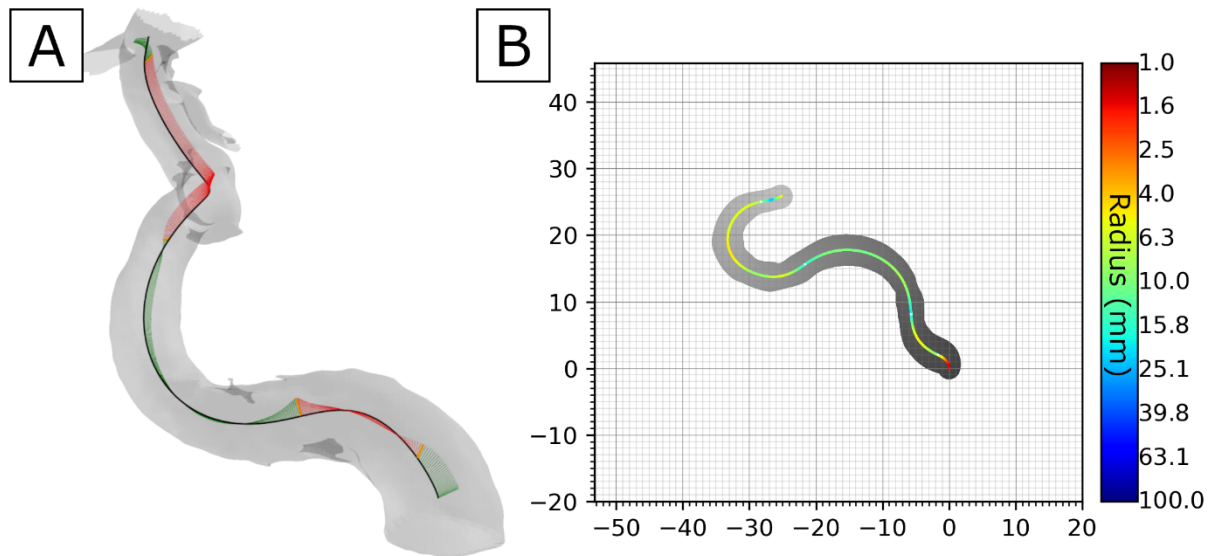


Online supplemental data

Supplementary Figure 1 Illustration of an internal carotid artery curvature derivation. Vessel course with black centerline and corresponding 3D polygonal curve representing tortuosity (A), and (B) corresponding 2D template with highlighted vessel's radius of curvature and indication of angioscope insertion direction (black arrow).



Supplementary Table 1 Classification of Anatomical Characteristics and ICA Tortuosity in the Five Vascular Models

Vascular Model	Anatomical Characteristics	Extracranial ICA Tortuosity	Cavernous ICA Tortuosity
A	Elongated vessel course, short pars cerebri, relatively large curvature radius	Tortuous	Typ I
B	Small curvature radius in the petrous and cavernous segments	Coiled	Typ II
C	Cervical segment extends particularly far proximally, long pars cerebri, relatively large curvature radius	Tortuous	Typ I
D	Representative of the majority of the sample, no notable anatomical deviations	Tortuous	Typ I

E	Small curvature radius in the petrous and cavernous segments	Coiled	Typ III
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Supplementary Table 2 Parameters and units used in the subsequent calculations.

Symbol	Unit	Designation	Remark
a, b	m	Distance	
l	m	Distance	$l = a + b$
r, R	m	Radius	
E	N/m ²	Modulus of elasticity	$E = \sigma / \epsilon$
F _z	N	Force	$1 \text{ N} = 1 \text{ kg} \cdot \text{m/s}^2$
I	m ⁴	Area moment of inertia	$I = \int z^2 dA$

Supplementary Table 3 Measured values of *a*, *b*, and *w(a)* for the different curvatures C1 – C4 under catheter and endoscope insertion.

Model	Curvature	w(a) (10 ⁻³ m)		Distance a (10 ⁻³ m)		Distance b (10 ⁻³ m)	
		Catheter	Endoscope	Catheter	Endoscope	Catheter	Endoscope
A	C1	2	7	11	17	10	13
	C2	3	4	12	13	10	8
B	C1	1	5	14	16	14	10
	C2	5	13	6	10	7	4
	C3	5	15	9	10	6	10
	C4	6	17	7	10	6	7
C	C1	0,5	4	5	11	10	8
	C2	4	6	8	8	9	9
	C3	7	7	10	7	8	6
D	C1	1	1	13	14	7	2
	C2	3	5	7	8	12	10
E	C1	3	8	12	10	15	8
	C2	3	8	11	3	8	7
	C3	4	7	9	5	7	10
	C4	5	11	11	7	12	12

Supplementary Table 4 Measured values of F_K (N) for catheter and endoscope, including percentage deviation.

	Radius C1 (mm)			Radius C2 (mm)			Radius C3 (mm)					
	a)	b)	c)	a)	b)	c)	a)	b)	c)			
	8,63	9,73	12,06	4,79	5,58	7,74	5,14	5,19	8,63			
Deviation (%)		13	40		16	62		1	68			
Vascular Model D												
	Radius C1 (mm)			Radius C2 (mm)								
	a)	b)	c)	a)	b)	c)						
	9,19	9,31	11,00	4,78	5,57	6,75						
Deviation (%)		1	20		17	41						
Vascular Model E												
	Radius C1 (mm)			Radius C2 (mm)			Radius C3 (mm)			Radius C4 (mm)		
	a)	b)	c)	a)	b)	c)	a)	b)	c)	a)	b)	c)
	4,99	5,36	5,30	7,62	9,22	10,64	4,99	5,55	5,64	4,38	4,40	5,13
Deviation (%)		7	6		21	40		11	13		1	17

Supplementary Table 6 Likert Scale Assessing the Visibility of Individual Stent Struts or Flow Diverter Meshes

Device setup	Very High	High	Medium	Low	Very Low
Flow Diverter	x				
Flow Diverter + Colour Markings		x			
Stent			x		
Stent + Colour Markings			x		

Supplementary Table 7 Likert Scale Assessing the Visibility of Colour Differences

Device setup	Very High	High	Medium	Low	Very Low
Flow Diverter + Colour Markings		x			
Stent + Colour Markings		x			