Supplementary

Table S1 Definition of clinical, geometric, and hemodynamic parameters

Parameters	Definition
Neck width (W neck)	The maximum width of the IA neck plane (neck plane: the plane that separates the IA capsule from the IA-bearing artery and is close to the IA-bearing artery)
Height (H)	The maximum vertical distance from the top of the body to the IA neck plane
Length (L)	The maximum distance from any point on the top of the body to the center of the IA neck plane
Width (W)	The maximum diameter perpendicular to the long diameter
Aspect ratio (AR)	The ratio of the vertical height from the top of the body to the plane of the IA neck to the width of the IA neck
Size ratio (SR)	The ratio of the maximum distance from the top of the body to the plane of the IA neck to the average diameter of the IA-bearing artery
Bottleneck ratio (BN)	The ratio of the maximum diameter of IA to the width of the IA neck
Height width ratio (HWR)	The ratio of the height of the aneurysm to the width of the diameter
Angle of incidence	The angle between the IA's long diameter and the aneurysm-carrying artery's centerline
Angle of aneurysm	The angle between the long diameter of the IA and the projection plane of the aneurysm neck surface
Diameter of the aneurysmal vessel [parent vessel average diameter (Dv)]	Including sidewall type IA [diameter of the aneurysmal artery near the neck of the aneurysm (D_1) and the proximal end of the aneurysmal artery from the neck of the aneurysm (1.5 D_2) of the average diameter of the vessels] and bifurcation type IA (average diameter of the aneurysmal vessels and their branches)
PA (Pa)	Pressure
NPA (X±s)	Normalized PA (over vessel PA)
PRE	Dynamic pressure
VE	Mean velocity (cm/s)
VOR	Mean vorticity (1/s)
SSR	Mean shear strain rate (1/s)
NWSS	Normalized WSS (over vessel WSS)
TANWSS	Normalized TAWSS (over vessel TAWSS)
TAWSS	Time-averaged wall shear stress
OSI	Oscillatory shear index
RRT	Mean relative residence time (s)
TAWSSG (Pa/m)	Mean WSS gradient (dyne/cm^3)
GON	Mean gradient oscillatory number: fluctuations in the tension/compression force acting on endothelial cells
AFI	Aneurysm formation indicator: the risk of vortex intensity in stagnant areas due to the formation of aneurysms

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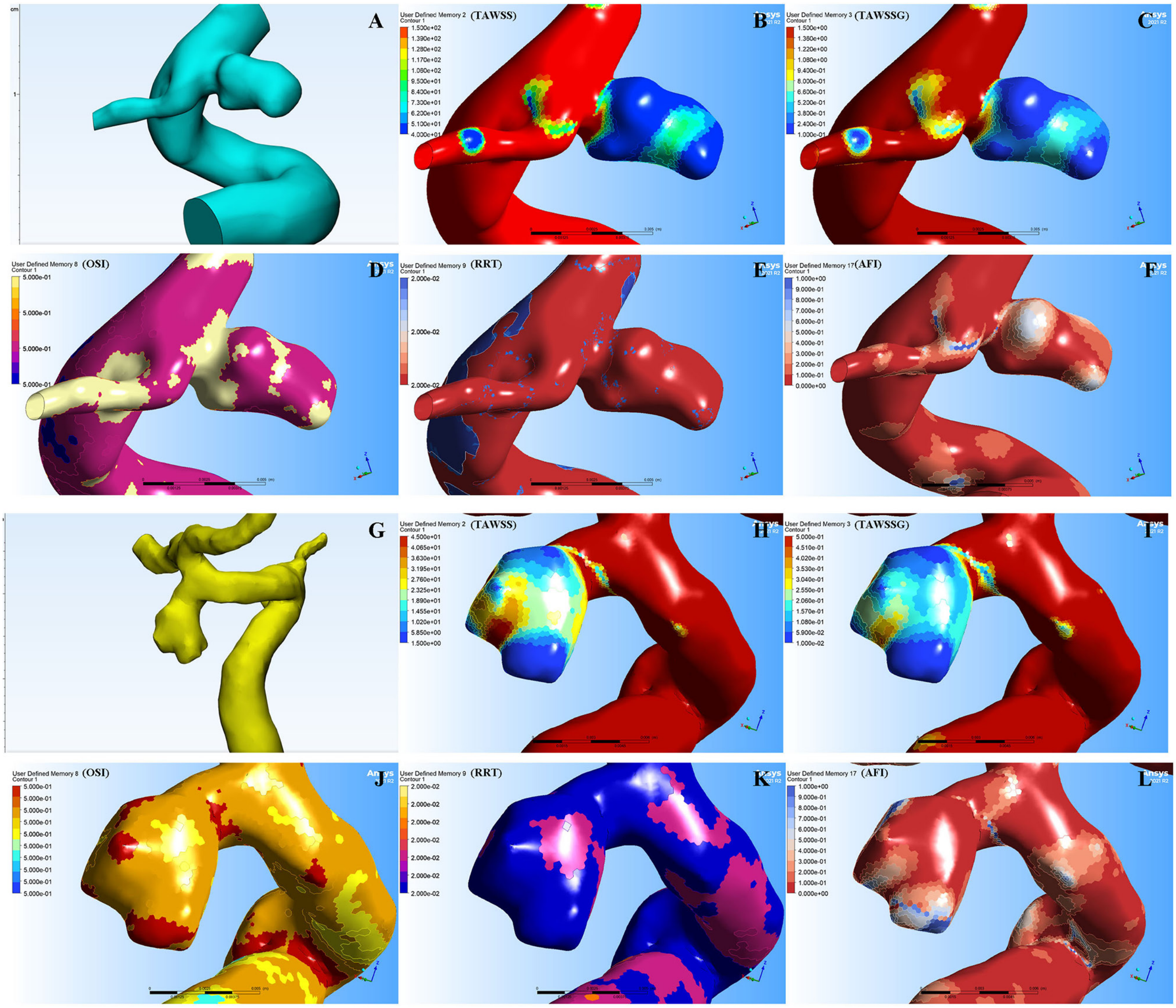

Figure S1 The hemodynamics of ruptured and unruptured medium-sized IAs. (A-F). Ruptured PCoA IA with a length of 5.92 mm. (A) Three-dimensional reconstruction model. (B) Time-averaged wall shear stress (TAWSS) distribution. (C) TAWSS gradient distribution. (D) Oscillatory shear index (OSI) distribution. (E) Mean relative residence time (RRT) distribution. (F) Aneurysm formation indicator (AFI). (G-L) Unruptured MCA IA with a length of 5.56 mm. (G) Three-dimensional reconstruction model. (H) TAWSS. (I) TAWSSG. (J) OSI. (K) RRT. (L) AFI.