 mm to >7 mm	144 (47.4%)	145 (47.1%)	0.935
>15mm	50 (16.4%)	61 (20.1%)	0.248
Location			0.096
Carotid artery	253(83.2%)	261 (85.9%)	0.432
Distal Circle of Willis	13(4.3%)	10 (3.3%)	0.672
Vertebral artery	34 (11.2%)	22 (7.2%)	0.122
Basilar artery and other posterior circulation	4 (1.3%)	11 (3.6%)	0.114
PED Model			0.371
PED Classic	136(44.7%)	148(48.7%)	
PED Flex	168 (55.3%)	156 (51.3%)	
Time to last follow-up imaging (mean)	9.01 (±654)	8.75 (±767)	0.649
Complete occlusion at last follow-up	228 (75.0%)	272 (89.5%)	< 0.001
mRS score at last follow-up			0.335
≤2	289(92.0%)	281(89.5%)	
> 2	25 (8.0%)	33 (10.5%)	
Complications			
Ischemic complications	18 (5.9%)	34 (11.2%)	0.03
Hemorrhagic complications	6 (2.0%)	8 (2.6%)	0.787
Compression symptoms	5 (1.6%)	12(3.9%)	0.140
Mortality	6 (2.0%)	5 (1.6%)	1.0

Bold values: P-Value < .05.

n (%); P-Value: chi-square test.

Median (IQR); P-Value: T test

Abbreviations: PED: Pipeline embolization device embolization
SAH: Subarachnoid hemorrhage