

On-line Table 1: Main characteristics of the 5 models most frequently used for the evaluation of aneurysm treatment devices

Species, Aneurysm	Spontaneous Thrombosis/ Patency	Angio after Coiling	Histopathology after Coiling	Aneurysm Size, w × l (mm)	Neck Size (mm)	Surgical Morbidity, Mortality	Advantages	Disadvantages
Canine, lateral wall ^{7,36-38,41,51-53,59}	Thrombosis in 10%; long-term patency during 7 months and 6 years	Almost complete aneurysm occlusion	Variable healing response with few recurrences	5 × 6 to 10 × 25	4–9	No	Reliable anesthesia; easy to create and to manipulate the aneurysm size ratio to its parent artery; testing of aneurysm occlusion devices requiring large vessels; 2 aneurysms in each animal	Low rate of recurrences
Canine, bifurcation ^{29,37,38}	Lack of spontaneous thrombosis and rupture	Propensity for recurrence	Incomplete healing, with thin neointima	11 × 25	4–7	Minimal	Similar hemodynamic stress to human ICAs; high-quality angio evaluations, demonstration of recurrences	Single aneurysm per animal
Swine, lateral wall ^{13,35,48,53-55,58}	Propensity for spontaneous thrombosis or early rupture	Complete aneurysm occlusion in all cases	Robust healing with thick neointima	8 × 10	2–9	No	Reproducible in its size, shape, hemodynamics	Limited validity for testing aneurysm devices
Rabbit, bifurcation ^{8,14,18,30,31,70,71}	Patency for 3 and 6 months after surgical creation	Frequent complete aneurysm occlusion	Incomplete obliteration with poor overall healing	4.3 × 5.8	4	High with parent artery occlusion	Similar size with high reproducibility and constant volume ratio	Small for testing human devices
Rabbit, elastase ^{32,40,45,71}	No spontaneous thrombosis for 24 months	Variable	Poor overall healing	4.5 × 7.5	Narrow neck, <4 mm	High to minimal to no mortality	Ease of handling; appropriate size of parent vessel and aneurysm	Variation in aneurysm size and neck-to-dome ratios; limited in the evaluation of large devices