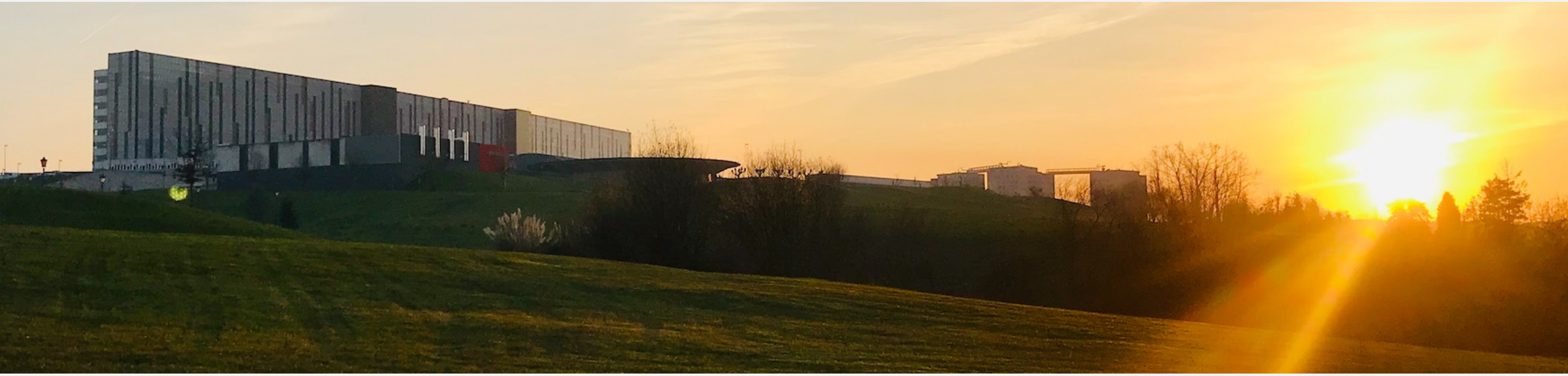
XLIX Reunión anual
SOCIEDAD ESPAÑOLA DE NEURORRADIOLOGÍA
TOLEDO
21 - 23 octubre 2021
Palacio de Congresos

Nuevos dispositivos de trombectomía mecánica



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NEUROTRIVIAL

En relación con la elección actual de los dispositivos de extracción mecánica de un trombo mediante técnicas endovasculares, ¿cuál de las siguientes afirmaciones es correcta?

1. La longitud y el diámetro transversal del stentriever no influye en su eficacia técnica.

2. El uso de balón guía catéter con stentriever ha demostrado mayor eficacia que el uso de aspiración distal con stentriever sin oclusión del flujo proximal.

3. Existen estudios aleatorizados y randomizados que demuestran la eficacia de un dispositivo de una morfología determinada respecto al resto de los que hay en el mercado.

4. No existen estudios que hayan demostrado la seguridad del uso de stentrievers más distal al segmento M1.

Conflictos de interés…

- Todos…
- Muy mezclados…
- Ninguno…

INTRODUCCIÓN

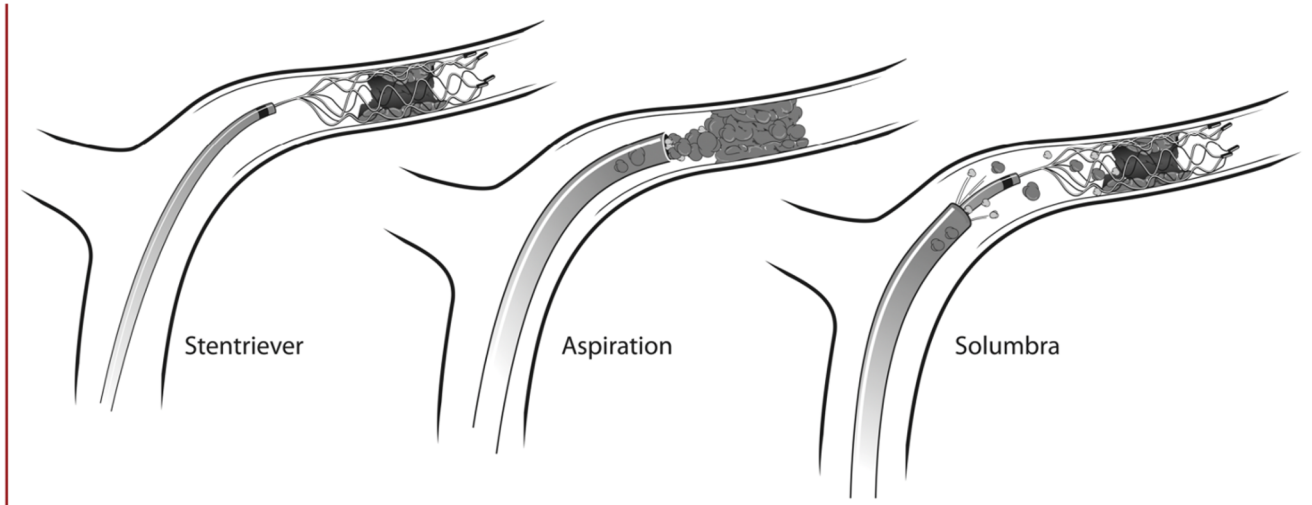

FIGURE 1. *Techniques for mechanical thrombectomy. A stent retriever alone (left) is deployed within the clot, which is then retrieved. With direct aspiration technique (center), an aspiration catheter is brought to the clot interface and suction is initiated. The "Solumbra" technique (right) involves the use of a stent retriever with concomitant aspiration. ©University at Buffalo Neurosurgery.*

Overview of Mechanical Thrombectomy Techniques

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The recently reported superiority of mechanical thrombectomy to intravenous thrombolytics has jettisoned endovascular intervention into the forefront of acute ischemic stroke (AIS) management. These successes have allowed a chance for recanalization for patients not meeting the strict eligibility criteria for intravenous thrombolytics. Stent retrieval and aspiration have emerged as two of the most popular and effective approaches for AIS thrombectomy. Since the beginning of mechanical thrombectomy with the Merci device (Stryker) and first-generation Penumbra aspiration system (Penumbra Inc), contemporary techniques have demonstrated reliable recanalization and improved clinical outcomes. Here, we review the use of stent retrieval and aspiration, as well as their synergy, in the management of AIS.

KEY WORDS: Acute ischemic stroke, Aspiration thrombectomy, M2 occlusion, Stent retrieval, Solumbra

Neurosurgery 85:S60–S67, 2019 DOI:10.1093/neuros/nyz071 www.neurosurgery-online.com

Tiempos de tratamiento (minutos)	2015 (n=123)	2016 (n=107)	2017 (n=118)	2018 (n=208)	2019 (n= 239)	2020 (n=237)	2021 6m (n=126)
Tiempo inicio-puerta	104 [60-141]	111 [66.5-159]	91.5 [59-138]	100 [70-163]	**88.5[57-134]**	101 [66-101]	**107 [70-156]**
Tiempo puerta-imagen	40 [29-51]	24 [14-40]	25 [16-34]	28 [20-41]	27 [19-38]	**29 [22-43]**	**33 [26-54]**
Tiempo puerta-aguja	ND	58 [49.5-63.5]	60.5 [45-67.8]	57 [47-70]	63 [48-74]	**65 [52-74]**	**68 [49-92]**
Tiempo puerta-ingle	95 [76-108]	90 [64.5-111]	85 [73.5-106]	88 [67-115]	93 [80-113]	**93 [72-112]**	**93 [78-129]**
Tiempo procedimiento	30 [20-45]	32 [20-51]	40 [23.5-51.2]	41.5 [25-70]	**37[20-62]**	**32[20-58]**	**30[19-52]**

Tabla cruzada año Eficacia de la trombectomia en TICI

			Eficacia de la trombectomia en TICI					
			TICI0	TICI1	TICI2A	TICI2B	TICI3	Total
año	2017	Recuento	4	0	8	39	66	117
		% dentro de año	3,4%	0,0%	6,8%	33,3%	56,4%	100,0%
		% dentro de Eficacia de la trombectomia en TICI	8,0%	0,0%	18,6%	16,5%	11,5%	12,8%
	2018	Recuento	13	1	15	54	123	206
		% dentro de año	6,3%	0,5%	7,3%	26,2%	59,7%	100,0%
		% dentro de Eficacia de la trombectomia en TICI	26,0%	14,3%	34,9%	22,8%	21,4%	22,6%
	2019	Recuento	19	3	10	69	137	238
		% dentro de año	8,0%	1,3%	4,2%	29,0%	57,6%	100,0%
		% dentro de Eficacia de la trombectomia en TICI	38,0%	42,9%	23,3%	29,1%	23,8%	26,1%
	2020	Recuento	7	1	5	48	167	228
		% dentro de año	3,1%	0,4%	2,2%	21,1%	73,2%	100,0%
		% dentro de Eficacia de la trombectomia en TICI	14,0%	14,3%	11,6%	20,3%	29,0%	25,0%
	2021	Recuento	7	2	5	27	83	124
		% dentro de año	5,6%	1,6%	4,0%	21,8%	66,9%	100,0%
		% dentro de Eficacia de la trombectomia en TICI	14,0%	28,6%	11,6%	11,4%	14,4%	13,6%
Total		Recuento	50	7	43	237	576	913
		% dentro de año	5,5%	0,8%	4,7%	26,0%	63,1%	100,0%
		% dentro de Eficacia de la trombectomia en TICI	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

89%
85%
86%
94%
89%

89.1%

CORE-LAB EXTERNO

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Nuevos dispositivos de trombectomía mecánica

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first pass effect thrombectomy

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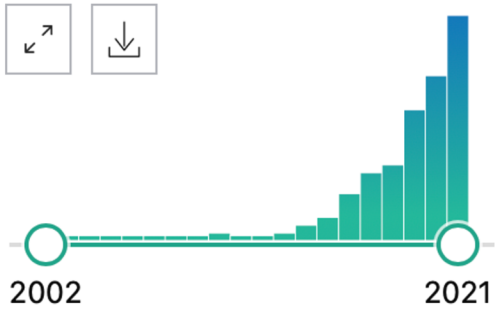
RESULTS BY YEAR



TEXT AVAILABILITY

1

Cite

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First Pass Effect: A New Measure for Stroke **Thrombectomy** Devices.

Zaidat OO, Castonguay AC, Linfante I, Gupta R, Martin CO, Holloway WE, Mueller-Kronast N, English JD, Dabus G, Malisch TW, Marden FA, Bozorgchami H, Xavier A, Rai AT, Froehler MT, Badruddin A, Nguyen TN, Taqi MA, Abraham MG, Yoo AJ, Janardhan V, Shaltoni H, Novakovic R, Abou-Chebl A, Chen PR, Britz GW, Sun CJ, Bansal V, Kaushal R, Nanda A, Nogueira RG.

Stroke. 2018 Mar;49(3):660-666. doi: 10.1161/STROKEAHA.117.020315. Epub 2018 Feb 19.

PMID: 29459390 Clinical Trial.

We describe a novel measure for newer generation devices: the **first pass effect** (FPE). FPE is defined as achieving a complete recanalization with a single **thrombectomy** device **pass**.

CONCLUSIONS: The achievement of complete revascularization fr

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Nuevos dispositivos de trombectomía mecánica

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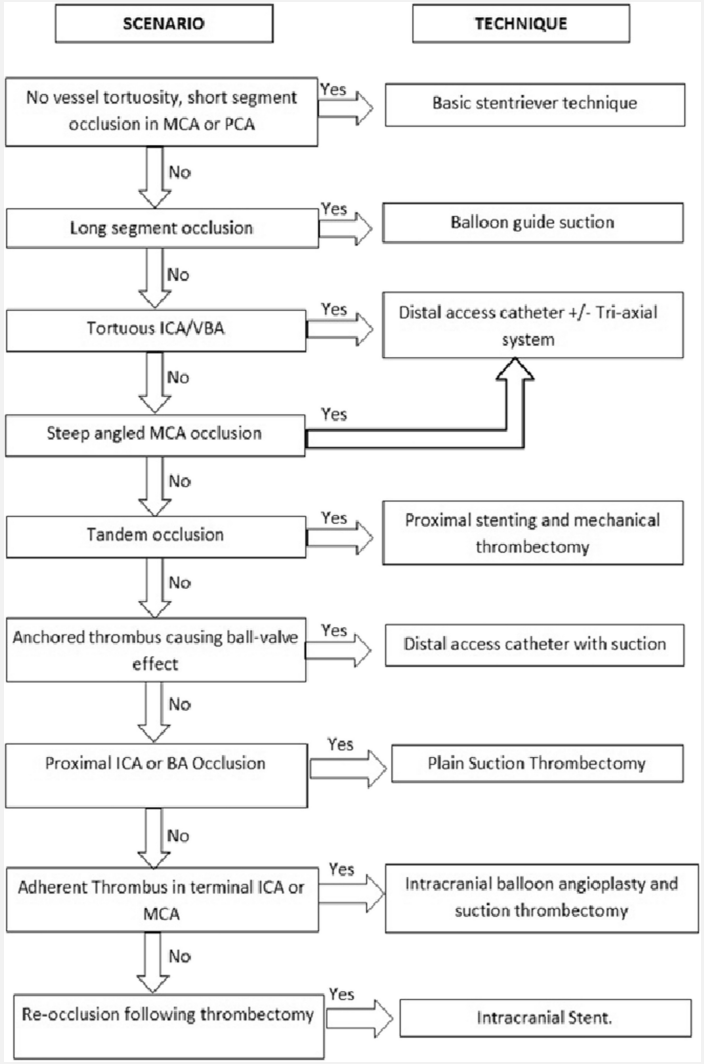
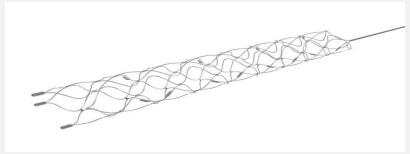
OBJETIVO

Mostrar las vías de investigación técnica destinadas a mejorar los resultados de la trombectomía mecánica



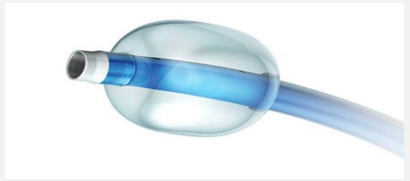
Mechanical thrombectomy in acute ischaemic stroke: a review of the different techniques. Leung V, Sastry A, Srivastava S, Wilcock D, Parrott A, Nayak S. Clin Radiol. 2018 May;73(5):428-438. doi: 10.1016/j.crad.2017.10.022.



Longitud del stentriever

Morfología del stentriever

Tamaño del stentriever y perfil



Navegabilidad del catéter balón

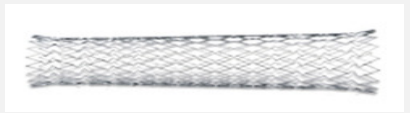
Luz interna del catéter balón

Uso de dos catéteres

Luz interna del catéter de aspiración

Aspiración en distales

Compatibilidad



Stent en monoagregación

Stent intracraneal

Navegabilidad y longitud de los stents

Navegabilidad del balón

Stent a través del balón

ACCESO

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Nuevos dispositivos de trombectomía mecánica

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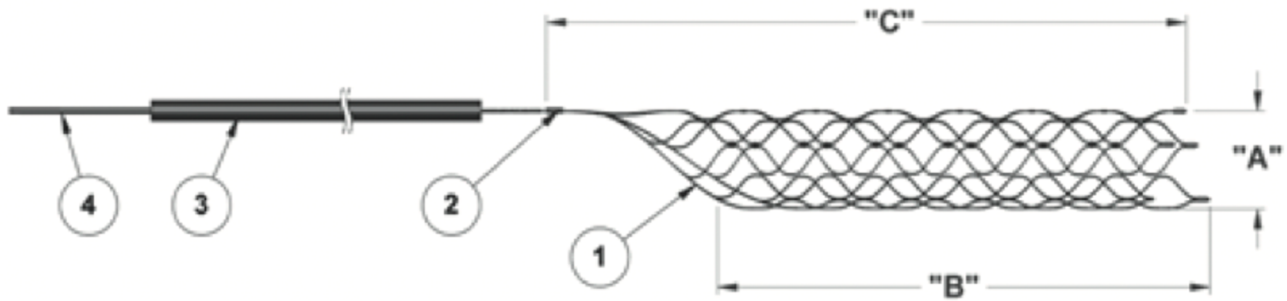
PRINCIPALES VÍAS DE INVESTIGACIÓN

STENTRIEVERS

Longitud del stentriever

Figure 1. Solitaire™ AB Neurovascular Remodeling Device



1. **Solitaire™ AB**
2. Detachment Zone
3. Introducer Sheath
4. Push Wire

A. Diameter
B. Usable Length
C. Total Length

Longitud del stentriever

› Front Neurol. 2021 Jun 22;12:679402. doi: 10.3389/fneur.2021.679402. eCollection 2021.

First-Pass Reperfusion by Mechanical Thrombectomy in Acute M1 Occlusion: The Size of Retriever Matters

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Affiliations + expand

PMID: 34267722 PMCID: PMC8276778 DOI: 10.3389/fneur.2021.679402

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Abstract

Introduction: Single-pass complete reperfusion using stent retrievers has been shown to improve functional outcome in patients with large vessel occlusion strokes. The aim of this study was to investigate the optimal size of stent retrievers to achieve one-pass complete reperfusion by mechanical thrombectomy. **Methods:** The study evaluated the results of aspiration-assisted mechanical thrombectomy of acute isolated occlusion of the middle cerebral artery in the M1 segment with a novel 5 × 40-mm stent retriever compared to the usual 4 × 20-mm device. Reperfusion status was quantified using the Thrombolysis In Cerebral Infarction (TICI) scale. We hypothesized that thrombectomy of M1 occlusions with 5 × 40-mm stent retriever yields higher rates of complete first-pass reperfusion (FP) (TICI ≥2c after one pass) and successful or modified FP (mFP) (TICI ≥2b after one pass) than thrombectomy with 4 × 20. We included isolated M1 occlusions treated with pRESET 5 × 40 (phenox) as first-choice device for thrombectomy and compared with M1 occlusions treated with pRESET 4 × 20. We excluded patients with additional occlusions or tandem stenosis or who received an intracranial stent or angioplasty as a part of the endovascular treatment. **Results:** One hundred thirteen patients were included in the 4 × 20 group and 57 patients in the 5 × 40 group. The 5 × 40 group achieved higher FP compared to 4 × 20 group [61.4% (35 of 57 patients) vs. 40.7% (46 of 113), respectively; adjusted odds ratio (OR) and 95% confidence interval (95% CI) = 2.20 (1.08-4.48), $p = 0.030$] and a higher mFP [68.4%, 39 of 57 patients vs. 48.7%, 55 of 113; adjusted OR (95% CI) = 2.11 (1.04-4.28), $p = 0.037$]. Frequency of successful reperfusion (TICI ≥2b) was similar in both groups (100 vs. 97.3%), but frequency of complete reperfusion (TICI ≥2c) was higher in the 5 × 40 group [82.5 vs. 61.9%, adjusted OR (95% CI) = 2.47 (1.01-6.04), $p = 0.047$]. Number of passes to achieve reperfusion was lower in the 5 × 40 group than in the 4 × 20 group [1.6 ± 1.1 vs. 2 ± 1.4, $p = 0.033$; adjusted incidence rate ratio (95% CI) = 0.84 (0.69-1.03), $p = 0.096$]. Modified Rankin scale at 90 days was similar in 5 × 40 and 4 × 20 groups. **Conclusions:** The size of stent retriever matters in acute M1 occlusions treated with aspiration-assisted mechanical thrombectomy. A longer stent retriever with a larger nominal diameter achieves a higher complete and successful FP and higher successful reperfusion compared to a shorter stent retriever.

Keywords: first-pass; large vessel occlusion; pRESET; reperfusion; stent retriever; stroke; thrombectomy.

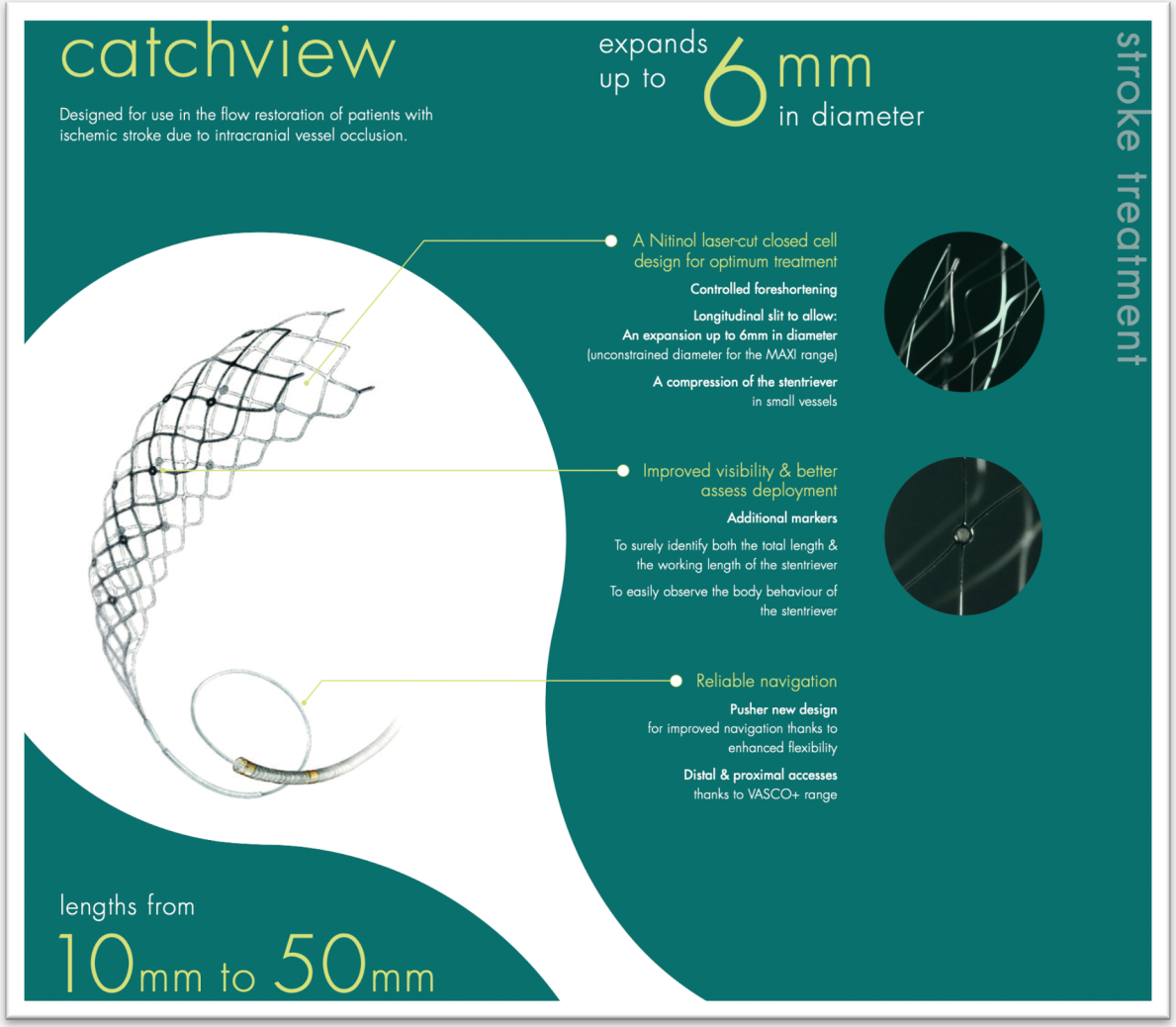
Table 1. Solitaire™ AB Product Specifications and Recommended Sizing Guidelines

Reference	Description Diameter x Length	Recommended Vessel Diameter[1]		Minimum Microcatheter ID		Push Wire Length	Radiopaque Markers		Useable Length[2] (mm)					Total Length (mm)				
									Vessel Diameter (mm)					Vessel Diameter (mm)				
	(mm x mm)	min.	max.	(mm)	(inch)	(cm)	Distal	Prox.	2.2	3	4	5	6	2.2	3	4	5	6
SAB-3-20	3 x 20	2.2	3.0	0.5	0.021	180	3	1	24.2	21.7	-	-	-	32.2	31.1	-	-	-
SAB-3-30	3 x 30	2.2	3.0	0.5	0.021	180	3	1	36.6	32.1	-	-	-	44.8	41.7	-	-	-
SAB-4-15	4 x 15	3.0	4.0	0.5	0.021	180	3	1	-	17.6	15.6	-	-	-	27.7	27.3	-	-
SAB-4-20	4 x 20	3.0	4.0	0.5	0.021	180	3	1	-	22.5	20.6	-	-	-	33.1	32.1	-	-
SAB-4-30	4 x 30	3.0	4.0	0.5	0.021	180	3	1	-	33.1	31.1	-	-	-	43.5	42.3	-	-
SAB-4-40	4 x 40	3.0	4.0	0.5	0.021	180	3	1	-	44.3	40.2	-	-	-	54.2	51.6	-	-
SAB-5-20	5 x 20	4.0	5.0	0.7	0.027	180	4	1	-	-	23.2	20.1	-	-	-	33.6	32.6	-
SAB-5-30	5 x 30	4.0	5.0	0.7	0.027	180	4	1	-	-	32.4	29.1	-	-	-	42.9	41.8	-
SAB-5-40	5 x 40	4.0	5.0	0.7	0.027	180	4	1	-	-	42.1	38.3	-	-	-	52.4	50.9	-
SAB-6-20	6 x 20	5.0	6.0	0.7	0.027	180	4	1	-	-	-	19.6	17.9	-	-	-	32.7	32.3
SAB-6-30	6 x 30	5.0	6.0	0.7	0.027	180	4	1	-	-	-	30.9	28.3	-	-	-	43.9	42.8

[1] Select a Solitaire™ AB based on the sizing recommendations in Table 1 and based on the larger vessel diameter (proximal to distal reference vessel diameter).

[2] Select a Solitaire™ AB usable length that is at least 8 mm longer than the aneurysm neck to maintain a minimum of 4 mm on each side of the aneurysm neck along the parent vessel.

Longitud del stentriever



Perfil del microcatéter

FUNCTIONAL CHARACTERISTICS

Flow Rates @ 100 PSI (690 kPa) and 300 PSI (2,070 kPa) – ml/sec

	Saline		76% Contrast/ Saline (50/50)		60% Ionic Contrast		76% Ionic Contrast	
Pressure	**100**	**300**	**100**	**300**	**100**	**300**	**100**	**300**
Rebar™-10								
105-5078-153	0.26	0.68	0.10	0.38	0.04	0.16	0.03	0.09
105-5078-170	0.26	0.59	0.10	0.38	0.04	0.15	0.02	0.08
Rebar™-14								
105-5080-143	0.4	0.8	0.19	0.6	0.07	0.30	0.03	0.11
105-5080-153	0.3	0.6	0.12	0.4	0.06	0.18	0.03	0.09
105-5080-170	0.2	0.6	0.08	0.3	0.05	0.15	0.01	0.07
Rebar™-18								
105-5083-153	0.9	1.5	0.4	1.0	0.2	0.6	0.1	0.3
105-5081-153	0.9	1.5	0.4	1.0	0.2	0.6	0.1	0.3
105-5081-130	0.9	1.7	0.5	1.1	0.2	0.7	0.1	0.4
105-5081-110	1.0	1.8	0.6	1.3	0.3	0.7	0.1	0.4
Rebar™-27								
105-5082-145	1.4	2.5	0.6	1.8	0.3	1.3	0.2	0.7
105-5082-130	1.8	3.0	1.1	2.6	0.7	1.7	0.3	0.9
105-5082-110	2.0	3.4	1.3	2.7	0.9	1.9	0.3	0.9

All Rebar™ micro catheters have a maximum allowable dynamic pressure of 700 PSI (4,830 kPa) and static pressure of 300 PSI (2,070 kPa).

PHENOM™ 017 & 021 CATHETER: SELECT TIP SHAPE

	D: Catheter ID	E: Proximal OD	F: Distal OD	Tip Shape	Part Number
Phenom™ 017 Catheter	0.017" (0.43mm)	0.029" (2.2F)	0.024" (1.8F)	Straight	FG11150-0615-2S
				J Curve	FG11150-0615-2J
				45 Curve	FG11150-0615-2X
				90 Curve	FG11150-0615-2R
Phenom™ 021 Catheter	0.021" (0.53 mm)	0.034" (2.6F)	0.030" (2.3F)	Straight	FG13150-0615-2S
				45 Degree	FG13150-0615-2X
				90 Degree	FG13150-0615-2R
				J Shaped	FG13150-0615-2J

PHENOM™ 027 CATHETER: SELECT FLEXIBLE SINGLE COIL LENGTH

	D: Catheter ID	E: Proximal OD	F: Distal OD	C: Flexible Single Coil Length	Part Number
Phenom™ 027 Catheter	0.027" (0.69mm)	0.040" (3.1F)	0.036" (2.8F)	15cm	FG15150-0615-1S
				30cm	FG15150-0630-1S

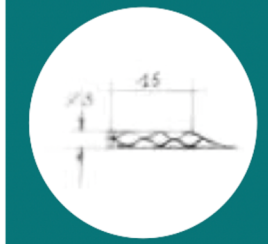
PHENOM™ PLUS CATHETER: SELECT WORKING LENGTH

	D: Catheter ID	E: Proximal OD	F: Distal OD	A: Working Length	Part Number
Phenom™ Plus Catheter	0.0445" (1.13mm)	0.061" (4.7F)	0.055" (4.2F)	105cm	FG19105-0630-1S
				120cm	FG19120-1030-1S

Trevo Trak 21
Microcatheter
Further, faster, for every case

Perfil del microcatéter: Ramas distales

Headway DUO and Headway 17, 21, 27								
Product Name	**Product Code**	**Tip Description**	**Tip Markers**	**Tip ID**	**Body ID**	**Distal OD**	**Proximal OD**	**Usable Length**
Headway DUO 167	MC162167S	Straight	1	0.013 in	0.0165 in	1.3 F	2.1 F	167 cm
Headway DUO 156	MC162156S	Straight	2	0.0165 in	0.0165 in	1.6 F	2.1 F	156 cm

Catch+ mini						
	CATCH MINI 3x15	3	15	For vessels up to 3 mm	4	15

Perfil del microcatéter: Ramas distales

Initial Experience Performing Mechanical Thrombectomy With the CatchView Mini Device for Distal M2 Segment Middle Cerebral Artery Occlusions

Pedro Vega[1,2], Eduardo Murias[1,2,3*], Jose María Jimenez[1], Juan Chaviano[1], Lorena Benavente[4], Montserrat Gonzalez-Delgado[4], Faustino García-Arias[1] and José Manuel Pumar[2]

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[2]Cátedra Institucional de Neurorradiología Intervencionista, Universidade de Santiago de Compostela, Santiago de Compostela, Spain
[3]University of Oviedo, Oviedo, Spain
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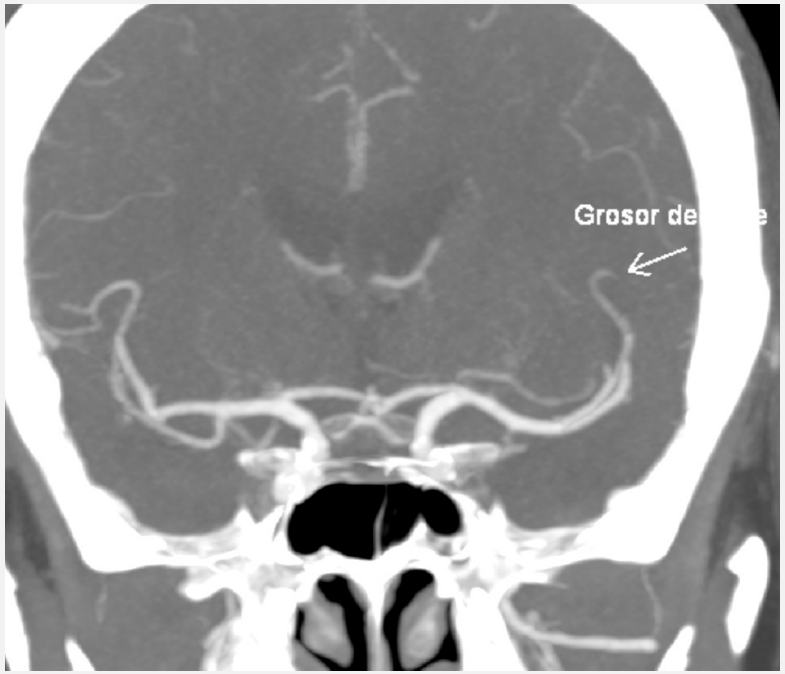
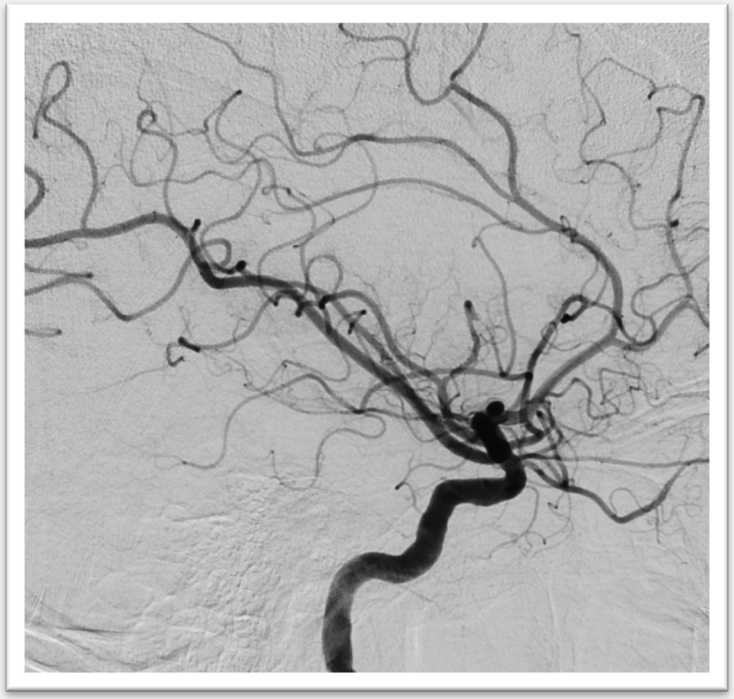
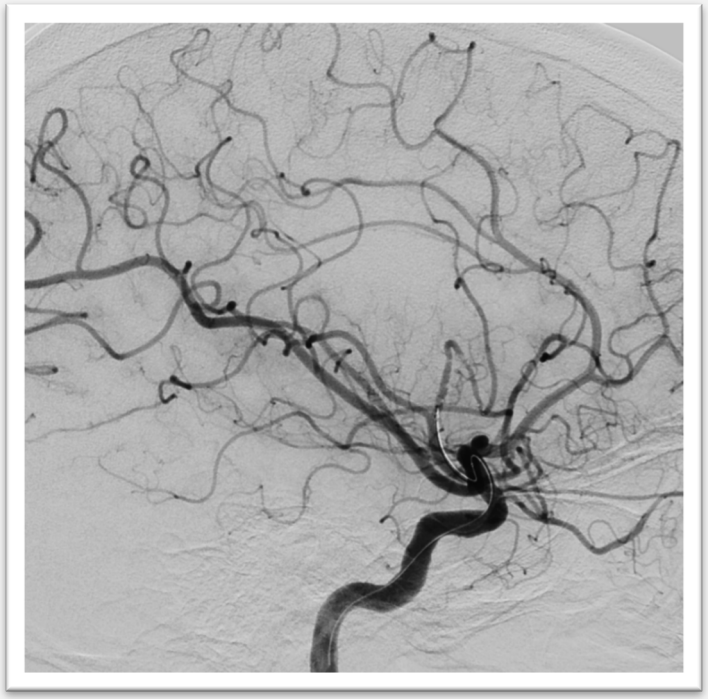




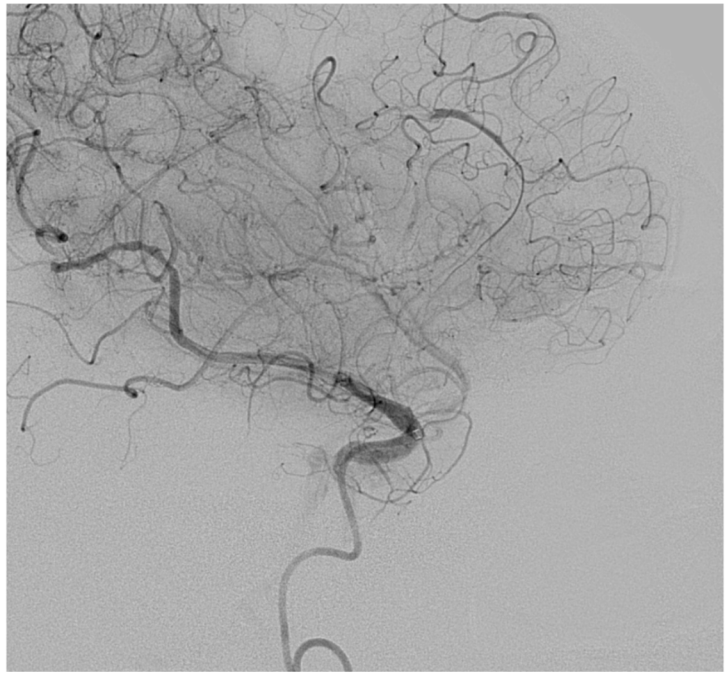


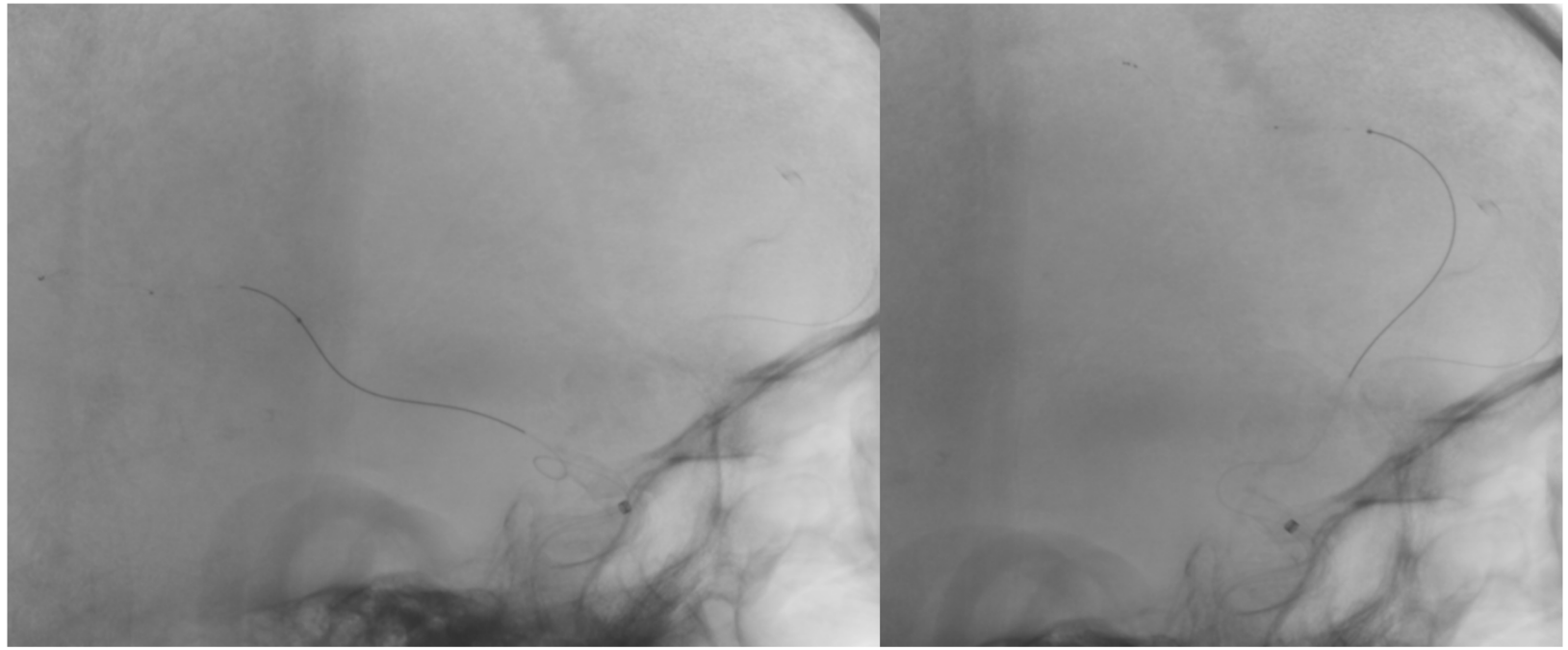
Initial Experience Performing Mechanical Thrombectomy With the CatchView Mini Device for Distal M2 Segment Middle Cerebral Artery Occlusions

Pedro Vega[1,2], Eduardo Murias[1,2,3*], Jose María Jimenez[1], Juan Chaviano[1], Lorena Benavente[4], Montserrat Gonzalez-Delgado[4], Faustino García-Arias[1] and José Manuel Pumar[2]

[1]Department of Radiology, Central University Hospital of Asturias, Oviedo, Spain
[2]Cátedra Institucional de Neurorradiología Intervencionista, Universidade de Santiago de Compostela, Santiago de Compostela, Spain
[3]University of Oviedo, Oviedo, Spain
[4]Department of Neurology, Central University Hospital of Asturias, Oviedo, Spain

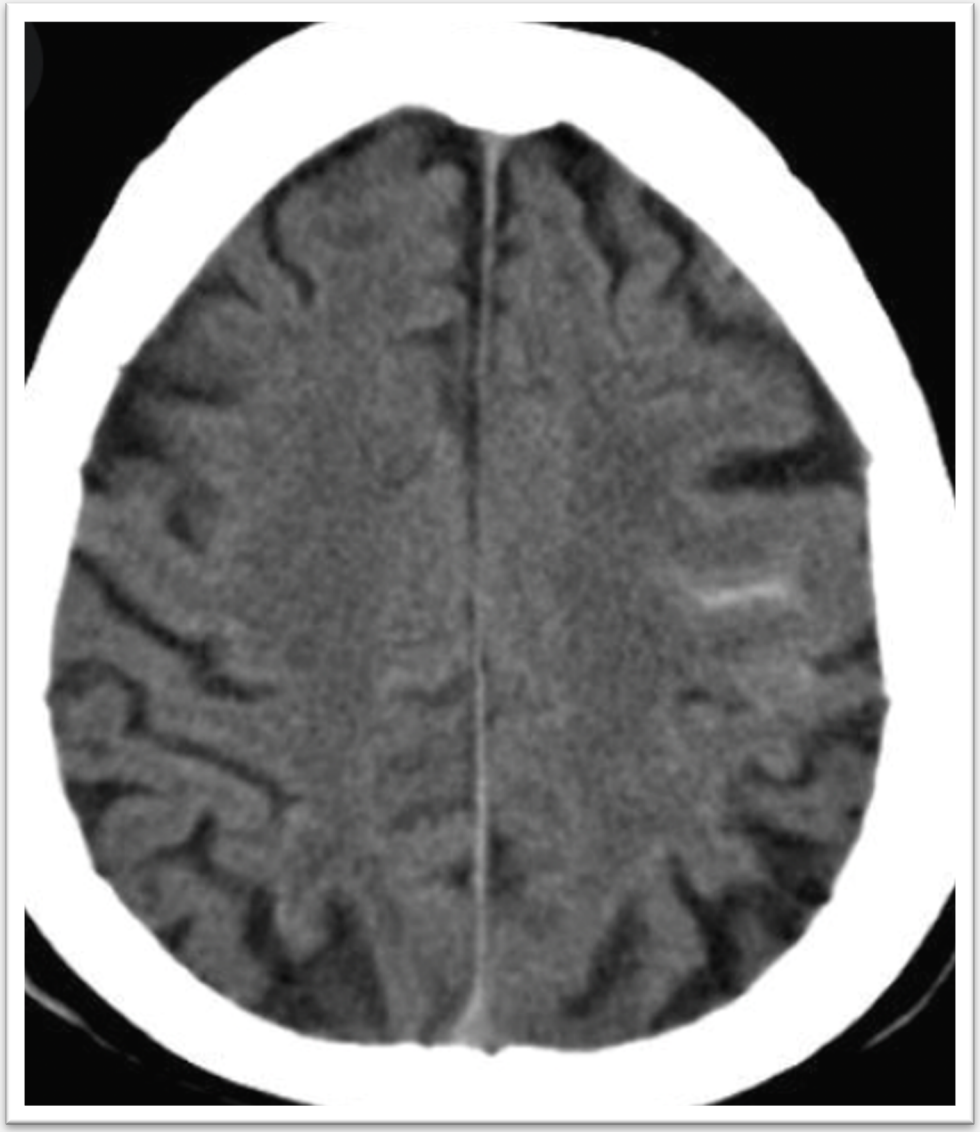
Perfil del microcatéter: Ramas distales
Microcateteres largos
HeadWay Duo 167cm





Solitaire™ X Revascularization Device 3MM

	Solitaire™ X Revascularization Device[1]	Trevo™ NXT ProVue™ Retriever[6]
CFN	SFR4-3-20-10	90312
Stent Diameter	3 mm	3 mm
Usable Length	20 mm	32 mm
Total Stent Length	31 mm	36 mm
Push Wire Length	200 cm	200 cm
Wire Diameter	0.0155"	0.015"
Visualization	Platinum Markers	Full Stent
Microcatheter ID	0.017" – 0.027"	0.017" – 0.027"
Microcatheter Compatibility (ID inches)	Trevo™ Pro 14 (0.017) Headway™ 17 (0.017)[7] VIA™ 17 (0.0175)[8] Phenom™ 21 (0.021) Rebar™ 18 (0.021) Phenom™ 27 (0.027) Marksman™ (0.027)	Trevo™ Pro 14 (0.017) Trevo™ Trak 21 (0.021) Trevo™ Pro 18 (0.021) XT™ 27 (0.027)
Min Catheter ID	0.061" (React™ 68 / 71)	0.058" (CAT™ 5 / 6 / 7, Vecta™ 71 / 74)
Min Vessel Diameter	1.5 mm	2.5 mm
Stent Design	Overlapping Parametric 	Cut Tubular 



Perfil del microcatéter: Ramas distales

HSA

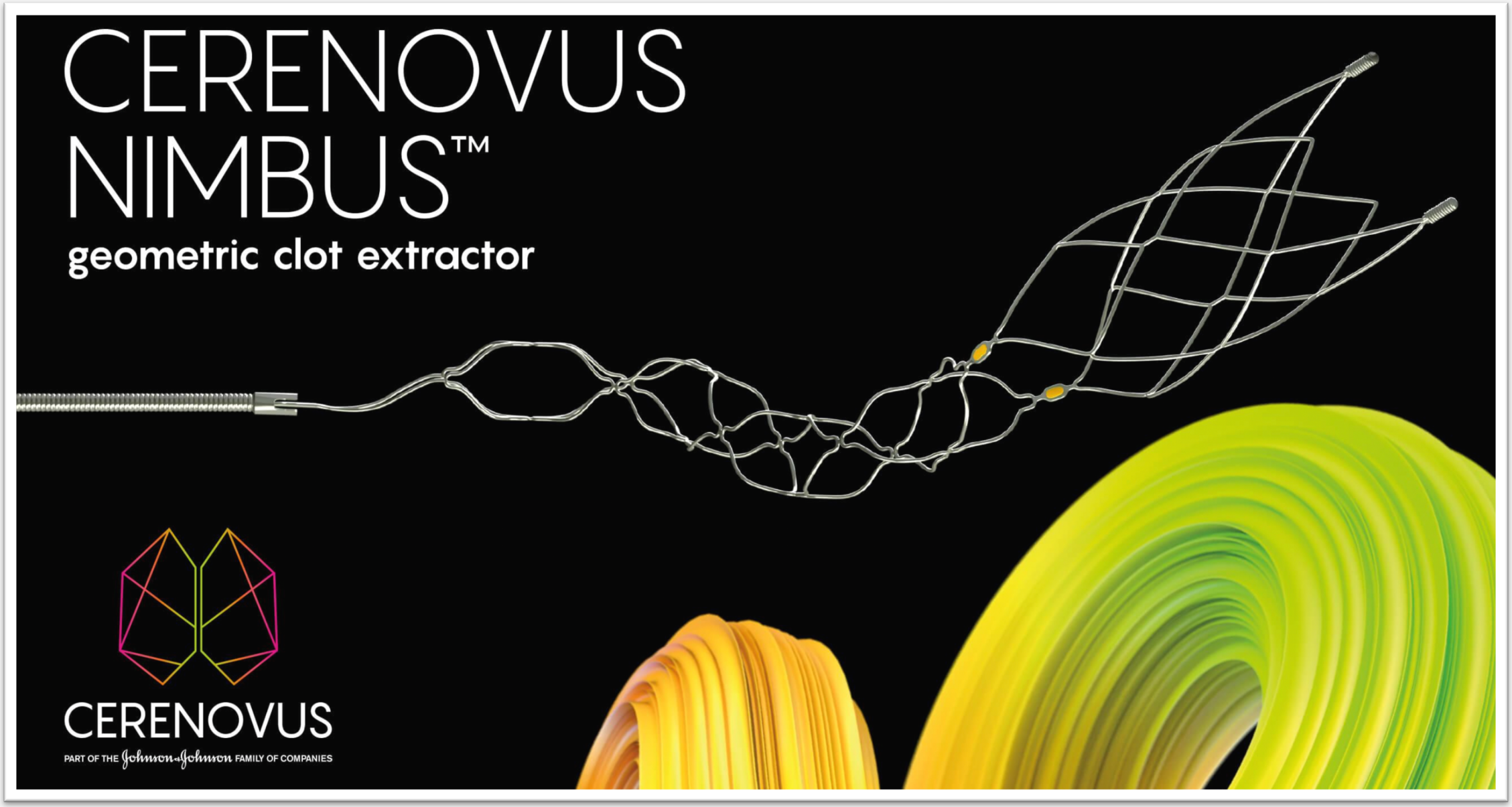
25%

Morfología del Stent: trombos “duros o de fibrina”

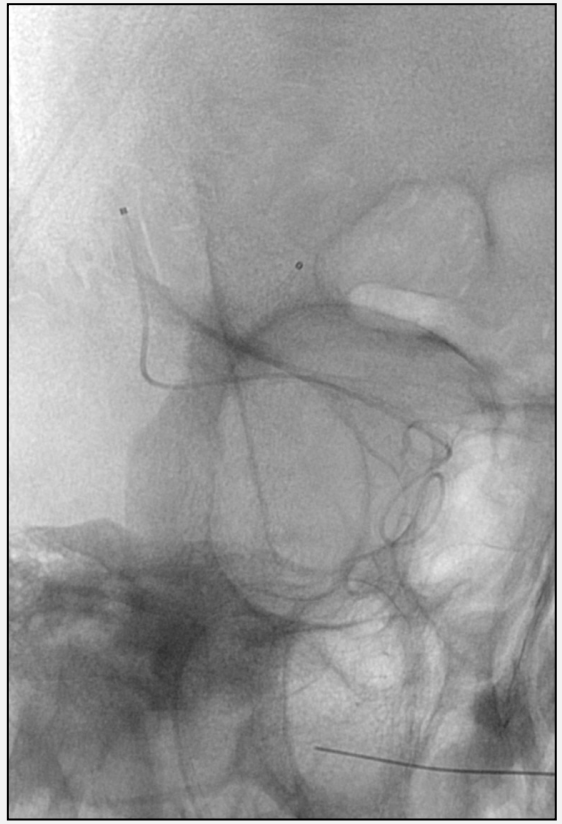
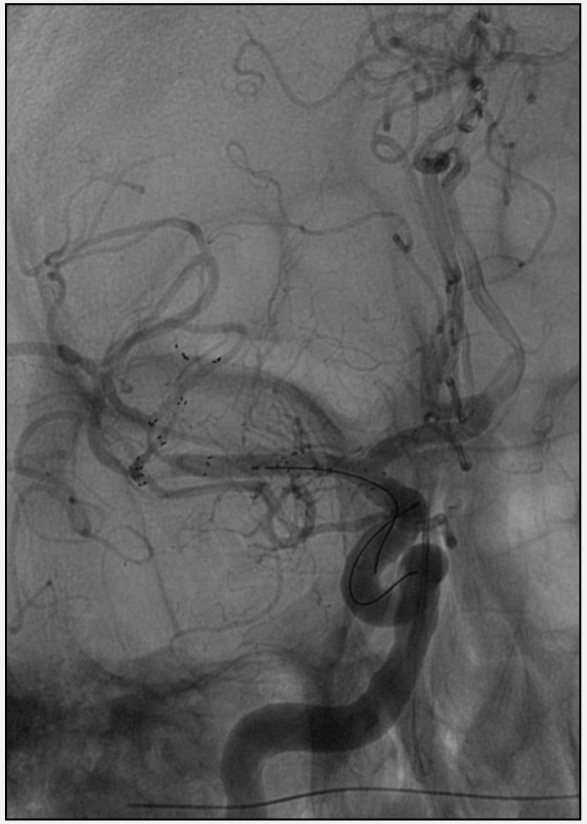
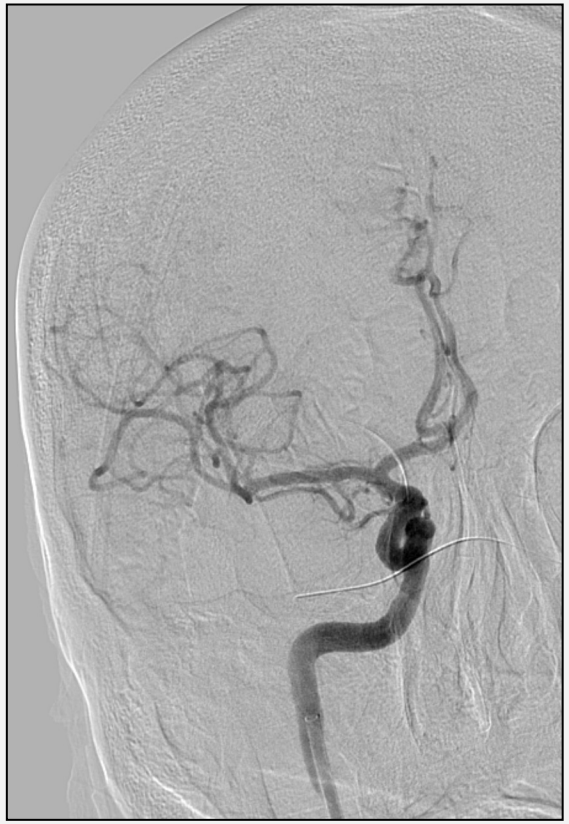
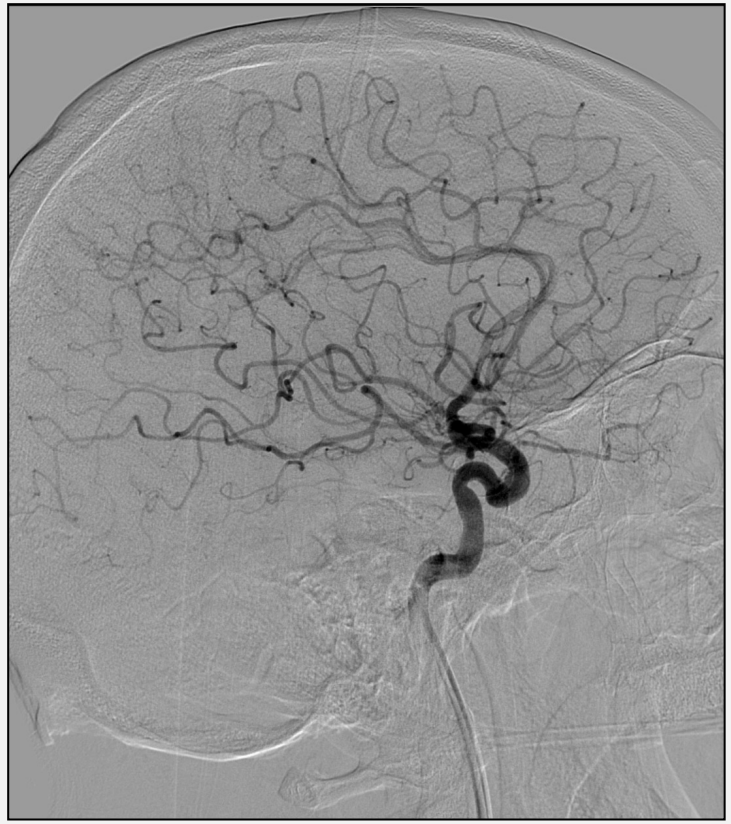
ORIGINAL RESEARCH

What to do about fibrin rich ‘tough clots’? Comparing the Solitaire stent retriever with a novel geometric clot extractor in an in vitro stroke model

Vernard S Fennell,[1] Swetadri Vasan Setlur Nagesh,[2] Karen M Meess,[3,4,5] Liza Gutierrez,[6] Rhys H James,[3] Michael E Springer,[3] Adnan H Siddiqui[3,7]


CERENOVUS
NIMBUS™
geometric clot extractor
CERENOVUS
PART OF THE Johnson & Johnson FAMILY OF COMPANIES

Doble Stent-Retriever

CONCLUSIONES

Stent retrievers: Más "first-pass efect". Más grandes, más largos, que naveguen por microcatéteres de menor perfil y con distinta morfología para los trombos duros o ricos en fibrina.

CATÉTERES DE ASPIRACIÓN

ORIGINAL RESEARCH

Vessel diameter and catheter-to-vessel ratio affect the success rate of clot aspiration

Anna Andriana Kyselyova, Jens Fiehler, Hannes Leischner, Fabian Flottmann, Jan Hendrik Buhk, Andreas Maximilian Frölich

Vessel diameter at proximal clot end (mm)	2.5±0.7	3.1±1.3	0.01
CVR-ID	0.72±0.2	0.58±0,2	<0.001
CVR-OD	0.85±0.2	0.68±0.2	0.01

Luz interna

SOFIA™ PLUS

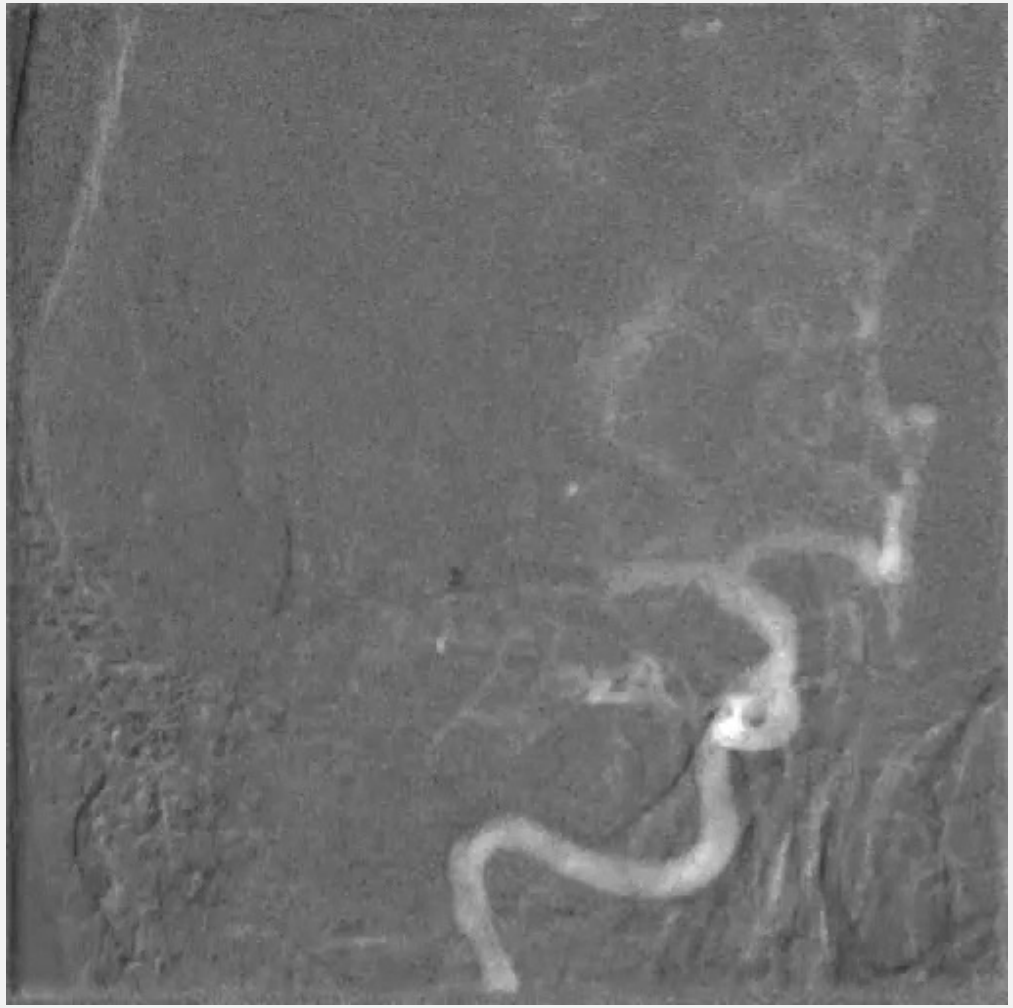
Soft Torqueable Catheter Optimized For Intracranial Access

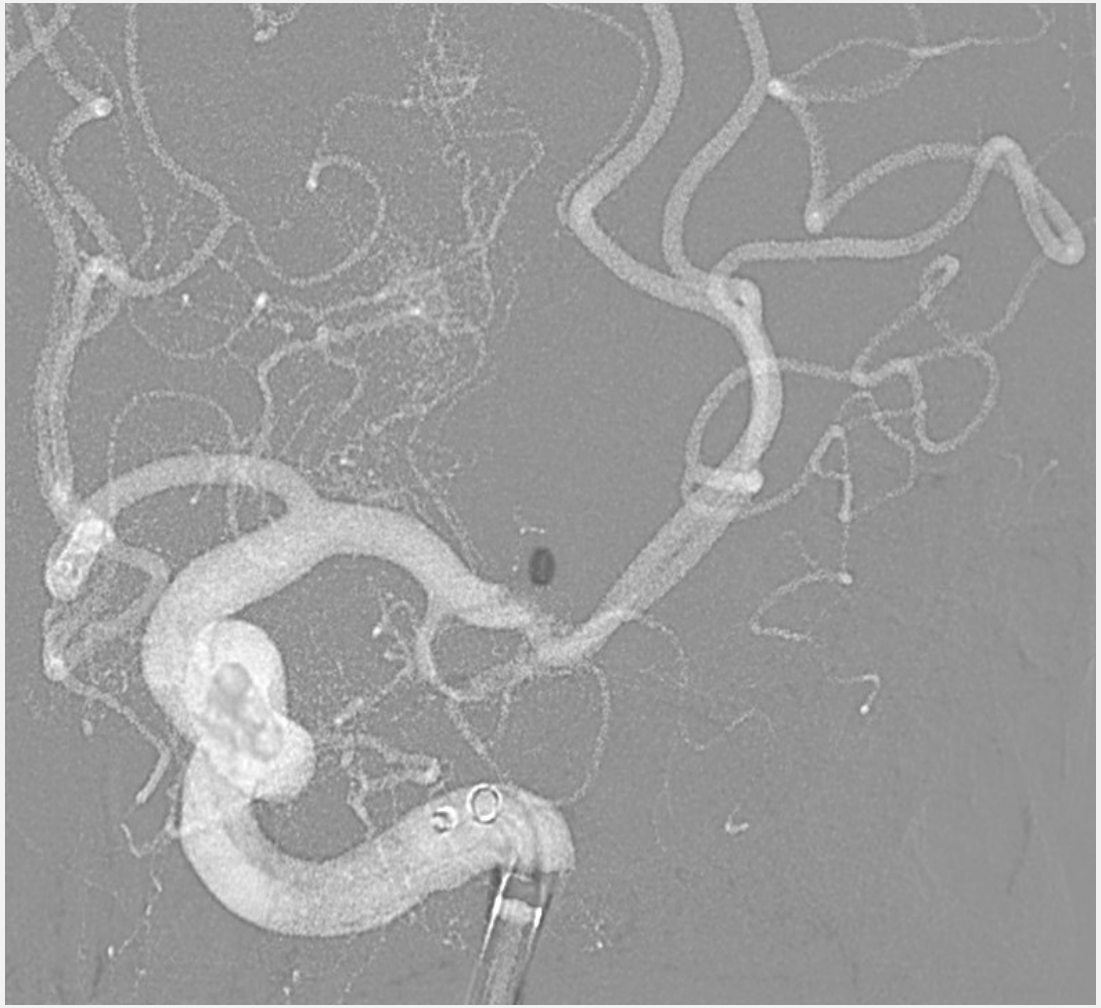
1 per box / Includes shaping mandrel and introducer sheath

Product Code	Catheter Size (French)	Proximal OD (inch/mm)	Distal OD (inch/mm)	ID (inch)	Working Length (cm)	Distal Length (cm)	Proximal Length (cm)	Distal Tip Shape
DA6125ST	6F	0.0825/2.1	0.0815/2.1	0.070	125	19	106	Straight
DA6131ST	6F	0.0825/2.1	0.0815/2.1	0.070	131	19	112	Straight

Catheter	Inner Diameter mm (in)	Outer Diameter F (mm) [in]	Effective length (cm)	Overall length (cm)
AXS Catalyst 5	1.47 (0.058)	Prox: 5.6F (1.86) [0.073] Dist: 5.3F (1.76) [0.069]	115, 132	120, 137
AXS Catalyst 6	1.52 (0.060)	Prox: 6.0F (2.01) [0.079] Dist: 5.4F (1.81) [0.071]	132	137

Navegabilidad





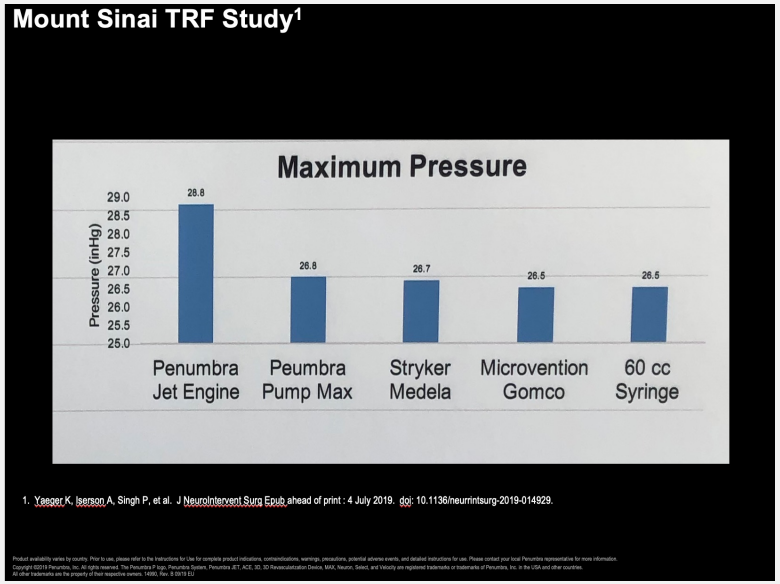
Potencia de vacío y capacidad de aspiración

MERCÉ V. ELECTROMEDICINA

Penumbra JET 7 + Penumbra ENGINE = Highest TRF

Catheter	Distal ID (in)	Pump	Vacuum* (inHg)	TRF (gm)	% of JET TRF
Penumbra JET 7	.072	Penumbra ENGINE	29.2	26.5	100
ACE68	.068	Penumbra ENGINE	29.2	23.6	89
AXS Vecta™ 74	.074	Stryker (Cliq)	24.4	23.4	88
React™ 68	.068	Riptide™	28.5	23.0	87
AXS Vecta™ 71	.071	Stryker (Cliq)	24.4	21.5	81
SOFIA® Plus	.070	MicroVention®	25.0	21.4	81
ACE60	.060	ENGINE	29.2	18.4	69
AXS Catalyst® 60	.060	Stryker (Medela)	26.6	16.7	63

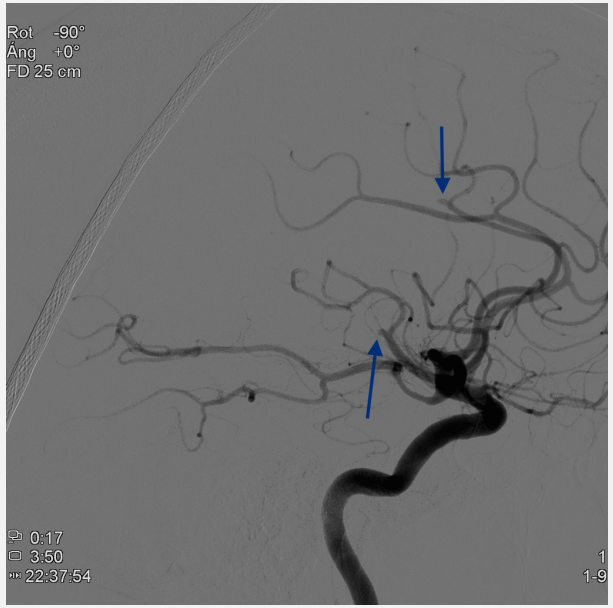
Penumbra

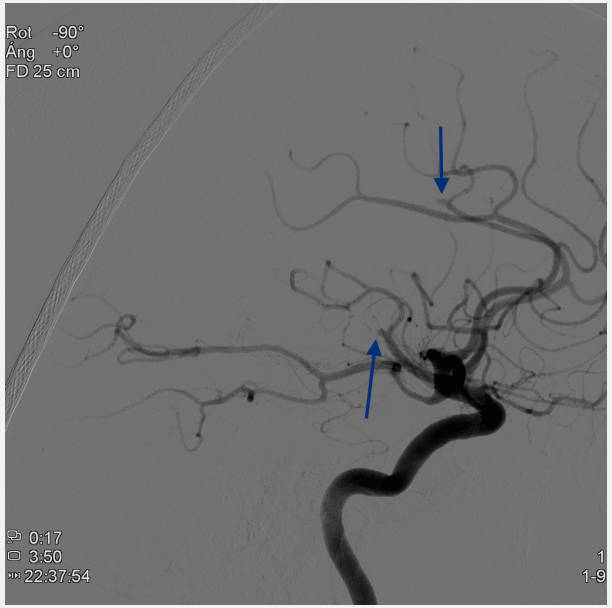


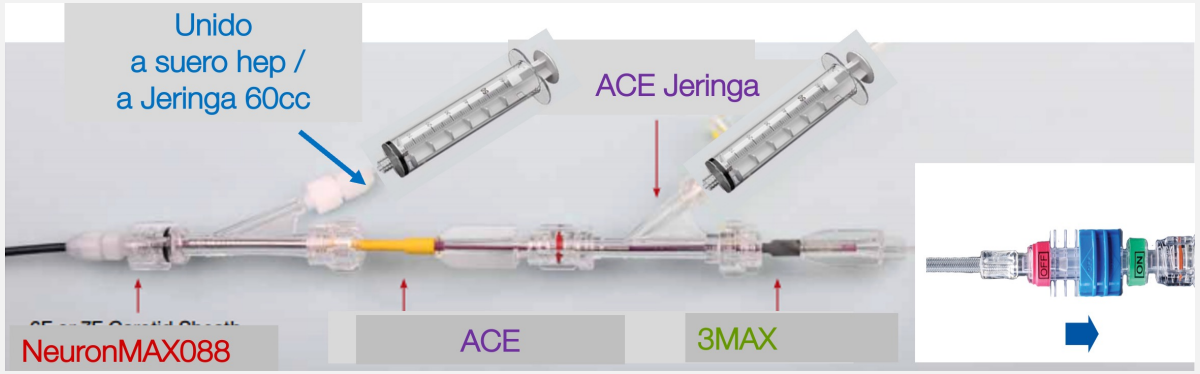
Longitud y navegación distal

Penumbra System®

Catalog Number	Description	Proximal OD (F) (in.)	Distal OD (mm)	Proximal ID (in.)	Distal ID (in.)	Working Length (cm)
Aspiration Kits						
5MAXJET7KIT	Penumbra JET™ 7 Reperfusion Catheter + Penumbra Hi-Flow Tubing	6.0 (.085)	2.16	.072	.072	132
5MAXJETDKIT	Penumbra JET D Reperfusion Catheter + Penumbra Hi-Flow Tubing	6.0 (.080)	1.65	.064	.054	138
5MAXACE068KIT	ACE™68 Reperfusion Catheter + Penumbra Hi-Flow Tubing	6.0 (.080)	2.03	.068	.068	132
5MAXACE132KIT	ACE60 Reperfusion Catheter + Penumbra Hi-Flow Tubing	6.0 (.080)	1.80	.068	.060	132
3MAXCKIT	3MAX™ Reperfusion Catheter + Penumbra Hi-Flow Tubing	4.7 (.062)	1.27	.043	.035	160







Cortesía Dr. Navia – Hospital Universitario de la Paz.

CONCLUSIONES

Stent retrievers: Más "first-pass effect". Más grandes, más largos, que naveguen por microcatéteres de menor perfil y con distinta morfología para los trombos duros o ricos en fibrina.

Catéteres de aspiración: Más "first-pass effect". Tamaño ajustado a la luz de la arteria, mayor navegabilidad, menor capacidad de colapso, acceso a ramas más distales.

CATÉTER BALÓN

ARTICLES | VOLUME 393, ISSUE 10175, P998-1008, MARCH 09, 2019

Aspiration thrombectomy versus stent retriever thrombectomy as first-line approach for large vessel occlusion (COMPASS): a multicentre, randomised, open label, blinded outcome, non-inferiority trial

Prof Aquilla S Turk III, DO • Prof Adnan Siddiqui, MD • Johanna T Fifi, MD • Reade A De Leacy, MD • Prof David J Fiorella, MD • Eugene Gu, MD • et al. Show all authors

Interpretation

A direct aspiration as first pass thrombectomy conferred non-inferior functional outcome at 90 days compared with stent retriever first line thrombectomy. This study supports the use of direct aspiration as an alternative to stent retriever as first-line therapy for stroke thrombectomy.

	Aspiration first pass thrombectomy	Stent retriever first line thrombectomy	Odds ratio (95% CI)	p value
Onset to treating hospital presentation (min)	132 (86)	133 (87)	NA	..
Qualifying image to randomisation (min)	52 (48)	46 (34)	NA	..
Onset to groin puncture (min)	215 (81)	212 (87)	NA	..
Room arrival to groin puncture (min)	17 (12)	16 (8)	NA	..
Hospital arrival to groin puncture (min)	87 (50)	82 (42)	NA	..
Balloon guide	34% (45/134)	45% (61/136)	0·62 (0·38–1·02)	0·06
Distal access catheter	98% (131/134)*	87% (118/136)	6·66 (1·91–23·19)	0·001
Distal aspiration during stent retriever thrombectomy	100% (28/28)†	85% (110/128)‡	NA§	0·04
At least one stent retriever	21% (28/134)	98% (133/136)¶	0·006 (0·002–0·020)	<0·0001
More than one stent retriever	6% (8/134)	13% (17/136)	0·44 (0·18–1·07)	0·09
Room arrival time to TICI 2b reperfusion (min)	40 (35–46)	46 (44–55)	NA	0·05
Time from groin puncture to final revascularisation (min)	25 (21–30)	35 (30–41)	NA	0·03

Data are mean (SD), % (n/N), or median (95% CI). NA=odds ratio not applicable. TICI=thrombolysis in cerebral infarction. *Numerator reflects two patients with spontaneous recanalisation and one patient who had arch anatomy preventing thrombectomy. †Denominator reflects aspiration patients who had at least one stent retriever used. ‡Denominator reflects five patients with spontaneous recanalisation and three patients for whom a stent retriever was not used. §Because 100% of the aspiration first group received distal aspiration during stent retriever thrombectomy, calculating the odds ratio is not possible. ¶Numerator reflects three patients with spontaneous recanalisation; no stent retriever was opened for these patients.

Table 2: **Procedural details**

J Neurointerv Surg. 2021 Sep;13(9):773-778. doi: 10.1136/neurintsurg-2020-017027. Epub 2021 Feb 25.

Balloon guide catheter improvements in thrombectomy outcomes persist despite advances in intracranial aspiration technology

Jordi Blasco [1], Josep Puig [2], Pepus Daunis-I-Estadella [3], Eva González [4], Juan Jose Fondevila Monso [5], Xabier Manso [5], Rafael Oteros [6], Elvira Jimenez-Gomez [6], Isabel Bravo Rey [7], Pedro Vega [8], Eduardo Murias [8], Jose Maria Jimenez [8], Antonio López-Rueda [9], Arturo Renú [10], Sonia Aixut [11], Oscar Chirife Chaparro [12], Santiago Rosati [13], Manuel Moreu [14], Sebastian Remollo [15], Yeray Aguilar Tejedor [16], Mikel Terceño [17] [18], Antonio Mosqueira [19], Raul G Nogueira [20], Luis San Roman [9]

Affiliations + expand

PMID: 33632881 DOI: 10.1136/neurintsurg-2020-017027

Abstract

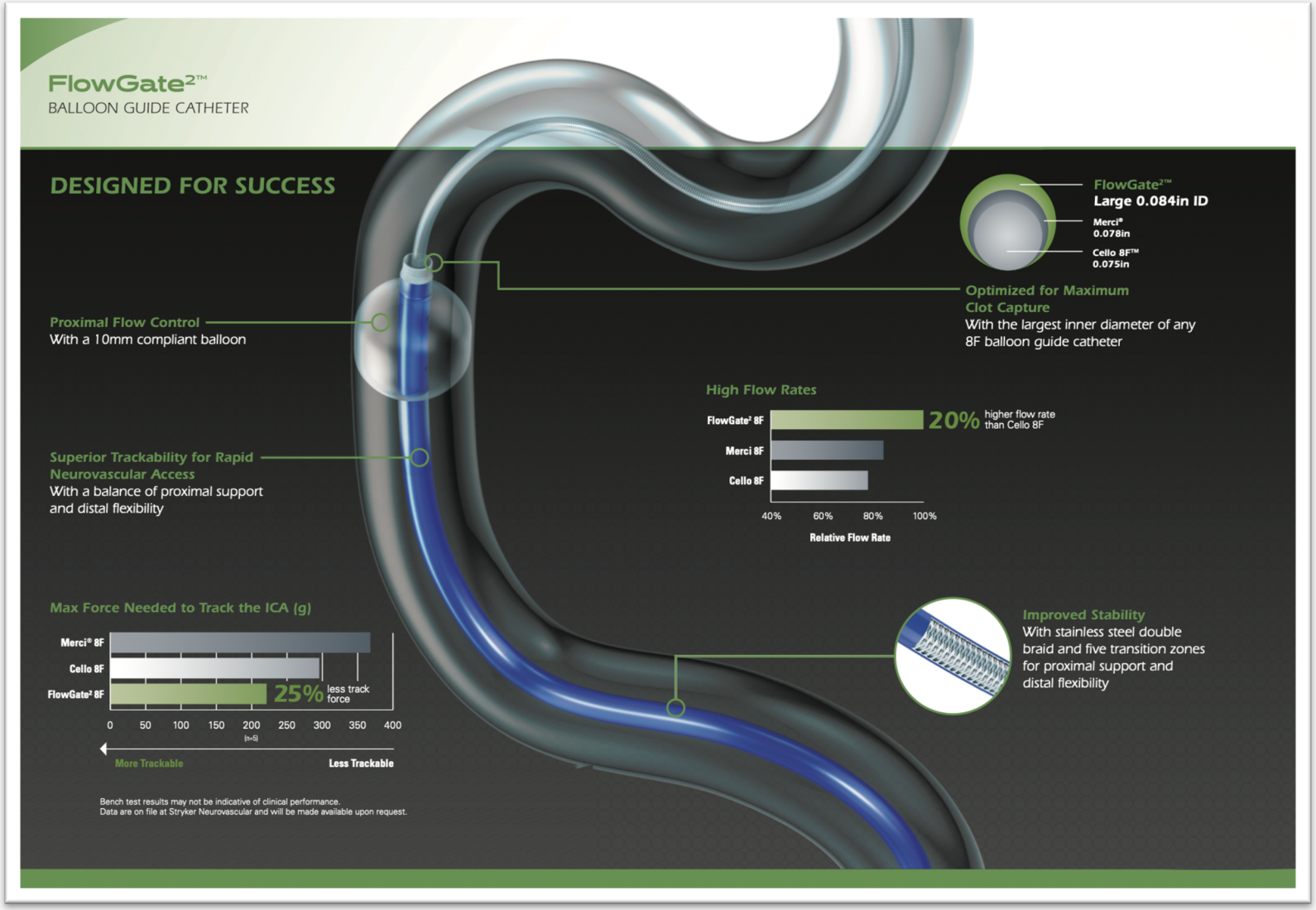
Background: First-pass effect (FPE) has been established as a key metric for technical success and strongly correlates with better clinical outcomes. Most data supporting improved outcomes with the use of a balloon guide catheter (BGC) predate the advent of last-generation large-bore intracranial aspiration catheters. We aim to evaluate the impact of BGC in FPE and clinical outcomes in a large cohort of patients treated with contemporary technology.

Methods: Patients were recruited from the prospectively ongoing ROSSETTI registry. This registry includes all consecutive patients with anterior circulation large-vessel occlusion (LVO) from 10 comprehensive stroke centers in Spain. Demographic, clinical, angiographic, and clinical outcome data were compared between BGC and non-BGC groups. FPE was defined as the achievement of mTICI2c-3 after a single device pass.

Results: 426 patients were included out of which 271 (63.62%) used BCG. BGC-treated patients had higher FPE rate (45.8% vs 27.7%; P<0.001), higher final mTICI ≥2 c recanalization rate (76.8% vs 50.3%, respectively; P<0.001), shorter procedural time [median (IQR), 30 (19-58) vs 43 (33-71) min; P<0.001], higher NIHSS difference from admission to 24 hours [median (IQR), 8 (2-12) vs 3 (0-10); P=0.001], and lower mortality rate (17.6% vs 29.8%, P=0.026) compared with non-BGC patients. BGC use was an independent predictor of FPE (OR 2.197, 95% CI 1.436 to 3.361; P<0.001), and excellent clinical outcome at 3 months (OR 0.34, 95% CI 0.17 to 0.68; P=0.002).

Conclusions: Our results support the benefit of BGC use on angiographic and clinical outcomes in anterior circulation LVO ischemic stroke remain significant even when considering recent improvements in intracranial aspiration technology.

Keywords: stroke; thrombectomy.



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Interventional Neuroradiology

Nuevos dispositivos de trombectomía mecánica

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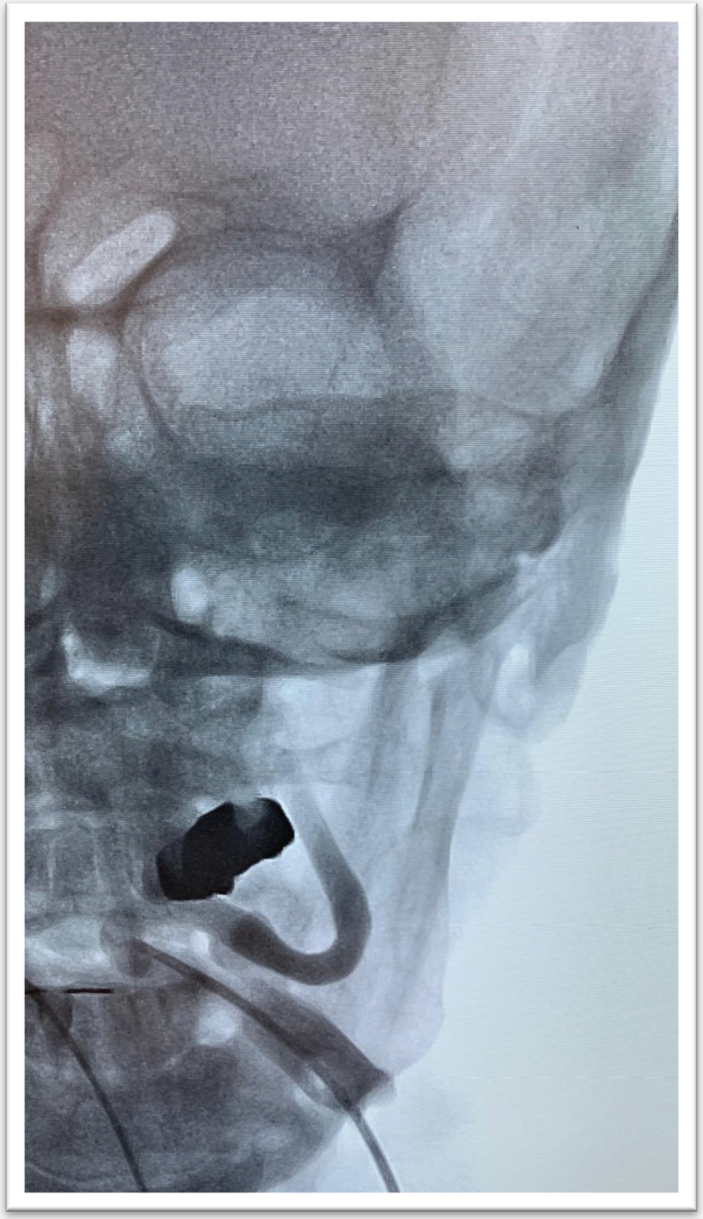
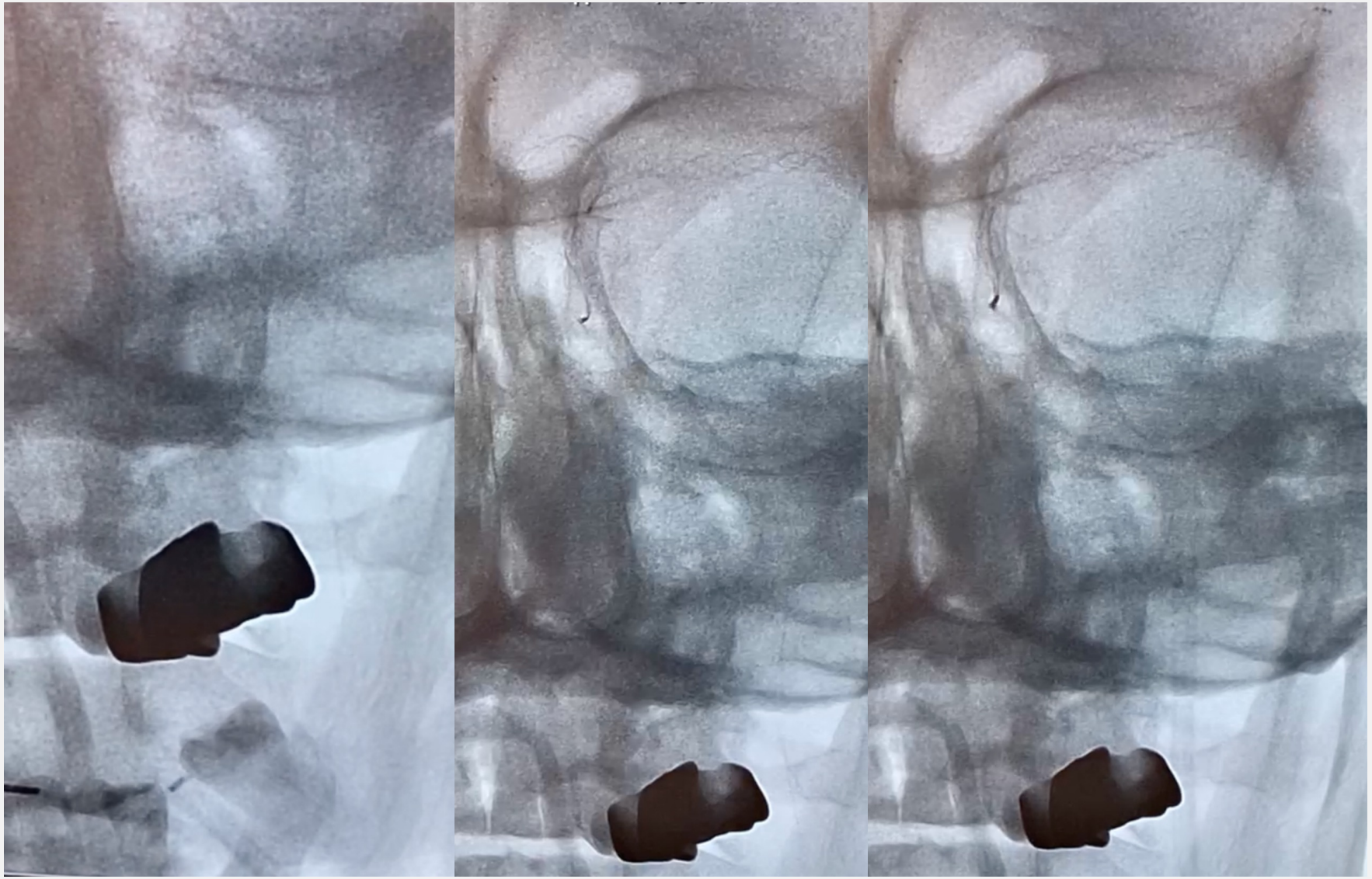
Sociedad Española de Neurorradiología





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Nuevos dispositivos de trombectomía mecánica

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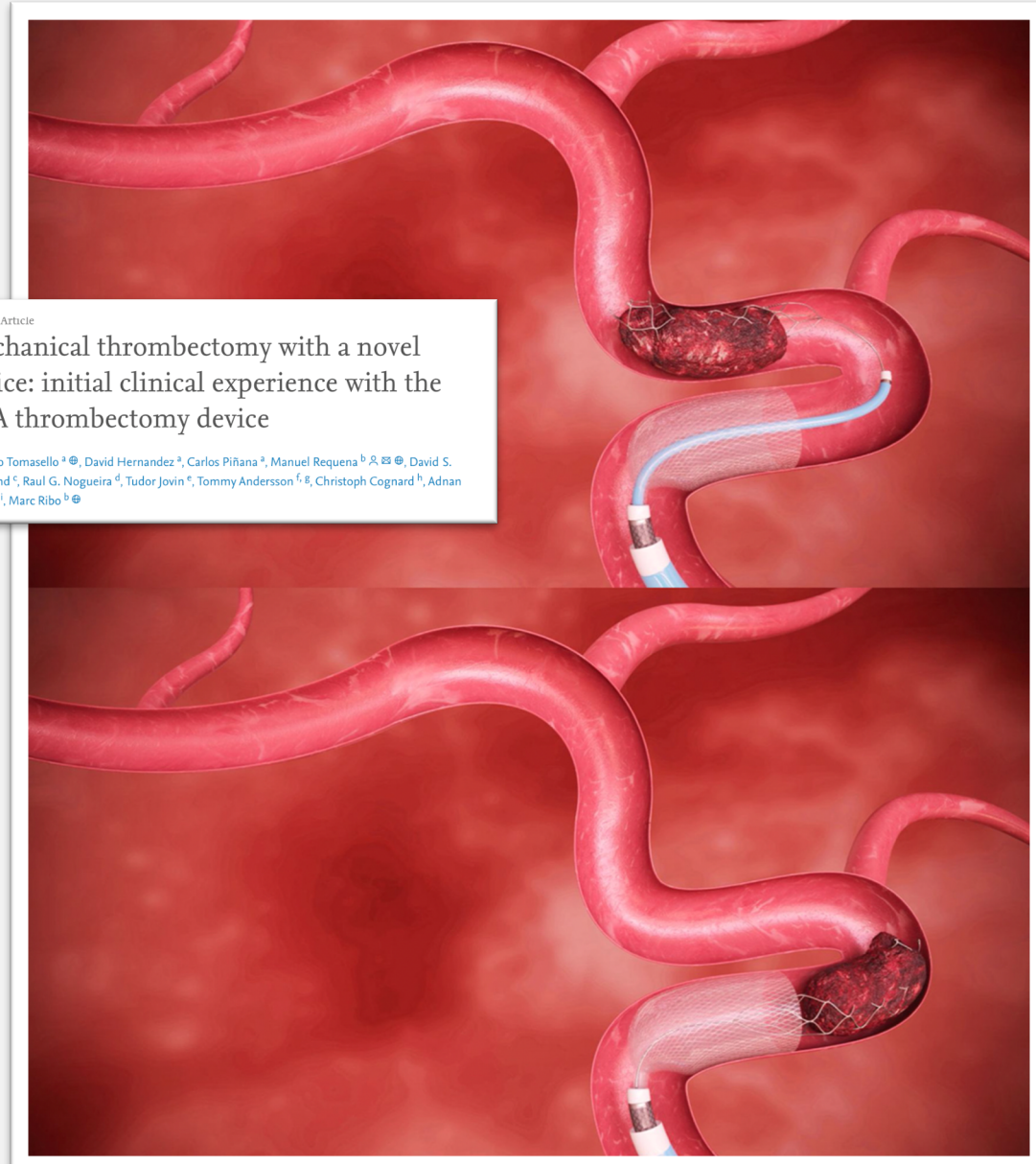
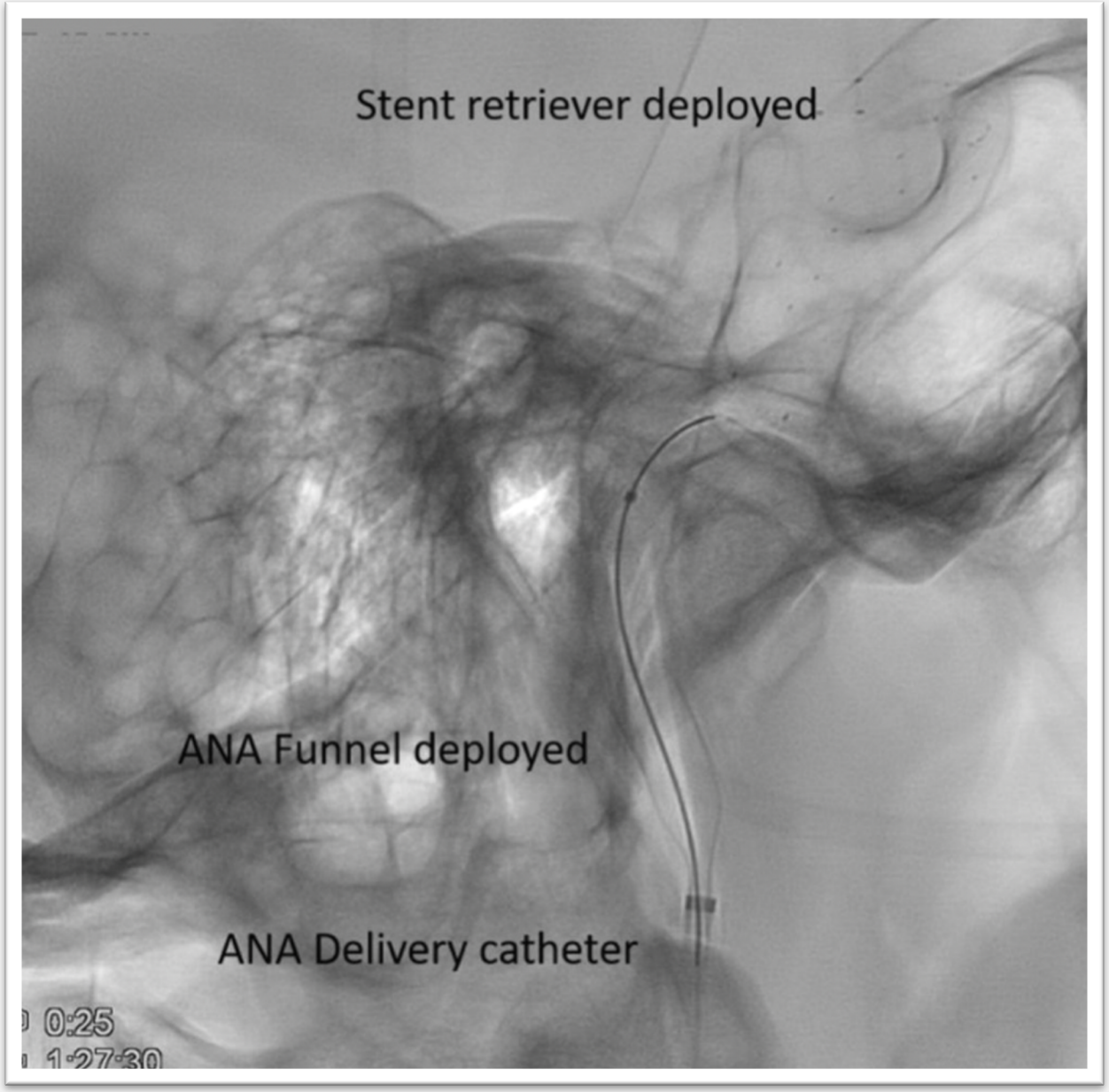


Original Article

Mechanical thrombectomy with a novel device: initial clinical experience with the ANA thrombectomy device

Alejandro Tomasello [a], David Hernandez [a], Carlos Piñana [a], Manuel Requena [b], David S. Liebeskind [c], Raul G. Nogueira [d], Tudor Jovin [e], Tommy Andersson [f, g], Christoph Cognard [h], Adnan Siddiqui [i], Marc Ribo [b]



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Nuevos dispositivos de trombectomía mecánica

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Luz interna

Ischemic stroke
Case series

Addition of intracranial aspiration to balloon guide catheter does not improve outcomes in large vessel occlusion anterior circulation stent retriever based thrombectomy for acute stroke

Jordi Blasco [1], Josep Puig [2], Antonio López-Rueda [3], Pepus Daunis-i-Estadella [4], Laura Llull [5], Federico Zarco [6], Napoleon Macias [6], Juan Macho [1], Eva González [7], Ion Labayen [8], Pedro Vega [9], Eduardo Murias [9], Elvira Jimenez-Gomez [10], Isabel Bravo Rey [11], Manuel Moreu [12], Carlos Pérez-García [13], Oscar Chirife Chaparro [14], Sonia Aixut [15], Mikel Terceño [16, 17], Mariano Werner [18], José Manuel Pumar [19], Yeray Aguilar Tejedor [20], Jose Carlos Mendez [21], Sarai Moliner [22], Raul G Nogueira [23], Luis San Roman [1] on behalf of the ROSSETTI Group

Correspondence to Dr Jordi Blasco, Neurointerventional Department CDI, Hospital Clinic de Barcelona, Barcelona, C/ Villarroel 170. 08036, Spain; 30018jba@gmail.com

Abstract

Background Balloon guide catheter (BGC) in stent retriever based thrombectomy (BGC+SR) for patients with large vessel occlusion strokes (LVOS) improves outcomes. It is conceivable that the addition of a large bore distal access catheter (DAC) to BGC+SR leads to higher efficacy. We aimed to investigate whether the combined BGC+DAC+SR approach improves angiographic and clinical outcomes compared with BGC+SR alone for thrombectomy in anterior circulation LVOS.

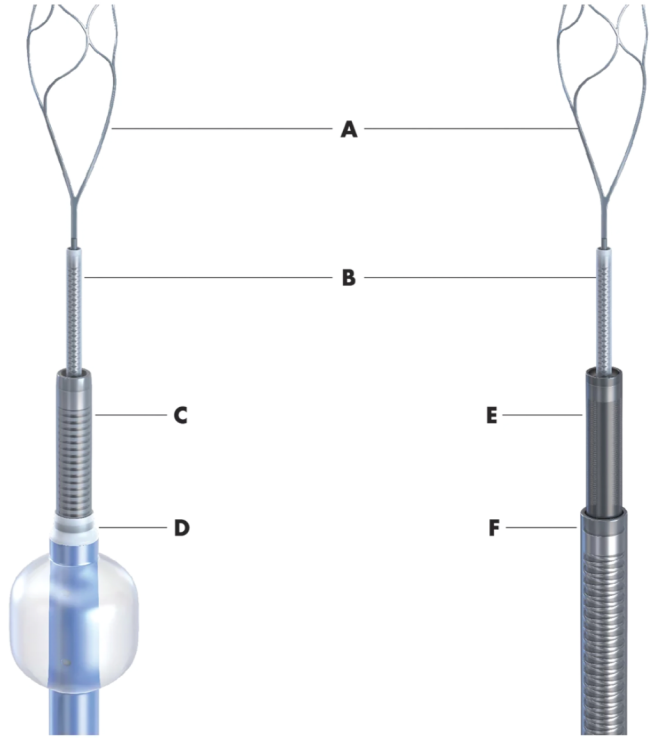
Methods Consecutive patients with anterior circulation LVOS from June 2019 to November 2020 were recruited from the ROSSETTI registry. Demographic, clinical, angiographic, and outcome data were compared between patients treated with BGC+SR alone versus BGC+DAC+SR. The primary outcome was first pass effect (FPE) rate, defined as near complete/complete revascularization (modified Thrombolysis in Cerebral Infarction (mTICI) 2c–3) after single device pass.

Results We included 401 patients (BGC+SR alone, 273 (66.6%) patients). Patients treated with BGC+SR alone were older (median age 79 (IQR 68–85) vs 73.5 (65–82) years; p=0.033) and had shorter procedural times (puncture to revascularization 24 (14–46) vs 37 (24.5–63.5) min, p<0.001) than the BGC+DAC+SR group. Both approaches had a similar FPE rate (52% in BGC+SR alone vs 46.9% in BGC+DAC+SR, p=0.337). Although the BGC+SR alone group showed higher rates for final successful reperfusion (mTICI ≥2b (86.8% vs 74.2%, p=0.002) and excellent reperfusion, mTICI ≥2 c (76.2% vs 55.5%, p<0.001)), there were no significant differences in 24 hour National Institutes of Health Stroke Scale score or rates of good functional outcome (modified Rankin Scale score of 0–2) at 3 months across these techniques.

Conclusions Our data showed that addition of distal intracranial aspiration catheters to BGC+SR based thrombectomy in patients with acute anterior circulation LVO did not provide higher rates of FPE or improved clinical outcomes.

http://dx.doi.org/10.1136/neurintsurg-2021-017760

Combination techniques



A) Trevo NXT
ProVue Retriever

B) Trevo Trak 21
Microcatheter

C) CAT 7
Distal Access Catheter

D) FlowGate²
Balloon Guide Catheter

E) AXS Vecta 74
Intermediate Catheter

F) AXS Infinity LS Plus
Long Sheath

stryker®

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Interventional Neuroradiology

Nuevos dispositivos de trombectomía mecánica

S.E.N.R Sociedad Española de Neurorradiología

CONCLUSIONES

Stent retrievers: Más "first-pass efect". Más grandes, más largos, que naveguen por microcatéteres de menor perfil y con distinta morfología para los trombos duros o ricos en fibrina.

Catéteres de aspiración: Más "first-pass efect". Tamaño ajustado a la luz de la arteria, mayor navegabilidad, menor capacidad de colapso, acceso a ramas más distales.

Balón guía catéter: Mejor navegabilidad. Mayor luz interna a costa de no aumentar la luz externa. Mayor compatibilidad con los sistemas de aspiración.

STENTS

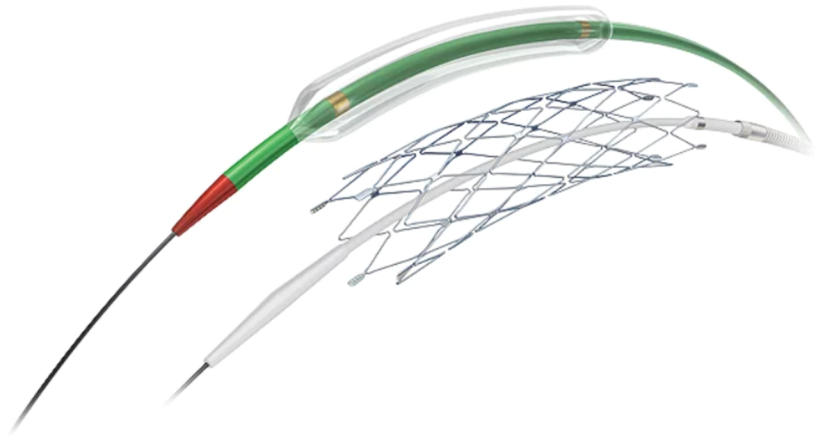
Stent intracraneal

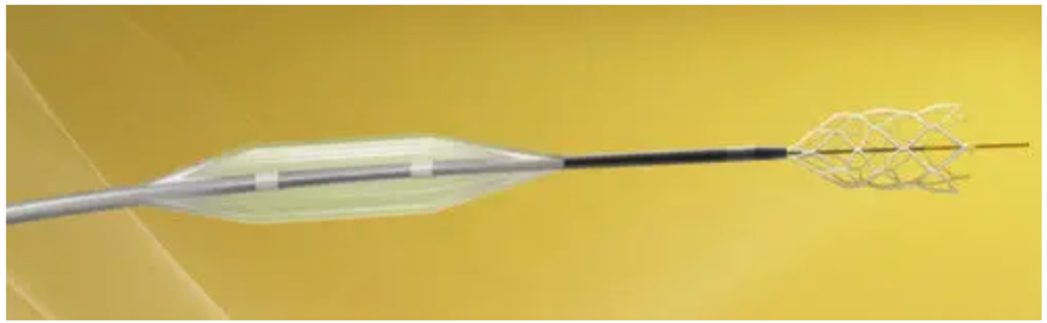
Wingspan Stent System

and Gateway PTA Balloon Catheter

Designed for intracranial atherosclerotic disease.

The Wingspan Stent System with the Gateway PTA Balloon Catheter is designed to facilitate access through challenging neurovascular anatomy.



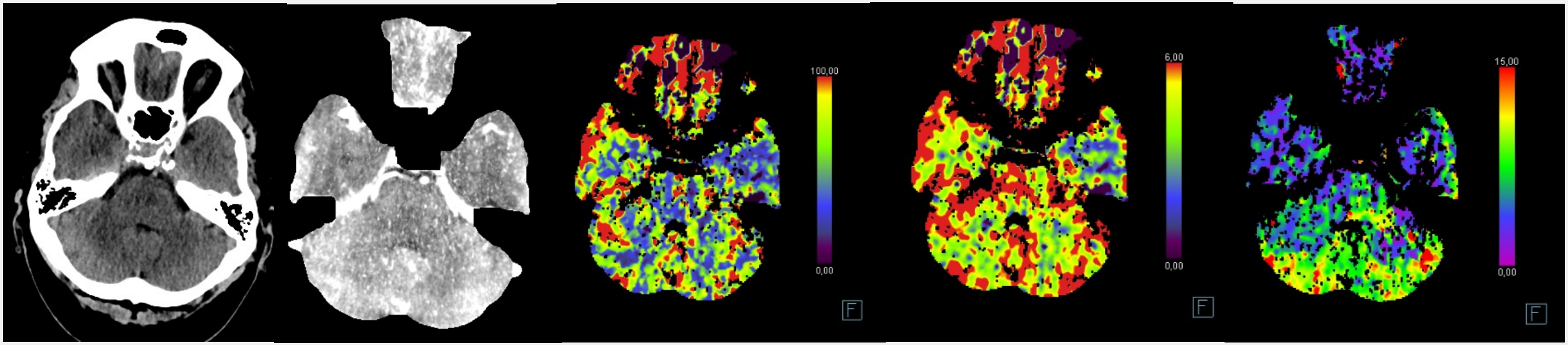


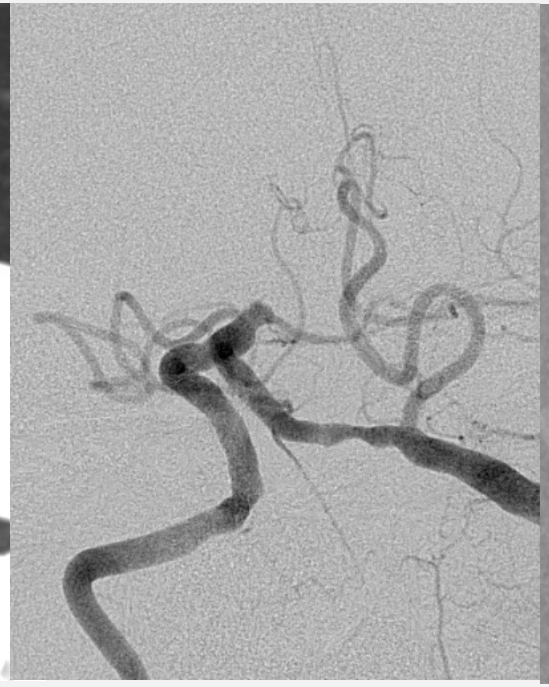
Stent intracraneal CREDO®

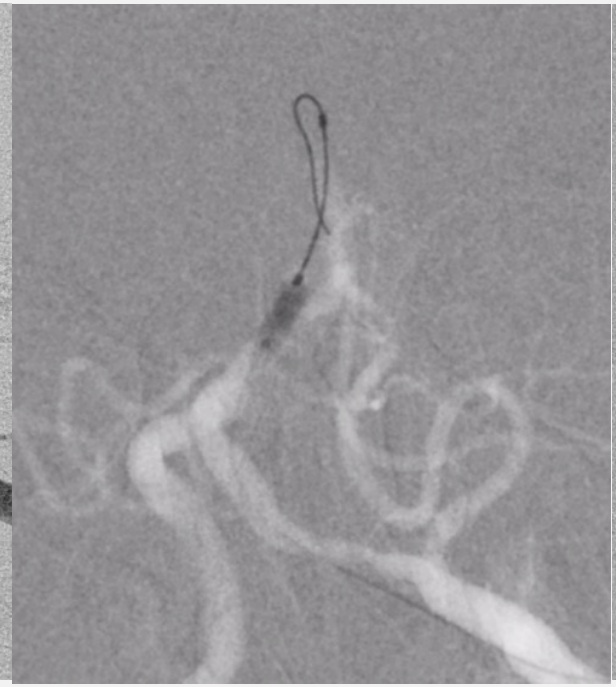
de nitinol · autoexpandible

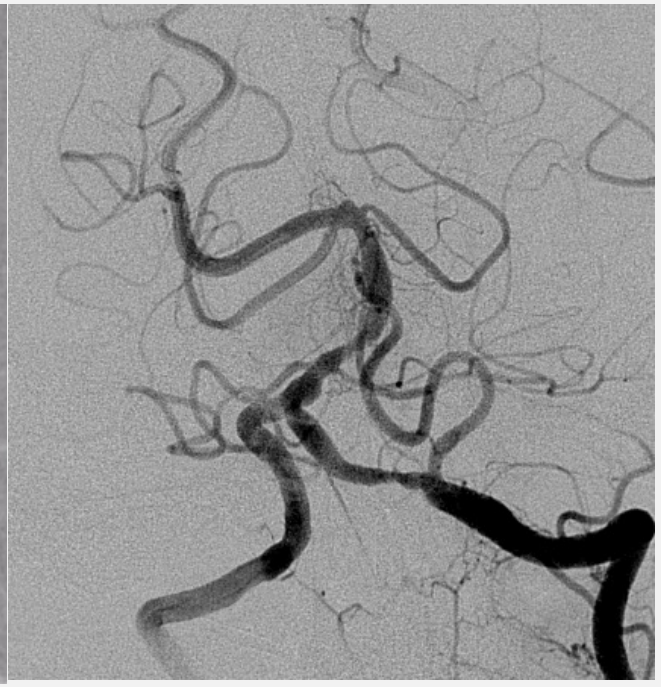
Vendedor:

Acandis · Alemania









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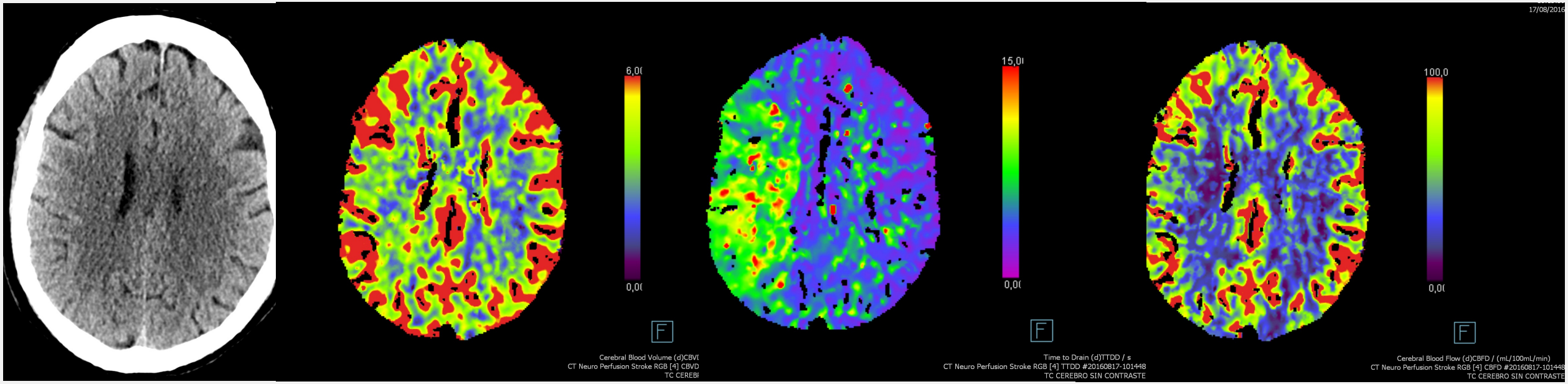
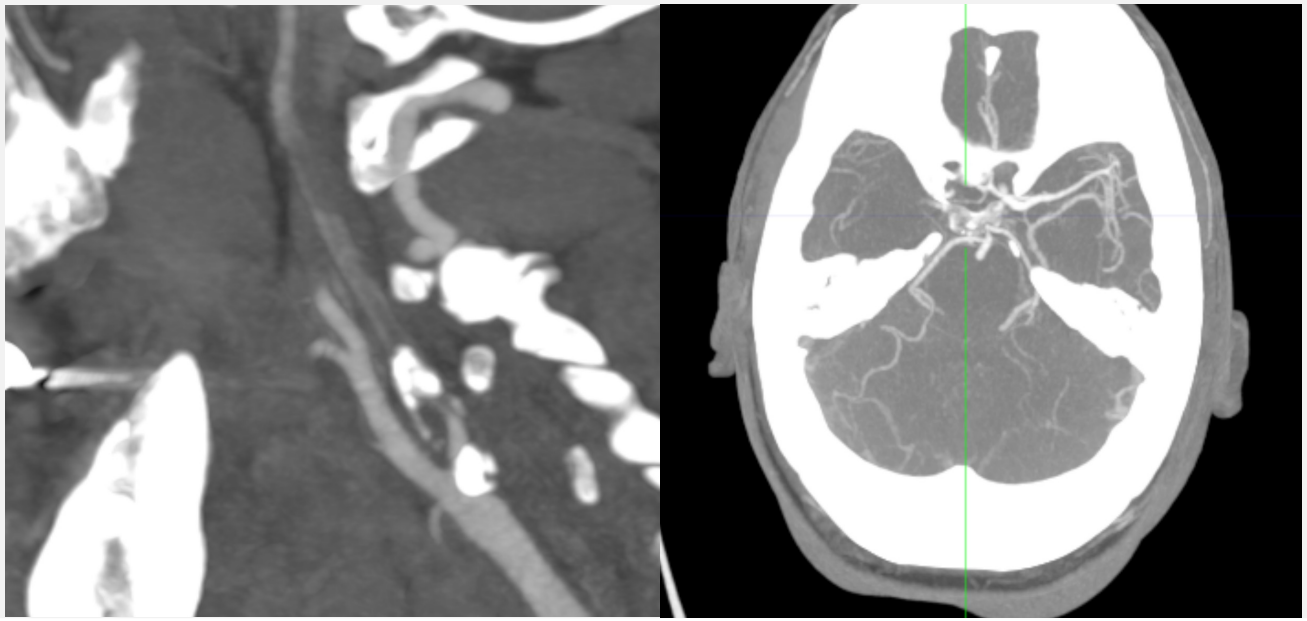
Stent en monoagregación

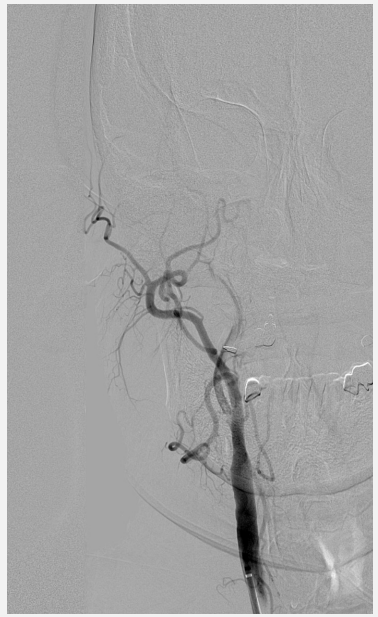
AHA/ASA Guideline

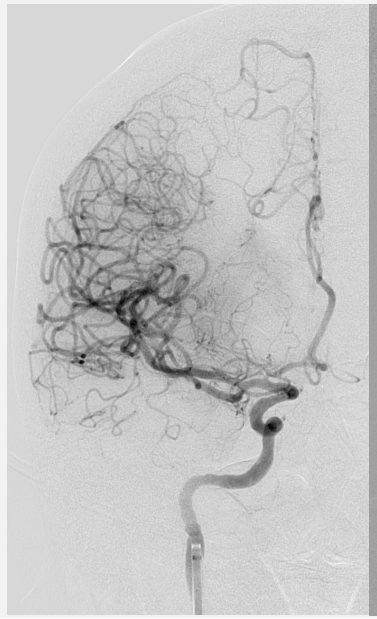
2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke

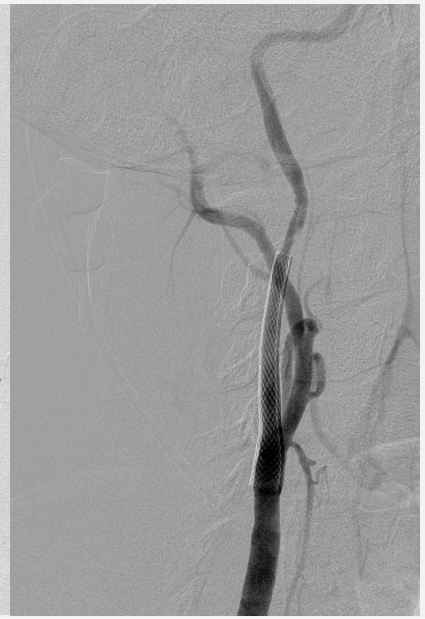
3. The efficacy of IV tirofiban and eptifibatide is not well established. Further clinical trials are needed.	**IIb**	**B-R**	Recommendation revised from 2013 AIS Guidelines.
Prospective, randomized, open-label phase II trials of tirofiban[187] and eptifibatide[188] have suggested safety for treatment in patients with AIS. Single-arm studies of eptifibatide as adjunctive therapy to IV alteplase support ongoing RCTs to establish safety and efficacy.[189,190]			See Table XLIV in online Data Supplement 1.
4. The administration of other glycoprotein IIb/IIIa receptor antagonists, including abciximab, in the treatment of AIS is potentially harmful and should not be performed. Further research testing the safety and efficacy of these medications in patients with AIS is required.	**III: Harm**	**B-R**	Recommendation revised from 2013 AIS Guidelines.
A recent Cochrane review of IV glycoprotein IIb/IIIa receptor antagonists in the treatment of AIS found that these agents are associated with a significant risk of ICH without a measurable improvement in death or disability.[191] The majority of trial data apply to abciximab, which was studied in the AbESTT trial (A Study of Effectiveness and Safety of Abciximab in Patients With Acute Ischemic Stroke). The phase III trial was terminated early because of an unfavorable risk-benefit analysis.[192]			See Table XLV in online Data Supplement 1.











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PMCID: PMC7645186
PMID: 32799747

Flow diverter stents with hydrophilic polymer coating for the treatment of acutely ruptured aneurysms using single antiplatelet therapy: Preliminary experience

Giuseppe Guzzardi,[1] Andrea Galbiati,[1] Carmelo Stanca,[1] Bruno Del Sette,[1] Andrea Paladini,[1] Christian Cossandi,[2] and Alessandro Carriero[1]

Cardiovasc Intervent Radiol (2020) 43:740–748
https://doi.org/10.1007/s00270-020-02418-4

CIRSE

CLINICAL INVESTIGATION STROKE/NEUROINTERVENTIONS

The p48 Flow Modulation Device with Hydrophilic Polymer Coating (HPC) for the Treatment of Acutely Ruptured Aneurysms: Early Clinical Experience Using Single Antiplatelet Therapy

Marta Aguilar-Perez[1,6] · Victoria Hellstern[1] · Muhammad AlMatter[1] · Christina Wendl[2] · Hansjörg Bäzner[3] · Oliver Ganslandt[4] · Hans Henkes[1,5]

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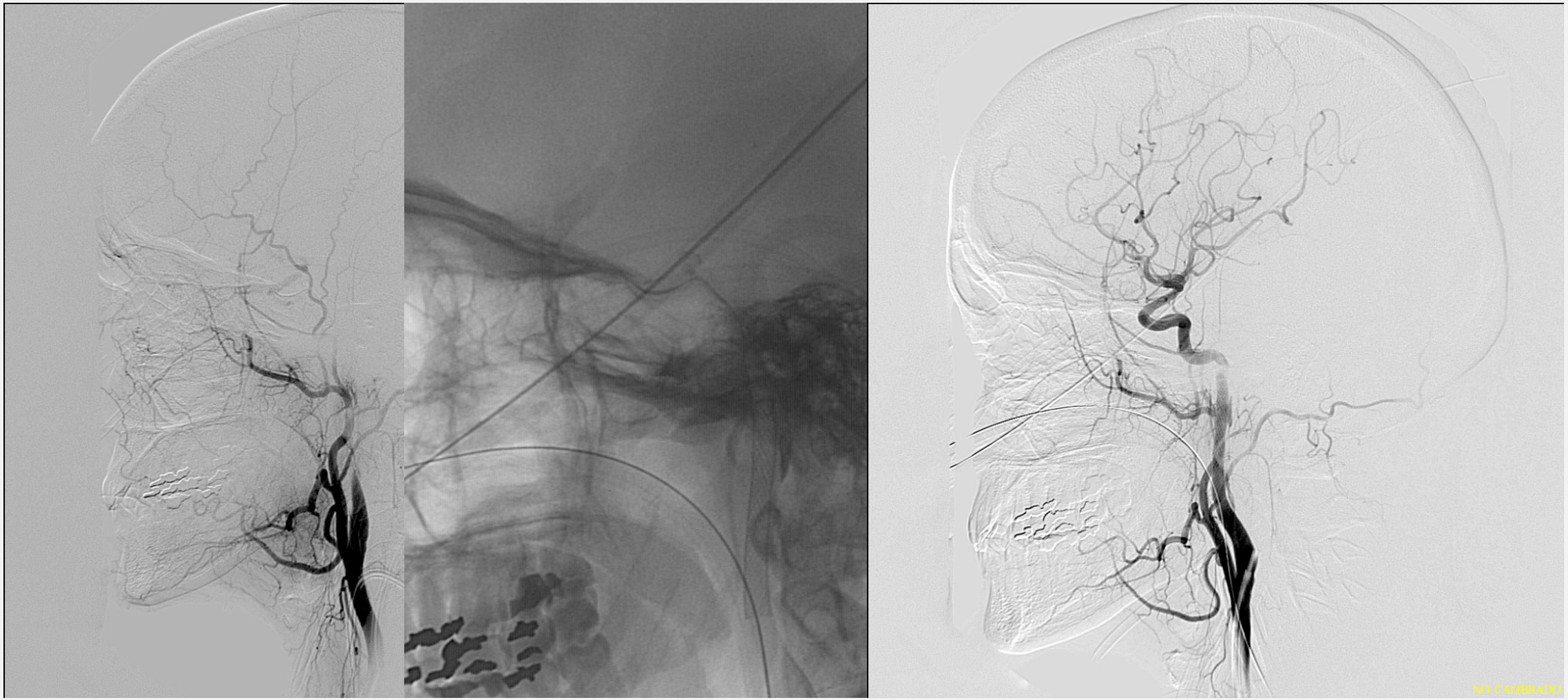
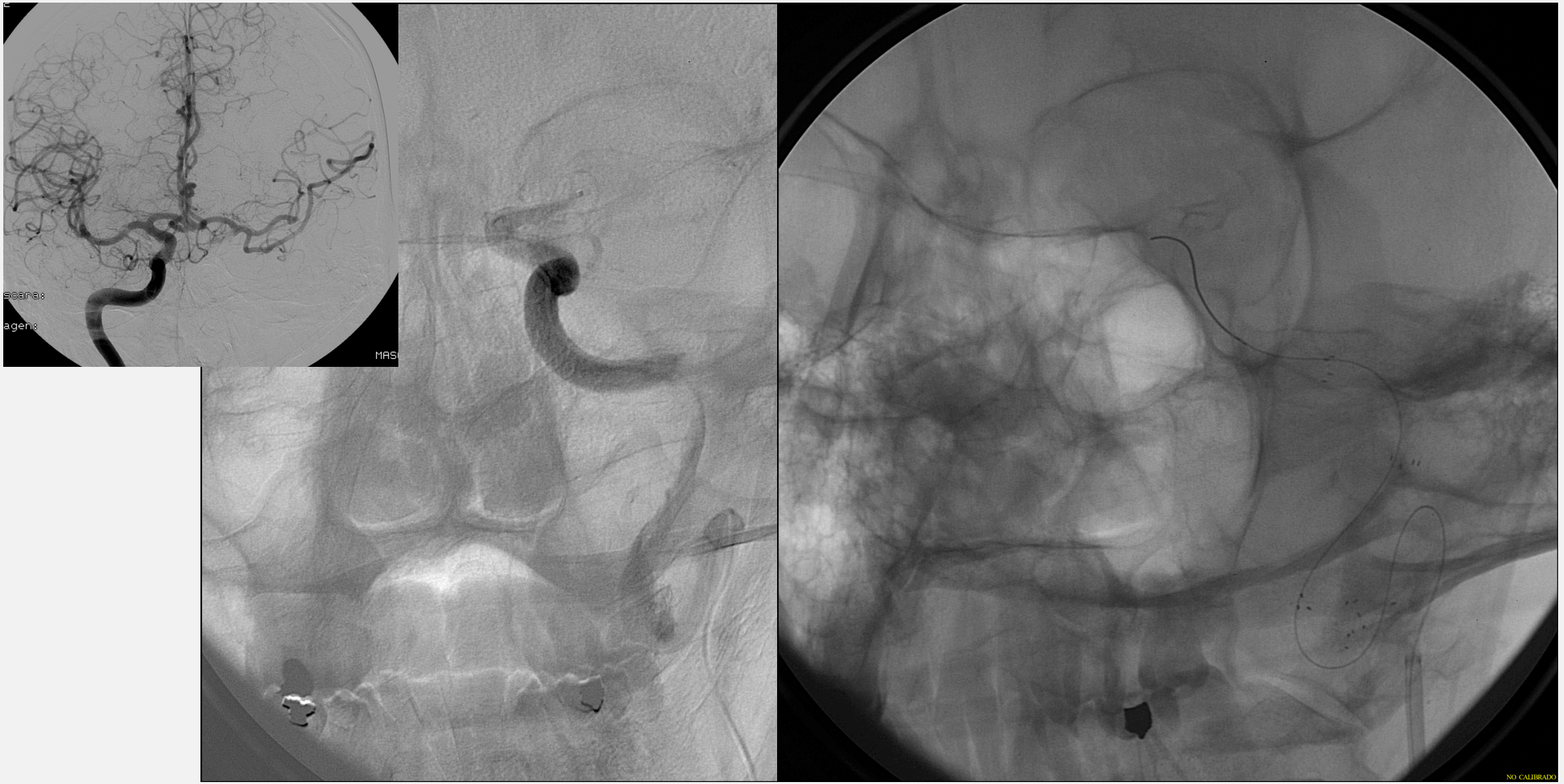
Longitud y tamaño disecciones





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CONCLUSIONES

Stent retrievers: Más "first-pass efect". Más grandes, más largos, que naveguen por microcatéteres de menor perfil y con distinta morfología para los trombos duros o ricos en fibrina.

Catéteres de aspiración: Más "first-pass efect". Tamaño ajustado a la luz de la arteria, mayor navegabilidad, menor capacidad de colapso, acceso a ramas más distales.

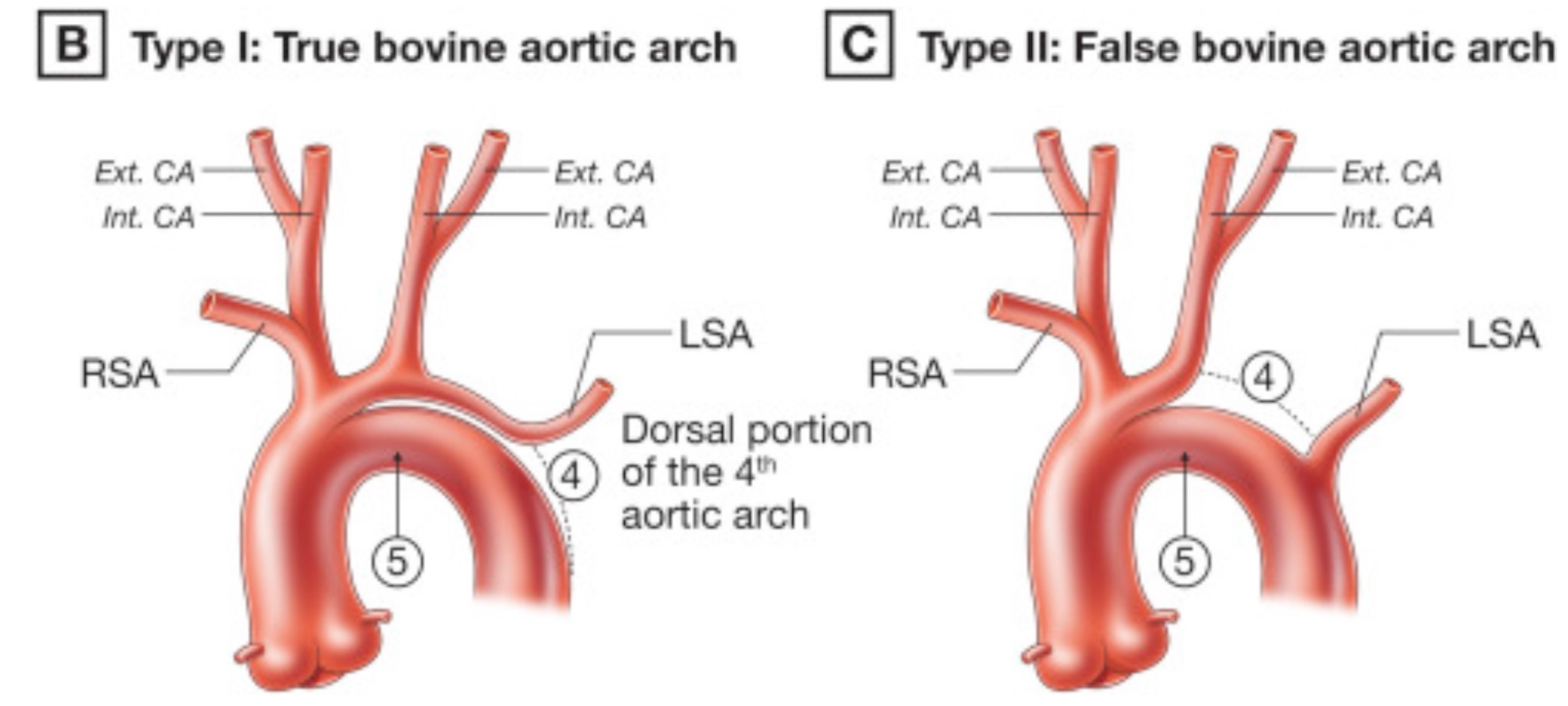
Balón guía catéter: Mejor navegabilidad. Mayor luz interna a costa de no aumentar la luz externa. Mayor compatibilidad con los sistemas de aspiración.

Stents: Agregación simple y navegabilidad. Evolución de los stents de carótida para cubrir estenosis largas y que pueden ser implantados en bucles asociados a disecciones carotideas.

ACCESO

El acceso está superado, existen cientos de herramientas, el problema es la FALTA DE FORMACIÓN por **aumento de los equipos de neurointervencionismo** y la **ausencia de homogenización** de las técnicas en cada equipo.

Acceso Radial



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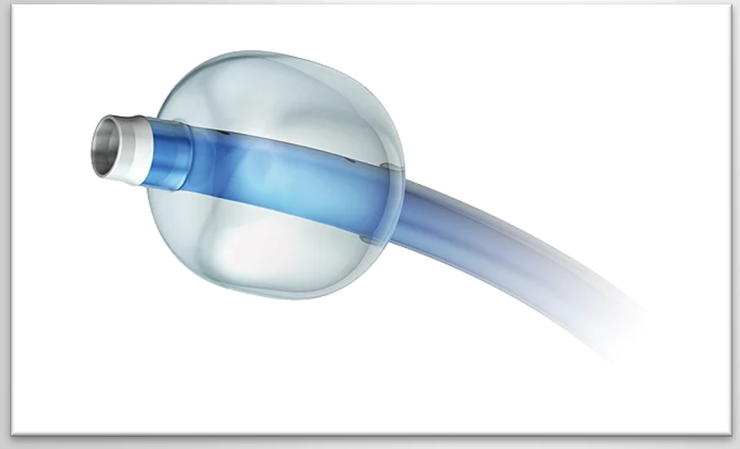
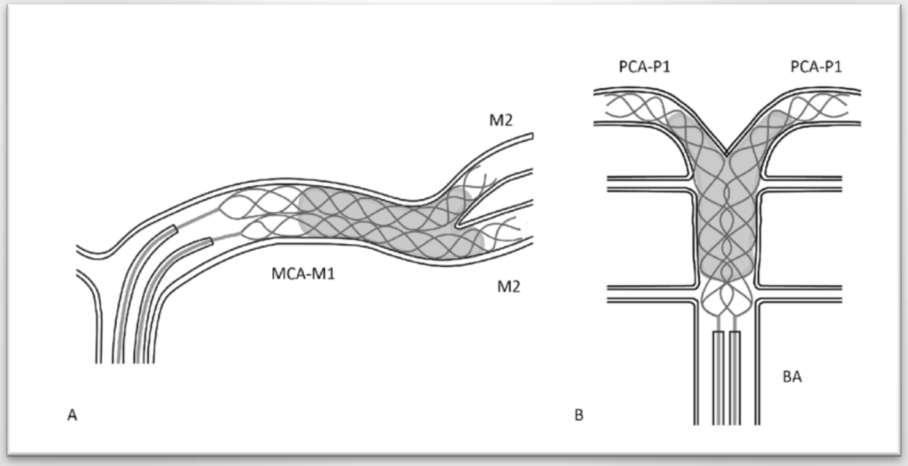
Acceso: El acceso radial no ofrece ventajas respecto al femoral en el ictus isquémico. Significativos problemas de formación y homogenización de las técnicas.

myOpinion





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