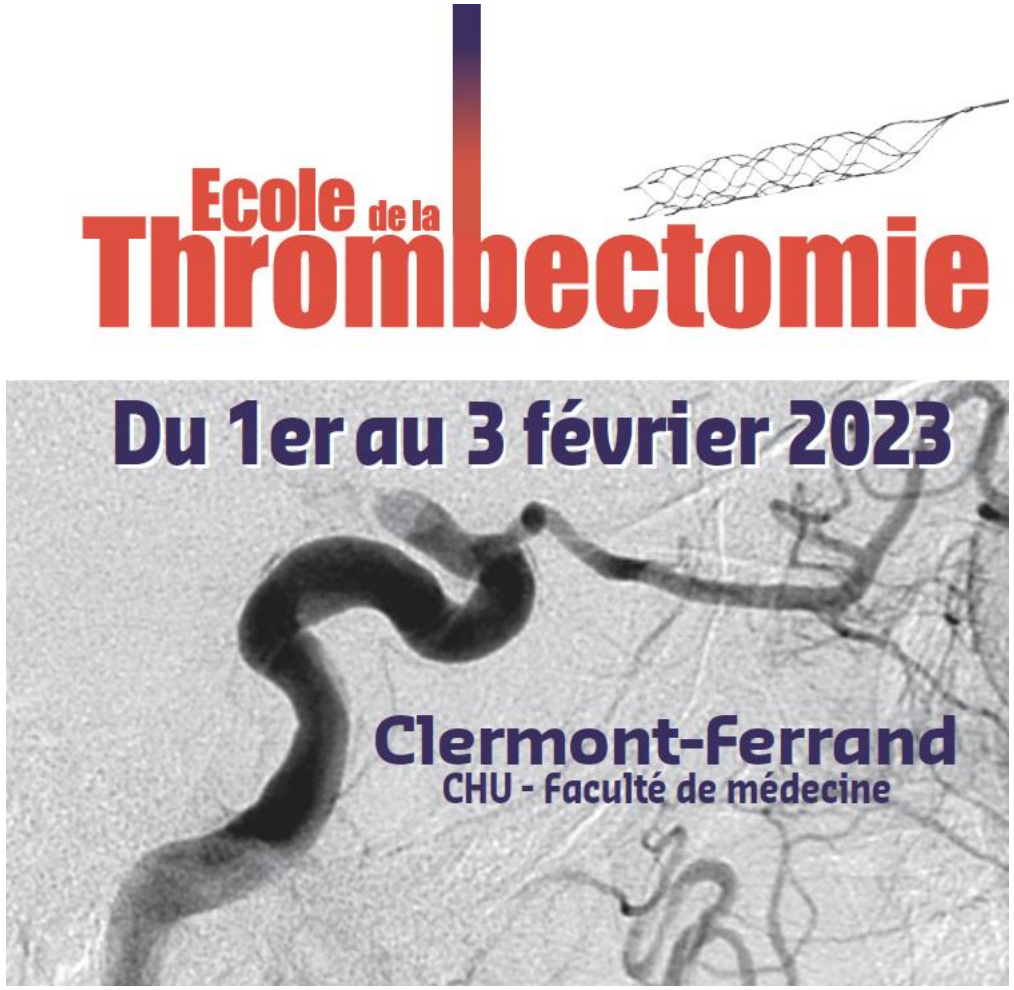


THROMBECTOMIE I :

LE STENT

- Franchir le caillot / déployer le stent
- Naviguer en sécurité ? les reflexes
- Quel micro KT, quel guide, quelle branche ?
- Quel stent pour quel caillot ? autres dispositifs…

Drs François ZHU & Liang LIAO
IADI INSERM U1254
CHRU Nancy

UNIVERSITÉ DE LORRAINE

CHRU NANCY

HISTORIQUE

Ecole de la Thrombectomie

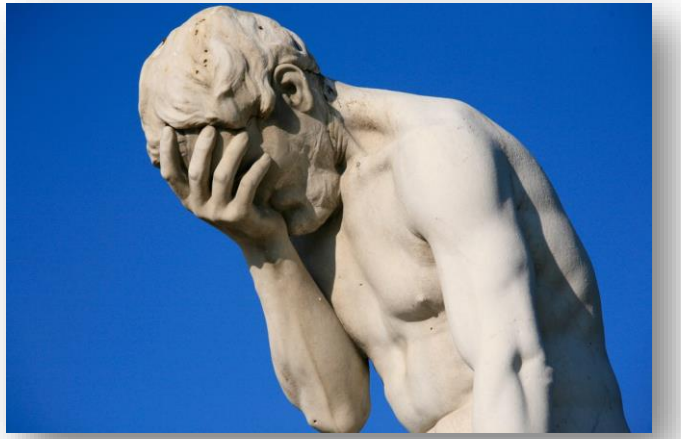
Stent retriever = outil de référence pour thrombectomies

Device historique: Dispositif le plus souvent utilisé dans les RCT publiées à partir de 2015

Utilisable seul ou en combinaison avec cathéter d'aspiration

Nombreux stents retriever différents…

Déception en 2013…
3 études TIV vs TM → mise en question de l'efficacité de la TM



	IMS III (N=629)	SYNTHESIS (N=362)	MR RESCUE (N=118)
Primary Intervention:	MERCI	IA-tPA and clot fragmentation	MERCI
LVO (ICA, M1):	33%	34%	81%
Successful recanalization (TICI 2b/3):	44%	Not reported ?	27%
Good clinical outcome (mRS 0-2):	43%	42%	13%
Symptomatic ICH:	6%	6%	5%
Death (90 days):	19%	8%	19%

…MAIS :

→ Devices d'anciennes générations

→ Pas toujours des LVO…

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The NEW ENGLAND JOURNAL of MEDICINE

Thrombectomy within 8 Hours after Symptom Onset in Ischemic Stroke

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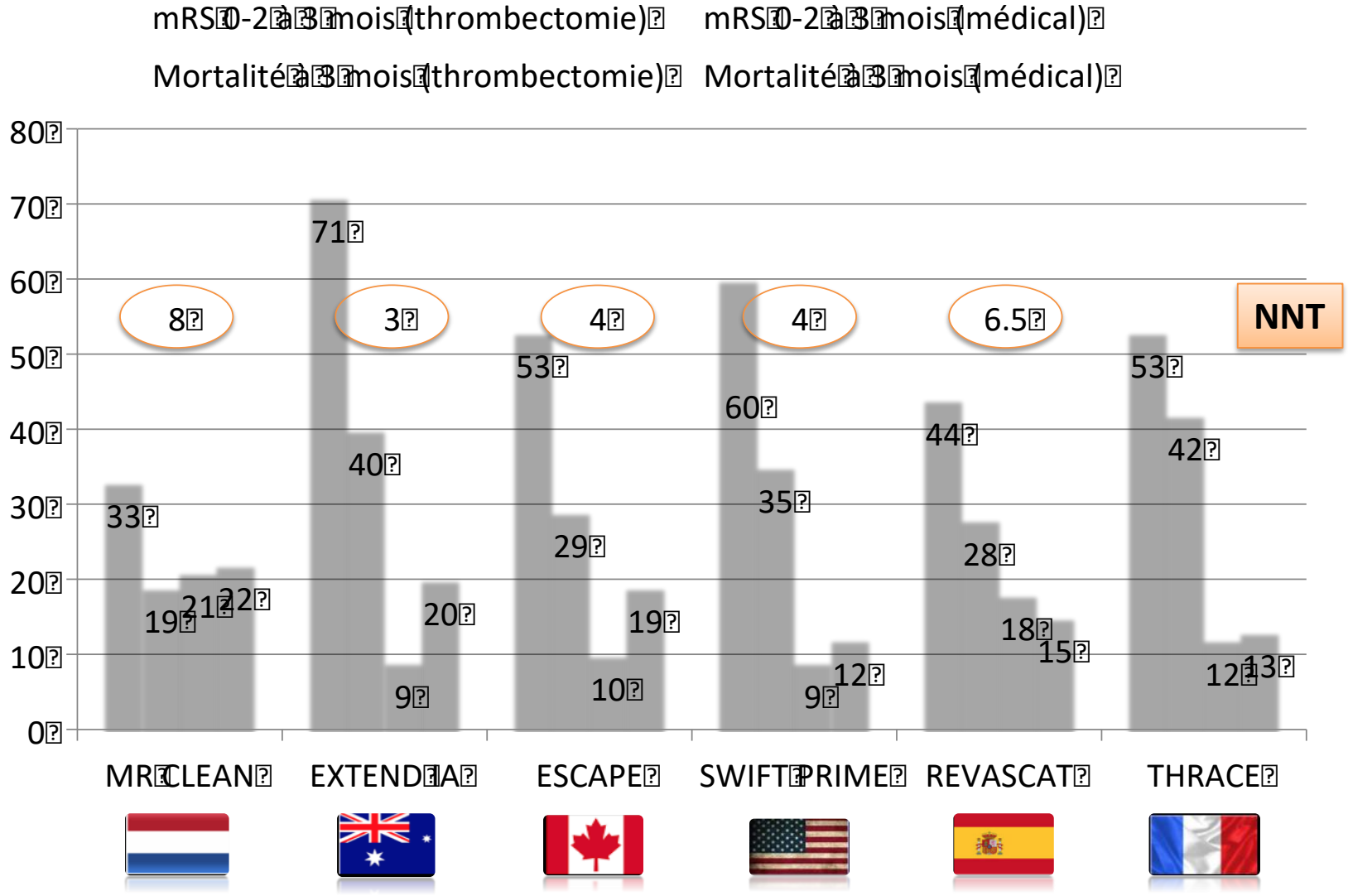
Stent-Retriever Thrombectomy after Intravenous t-PA vs. t-PA Alone in Stroke

+



Thrombectomy after intravenous thrombolysis is the new standard of care in acute stroke with large vessel occlusion

Benjamin Gory[1,2,3] and Francis Turjman[1,2,3]

Interventional Neuroradiology 2015, Vol. 21(6) 691-693

Ecole de la Thrombectomie

Table 1 – Characteristics of patients at baseline and in groups receiving endovascular treatment and their controls in six selected randomized controlled trials.

Trial, Date, Countries (number of centers)	Number of patients and main selection criteria	Endovascular treatment group					Control group		
		No. of patients[a]	Stroke locations, No. (%)	IV tPA, No. (%)	Thrombectomy, No. (%)	Patients treated with retrievers among patients with thrombectomy, No. (%)	No. of patients[a]	Stroke locations, No. (%)	IV tPA, No. (%)
THRACE, 2016 France (26)	$n = 414$ - Age: 18-80 - < 5 h from onset - NIHSS: 10–25	204	ICA: 24/204 (11.8) M1 MCA: 176/204 (86.3) M2 MCA: 0/204 (0) BA: 2/204 (1.0)	204 (100)	145 (71.1)	Stent retriever: 116 (80.0)	208	ICA: 39/208 (18.8) M1 MCA: 164/208 (78.8) M2 MCA: 2/208 (1.0) BA: 2/208 (1.0)	208 (100)
ESCAPE, 2015 Canada, USA, South Korea, Republic of Ireland, UK (22)	$n = 315$ - Age ≥ 18 - < 12 h from onset - NIHSS: no restriction	165	ICA: 45/163 (27.6) M1 MCA or all M2s: 111/163 (68.1) Single M2 MCA: 6/163 (3.7)	120 (72.7)	151 (91.5)	Stent retriever: 130 (86.1) Solitaire FR: 100 (66.2)	150	ICA: 39/147 (26.5) M1 MCA or all M2s: 105/147 (71.4) Single M2 MCA: 3/147 (2.0)	118 (78.7)
REVASCAT, 2015 Spain (4)	$n = 206$ - Age: 18-85 - <8 h from onset - NIHSS ≥ 6	103	ICA: 26/102 (25.5) M1 MCA: 66/102 (64.7) M2 MCA: 10/102 (9.8)	70 (68.0)	98 (95.1)	Solitaire FR: 88 (89.8)	103	ICA: 28/101 (27.7) M1 MCA: 65/101 (64.4) M2 MCA: 8/101 (7.9)	80 (77.7)
EXTEND IA, 2015 Australia, New Zealand (10)	$n = 70$ - Age ≥18 - <6 h from onset - NIHSS: no restriction	35	- ICA: 11/35 (31.4) - M1 MCA: 20/35 (57.1) - M2 MCA: 4/35 (11.4)	35 (100)	27 (77.1)	Solitaire FR: 27 (100)	35	ICA: 11/35 (31.4) M1 MCA: 18/35 (51.4) M2 MCA: 6/35 (17.1)	35 (100)
MR CLEAN, 2015 Netherlands (16)	$n = 500$ - Age ≥ 18 - < 6 h from onset - NIHSS ≥ 6	233	- ICA: 60/233 (25.8) - M1 MCA: 154/233 (66.1) - M2 MCA: 18/233 (7.7) - A1 or A2 ACA: 1/233 (0.4)	203 (87.1)	195 (83.7)	Stent retriever: 190 (97.4)	267	ICA: 78/266 (29.3) M1 MCA: 165/266 (62.0) M2 MCA: 21/266 (7.9) A1 or A2 ACA: 2/266 (0.8)	242 (90.6)
SWIFT PRIME, 2015 USA, France, Germany, Spain, Switzerland, Denmark, Austria (39)	$n = 196$ - Age: 18-80 - < 6 h from onset - NIHSS: 8–29	98	ICA: 17/93 (18.3) M1 MCA: 62/93 (66.6) M2 MCA: 13/93 (14.0)	98 (100)	87/98 (88.8)	Solitaire FR or Solitaire 2: 87 (100)	98	ICA: 15/94 (16.0) M1 MCA: 72/94 (76.6) M2 MCA: 6/94 (6.4)	98 (100)

Stent retriever thrombectomy for acute ischemic stroke: A systematic review and meta-analysis of randomized controlled trials, including THRACE

M. Barral[a,1], S. Boudour[b,1], M. Viprey[a,c], C. Giroudon[c], G. Aulagner[b], A.-M. Schott[a,c], F. Turjman[d,e], X. Armoiry[b,f], B. Gory[g,h,i,*]

Rev Neurol (Paris). 2018 May;174(5):319-326.

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Table. Summary of Data From the 5 Trials

Trial N IAT+/CTL	NIHSS Range CTL	NIHSS Range IAT+	r-tPA	TICI 2B/3	LSN to Groin Mdn	mRS 0–2 at 90 d CTL	mRS 0–2 at 90 d IAT+	sICH CTL	sICH IAT+	Device Complications	Mortality CTL	Mortality IAT+
MR CLEAN[12] 500 233/267	18 (14–21)	17 (14–22)	90%	59%	260	19%	33%	6.4%	7.7%	Embol. 13	22%	21%
ESCAPE[13] 315 165/150	17 (12–20)	16 (13–20)	76%	72%	200	29%	53%	2.7%	3.6%	Perfor.1	19%	10%
EXTEND IA[14] 70 35/35	13 (9–19)	17 (13–20)	100%	86%	210	40%	71%	6%	0%	Perfor.1 Embol.2	20%	9%
SWIFT PRIME[15] 196 98/98	17 (13–19)	17 (13–20)	98%	88%	224	36%	60%	3%	0%	SAH 4	12%	9%
REVASCAT[16] 206 103/103	17 (12–19)	17 (14–20)	73%	66%	269	28%	44%	1.9%	1.9%	Perfor. 5 Embol. 5	16%	18%

CTL indicates control group; Embol, distal embolization; IAT+, intra-arterial thrombectomy on top of standard treatment including r-tPA; LSN, time (minutes) from last seen normal to groin puncture in IAT+ group; Mdn, median; mRS 0–2 at 90 d, modified Rankin Scale of 0–2 at 90 days after randomization; NIHSS, baseline National Institutes of Health Stroke Scale; Perfor, vessel perforation; r-tPA, patients in trial treated with recombinant tissue-type plasminogen activator; REVASCAT, Randomized Trial of Revascularization With the Solitaire FR Device Versus Best Medical Therapy in the Treatment of Acute Stroke Due to Anterior Circulation Large Vessel Occlusion Presenting Within Eight Hours of Symptom Onset; SAH, subarachnoid hemorrhage; sICH (SITS), symptomatic intracerebral hemorrhage based on safe implementation of treatments in stroke criteria; and TICI 2b/3, patients in IAT+ group achieving thrombolysis in cerebral infarction grade 2b or 3 reperfusion.

The NEW ENGLAND JOURNAL of MEDICINE

Thrombectomy within 8 Hours after Symptom Onset in Ischemic Stroke

Randomized Assessment of Rapid Endovascular Treatment of Ischemic Stroke

A Randomized Trial of Intraarterial Treatment for Acute Ischemic Stroke

Endovascular Therapy for Ischemic Stroke with Perfusion-Imaging Selection

Stent-Retriever Thrombectomy after Intravenous t-PA vs. t-PA Alone in Stroke

TM → TICI 2B/3 : 59 - 88% (précédentes études : < 41%)
Bénéfice absolu (mRS 0-2 90d) : 13,5% - 31,4%
Pas plus de complication hémorragique ou de mortalité

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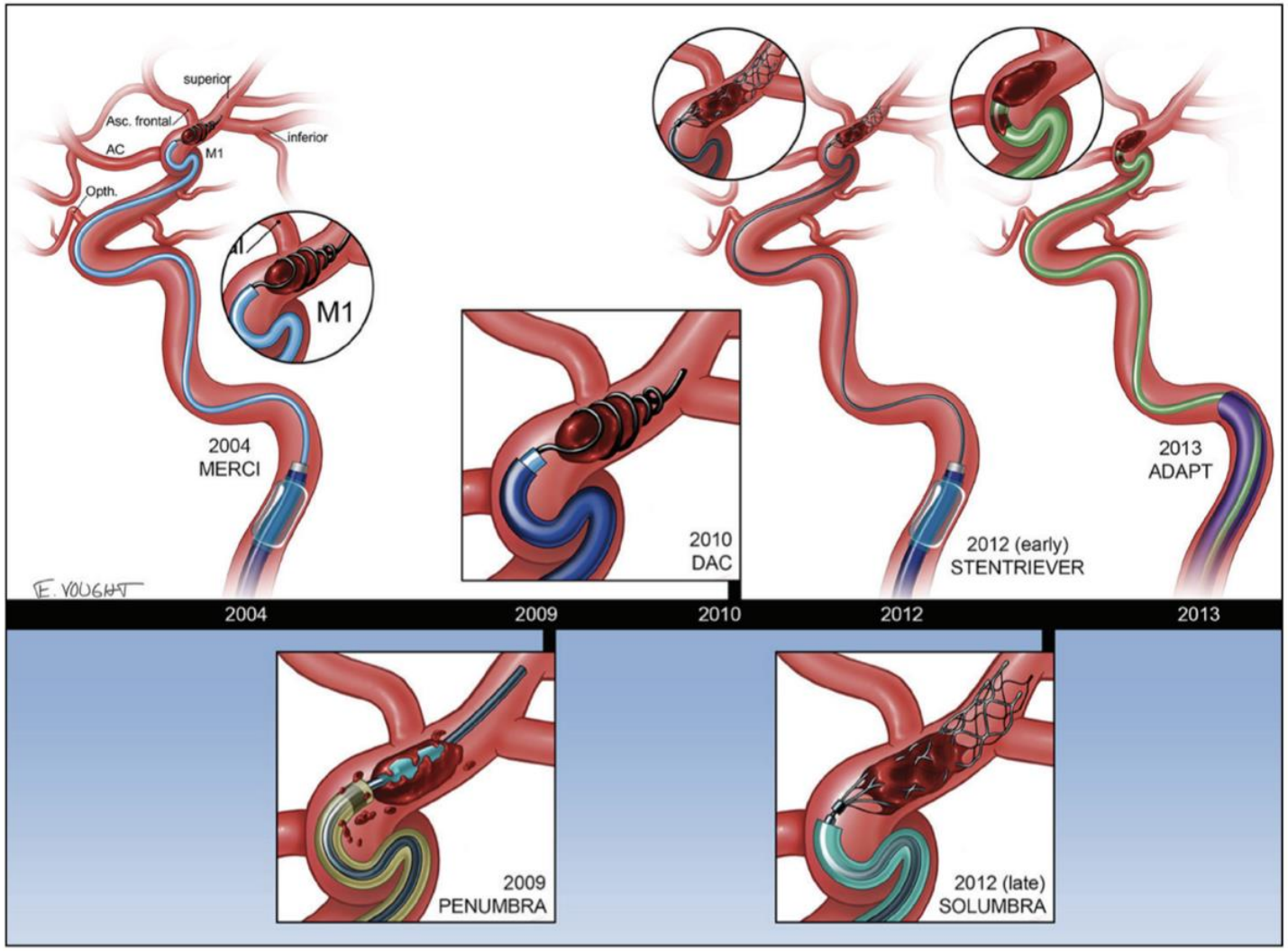
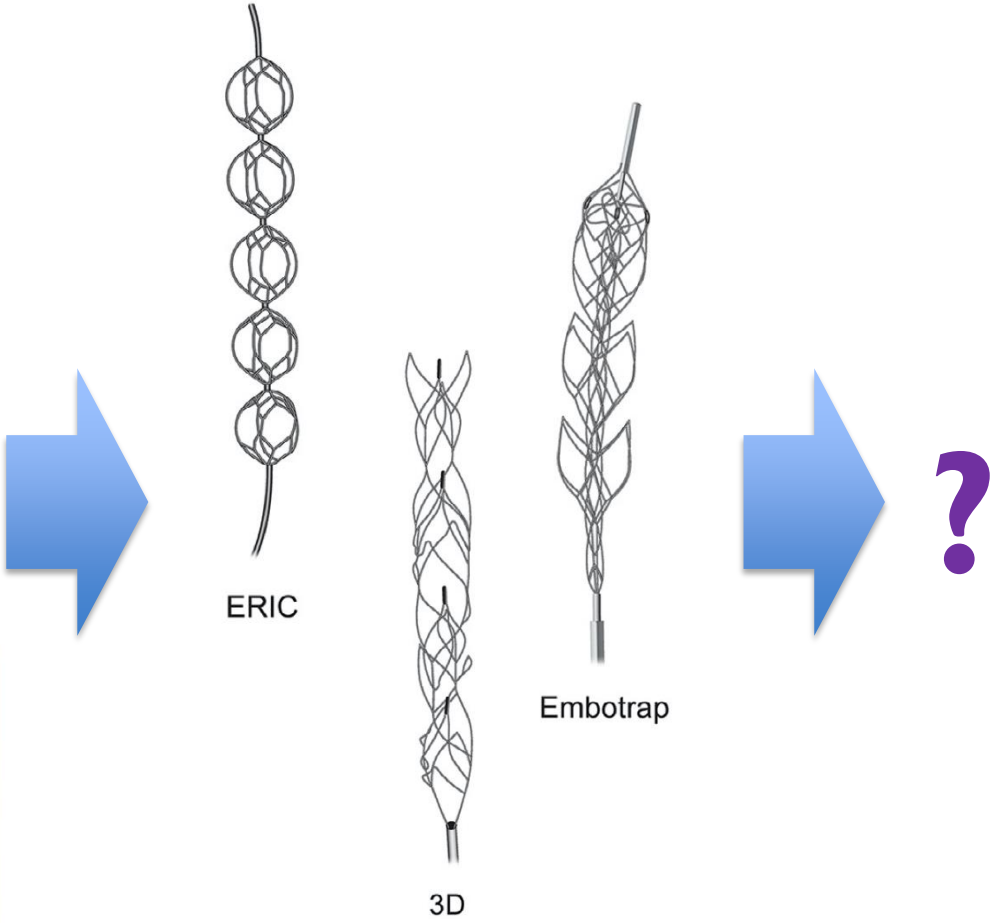


A Direct Aspiration First Pass Technique vs Standard Endovascular Therapy for Acute Stroke: A Systematic Review and Meta-Analysis

Kevin Phan, BSc(Adv), MPhil*
Adam A. Dmytriw, MD, MSc‡
Ian Teng, MD*

NEUROSURGERY 2018



Mechanical Thrombectomy: Emerging Technologies and Techniques

Edgar A. Samaniego, MD, MS,* Jorge A Roa, MD,† Kaustubh Limaye, MD,‡

J Stroke Cerebrovasc Dis. 2018 Oct;27(10):2555-2571.

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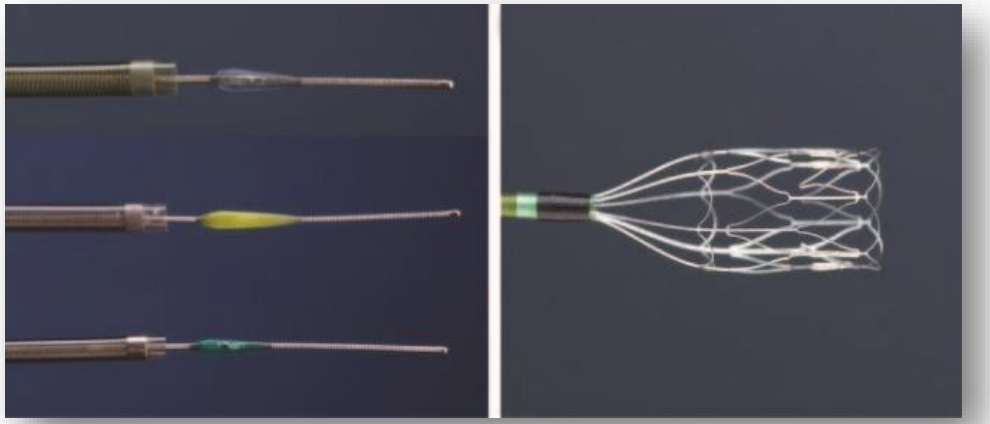
Safety and Efficacy of Mechanical Embolectomy in Acute Ischemic Stroke

Results of the MERCI Trial

Wade S. Smith, MD, PhD; Gene Sung, MD; Sidney Starkman, MD; Jeffrey L. Saver, MD

Stroke July 2005



The Penumbra Pivotal Stroke Trial

Safety and Effectiveness of a New Generation of Mechanical Devices for Clot Removal in Intracranial Large Vessel Occlusive Disease

The Penumbra Pivotal Stroke Trial Investigators

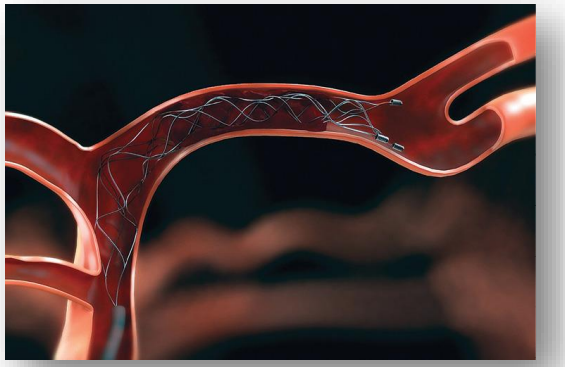
Stroke August 2009

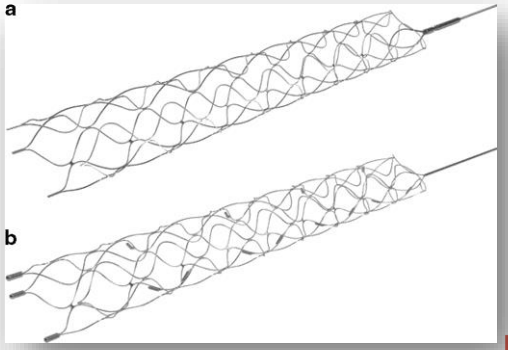
Figure. Penumbra reperfusion catheters and separators (left); thrombus removal ring (right).

Mechanical Thrombectomy Using the new Solitaire™ Platinum Stent-retriever

Johannes Pfaff[1] · Stefan Rohde[2] · Tobias Engelhorn[3] · Arnd Doerfler[3] · Martin Bendszus[1] · Markus Alfred Möhlenbruch[1,4]

Clin Neuroradiol 10 January 2018





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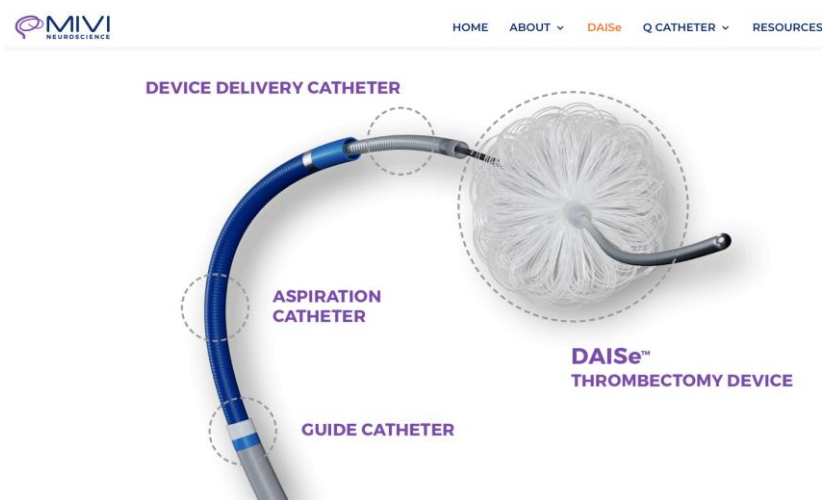
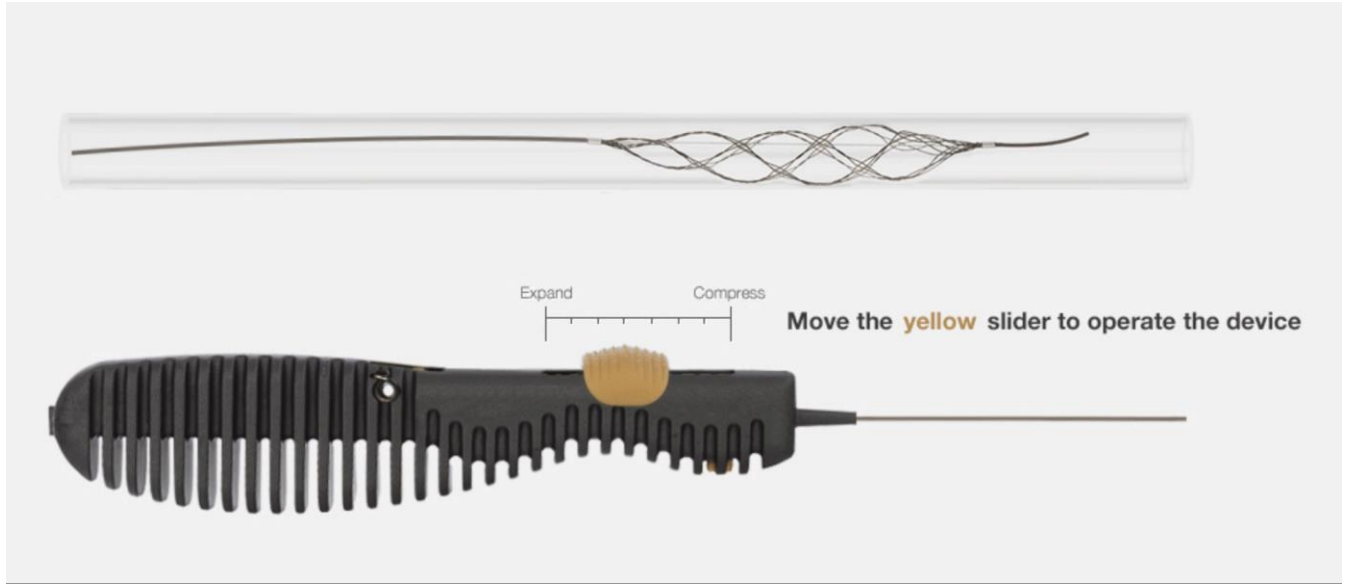
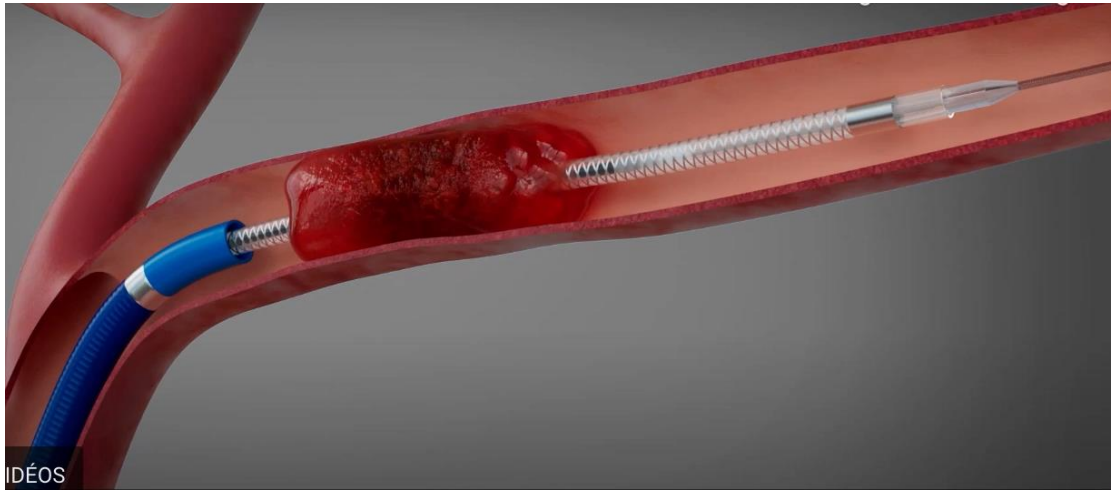
Next Generation







DAISe
MIVI Neurosciences

Tigertriever
Rapid Medical

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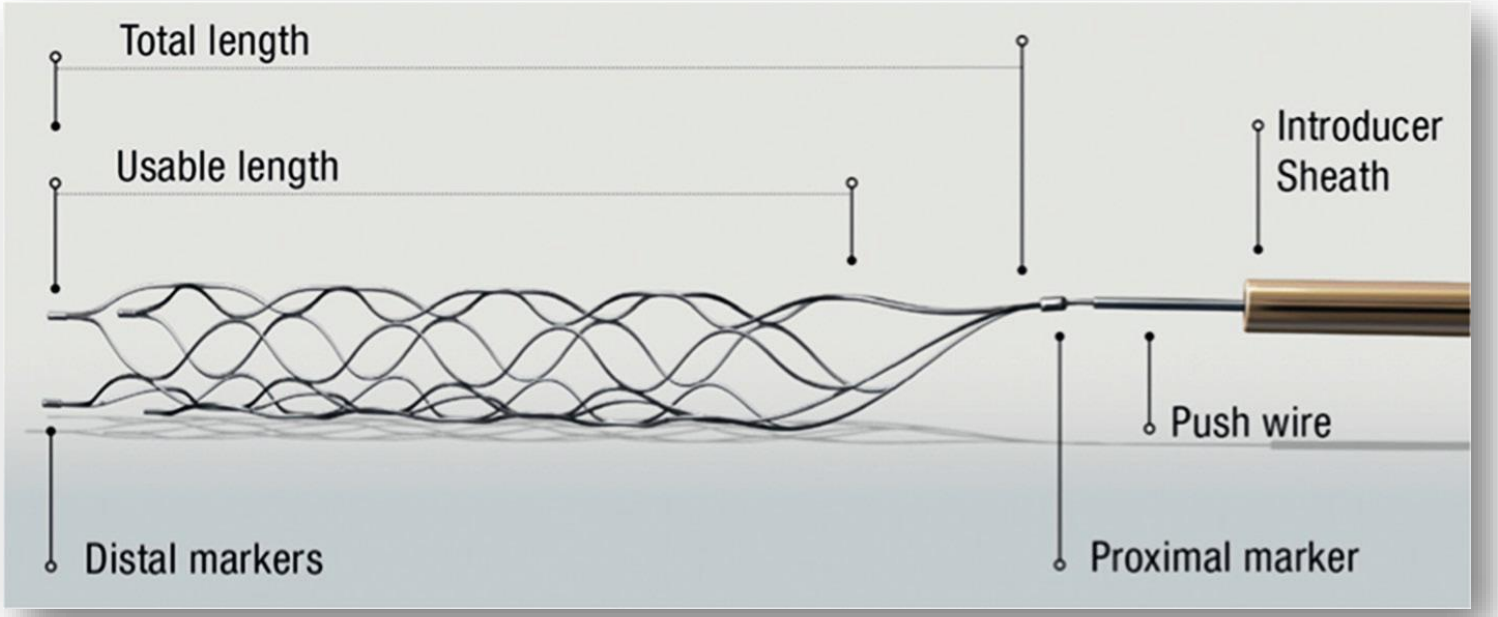
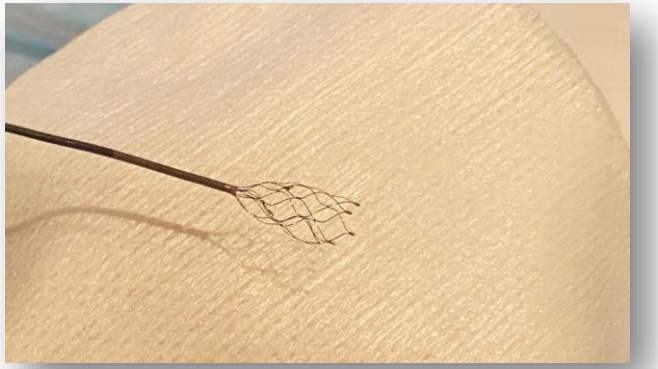
ASPECT GENERAL

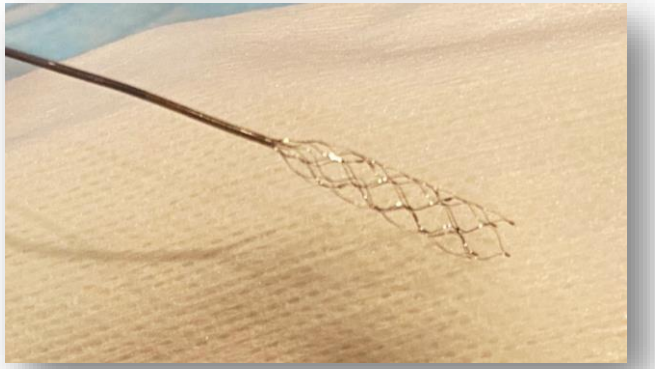


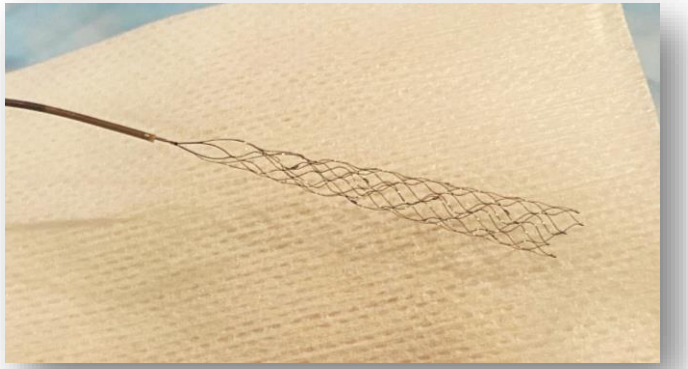
Solitaire FR thrombectomy system: immediate results in 56 consecutive acute ischemic stroke patients

Machi P, *et al*. *J NeuroIntervent Surg* 2018;**10**:i27–i32.

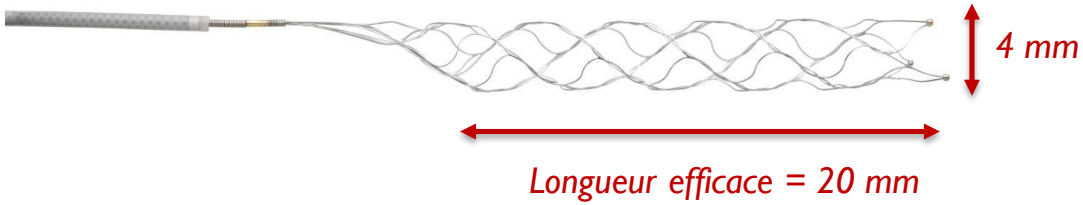
Trevo



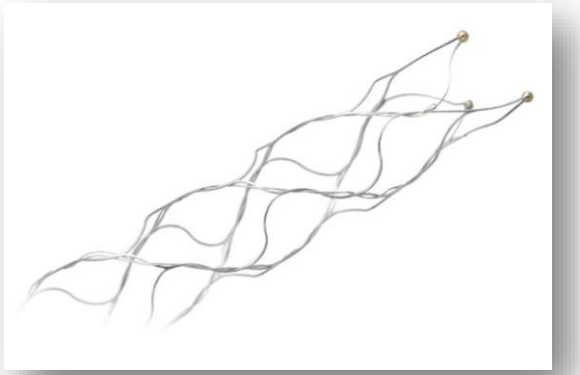




Exemple : stent de 4 x 20 mm

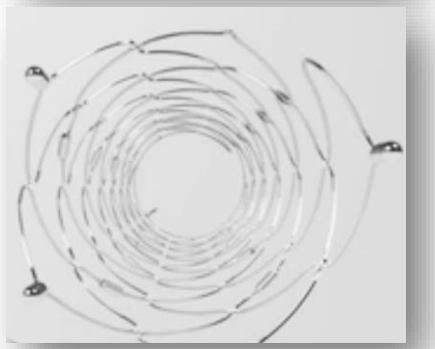


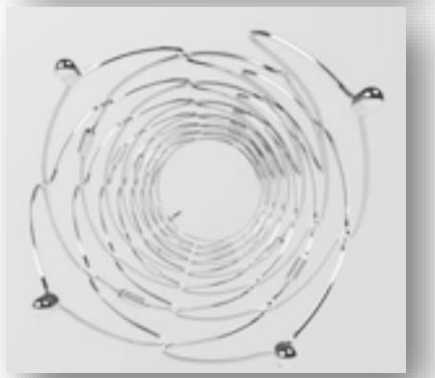
Trevo



Design en overlapping ou non

Solitaire





Disponibles en plusieurs :

- Tailles : en général, diamètre de 3 mm, 4 mm ou 6 mm.
- Longeurs : 20 mm à 40 mm

Compatibilité stent – microcathéter : *en règle générale* …

- diamètre < 6 mm : microKT de 21
- diamètre = 6 mm : micro KT de 27

Pour mémoire :

- diamètre ID micro KT = 17, 21 ou 27 … en inch x 10^{-3} ! (1 inch = 25,4 mm)
- donc e.g. microKT 21 = 0,021 in

MAIS

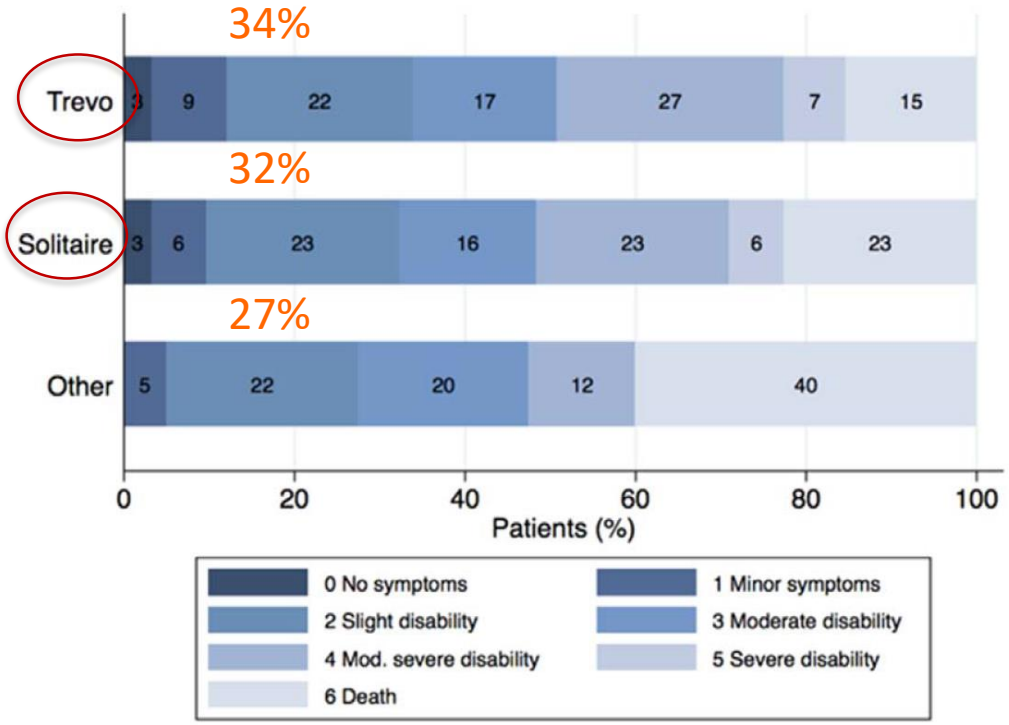
ID microKT	17	21	27
exemples	Echelon 10 Echelon 14 Headway 17	Rapid Transit Rebar 18 Headway 21	Marksman Excelsior XT 27 Headway 27

Influence of Device Choice on the Effect of Intra-Arterial Treatment for Acute Ischemic Stroke in MR CLEAN (Multicenter Randomized Clinical Trial of Endovascular Treatment for Acute Ischemic Stroke in the Netherlands)

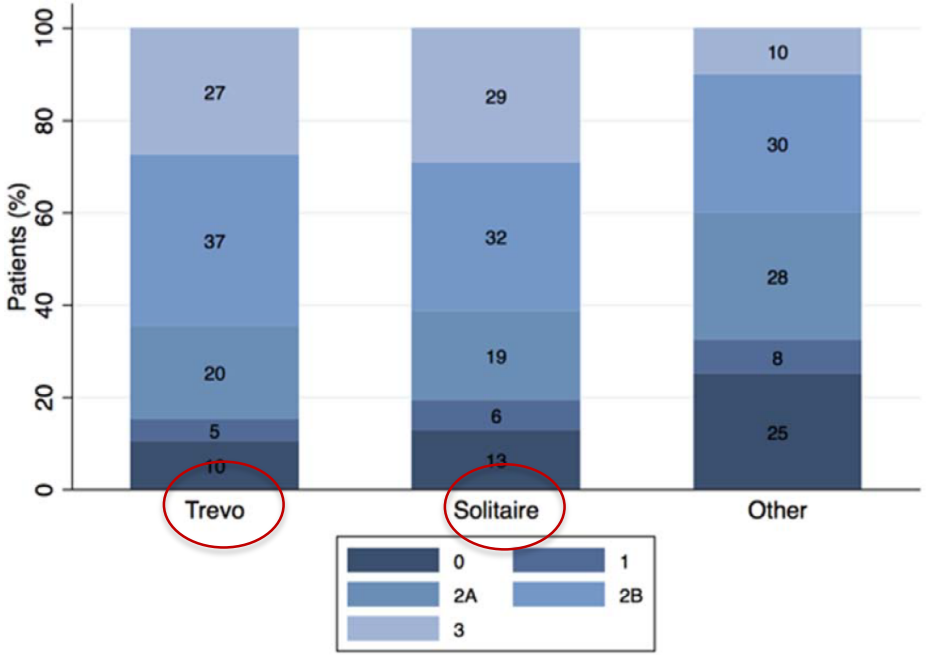
Diederik W. Dippel, MD, PhD; Charles B. Majoie, MD, PhD; Yvo B. Roos, MD, PhD; Aad van der Lugt, MD, PhD; Robert J. van Oostenbrugge, MD, PhD; Wim H. van Zwam, MD, PhD; Hester F. Lingsma, MSc, PhD; Peter J. Koudstaal, MD, PhD; Kilian M. Treurniet, MD; Lucie A. van den Berg, MD; Debbie Beumer, MD; Puck S. Fransen, MD; Olvert A. Berkhemer, MD; for the MR CLEAN Investigators*

Stroke October 2016

mRS 0-2 at 90d



TICI 2B/3 64% 61% 40%



Quel type de stent choisir ?

→ Pas de différence significative entre les stents Trevo et Solitaire en terme de résultat clinique ou de recanalisation…

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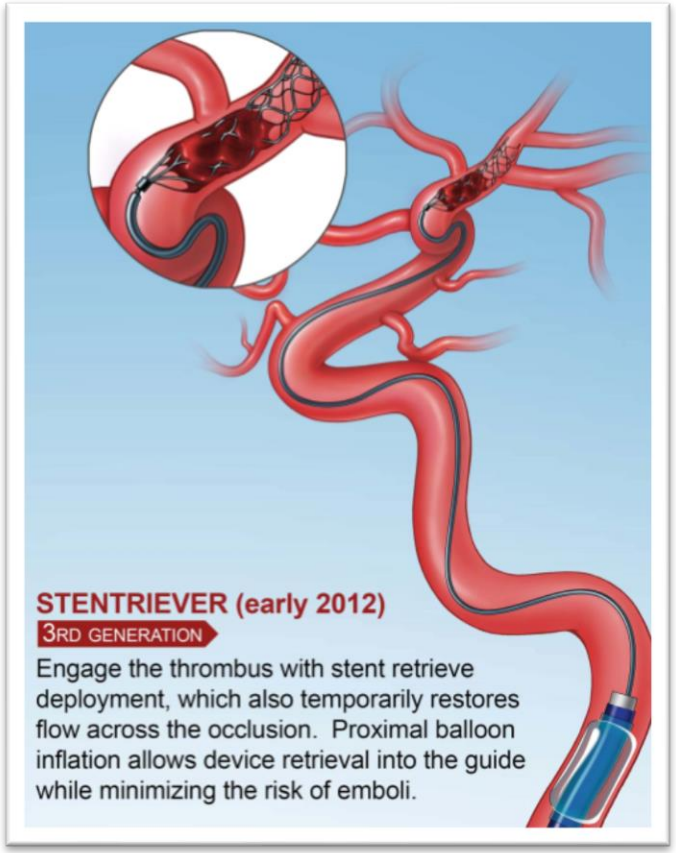
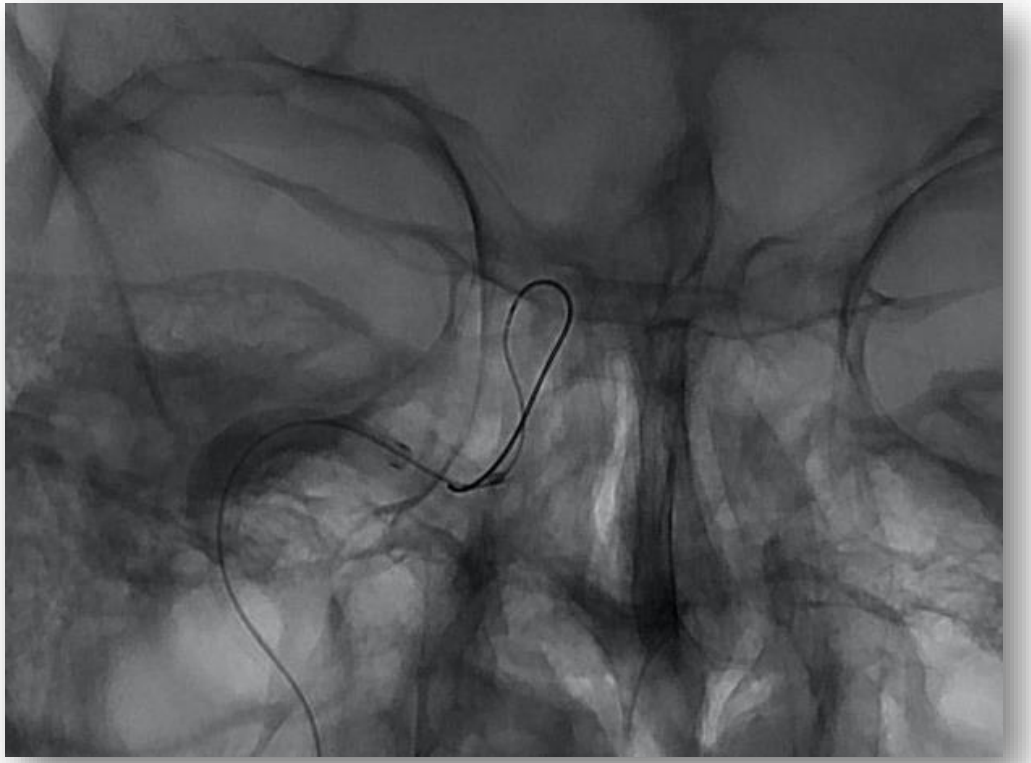
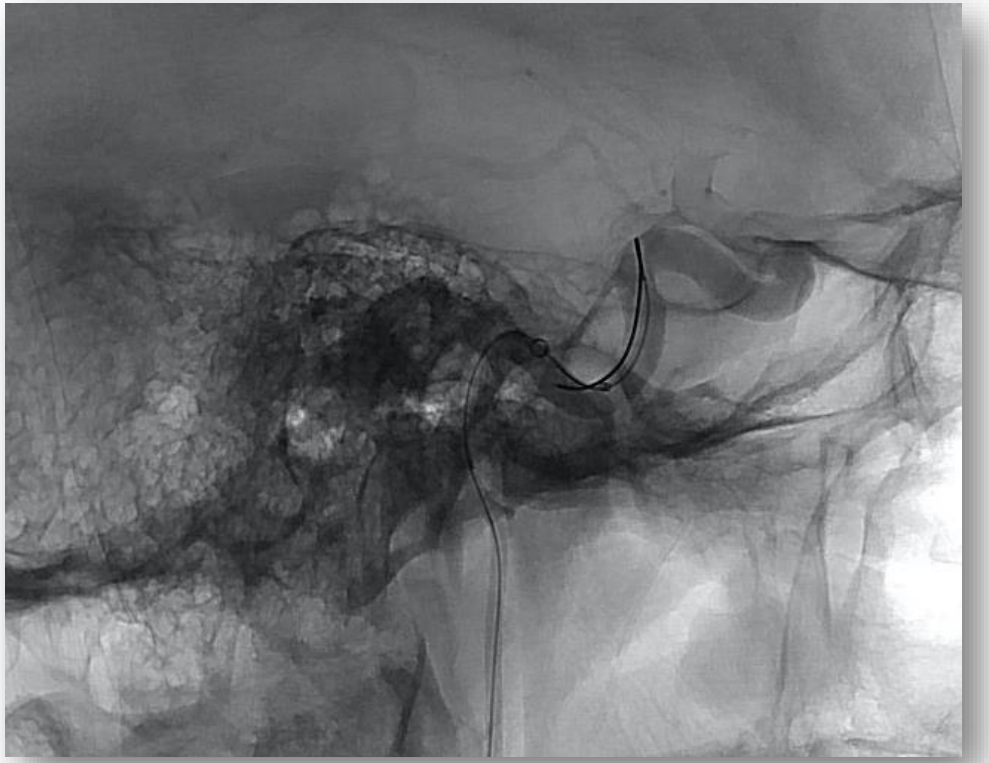
NAVIGATION – DEPLOIEMENT DU STENT

Ecole de la Thrombectomie

- KT guide (+/-) à ballon à large lumière
- MicroKT de 21 ou 27 + microguide de 14
- Franchissement du caillot avec microguide, suivi du microKT
- Montée du stent
- Déploiement du stent en regard du caillot
- Attendre quelques minutes après ouverture du stent
- (Gonfler le ballon du KT guide)
- Retrait du stent sous aspiration dans le KT guide
- Compléter l'aspiration dans le KT guide pour rammener des caillots résiduels

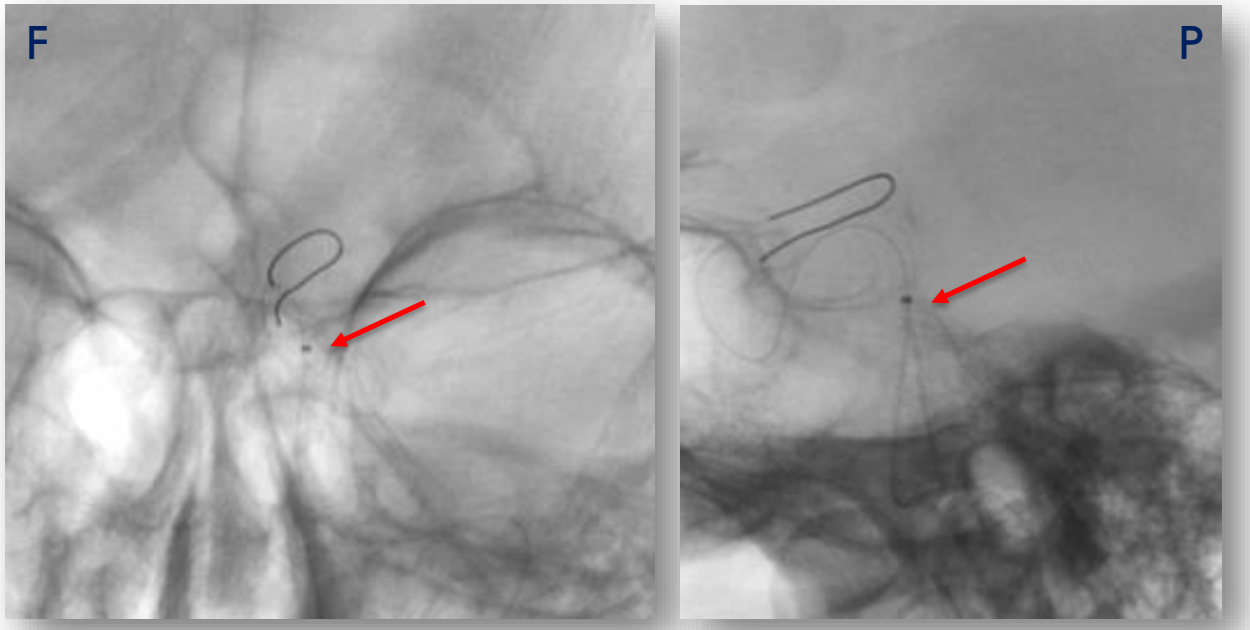


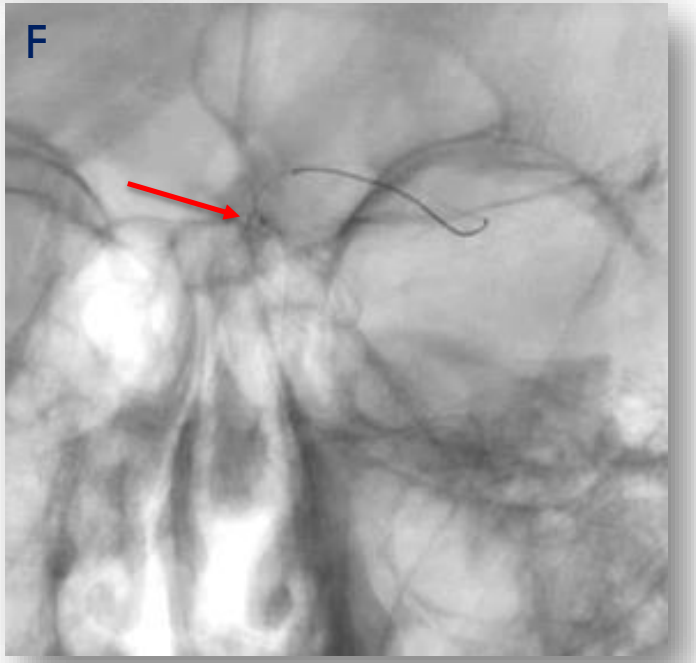


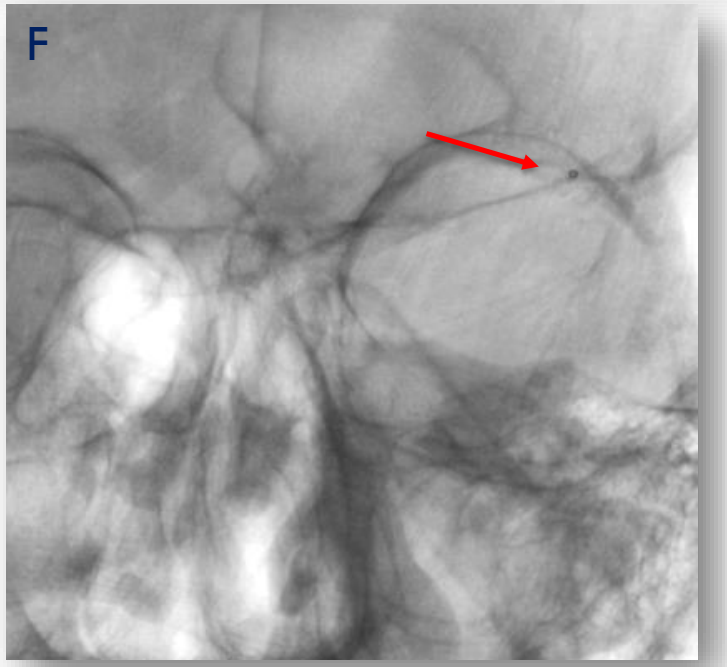


Pré-former le microguide si besoin.
J-shape.

Montée du microguide et microKT



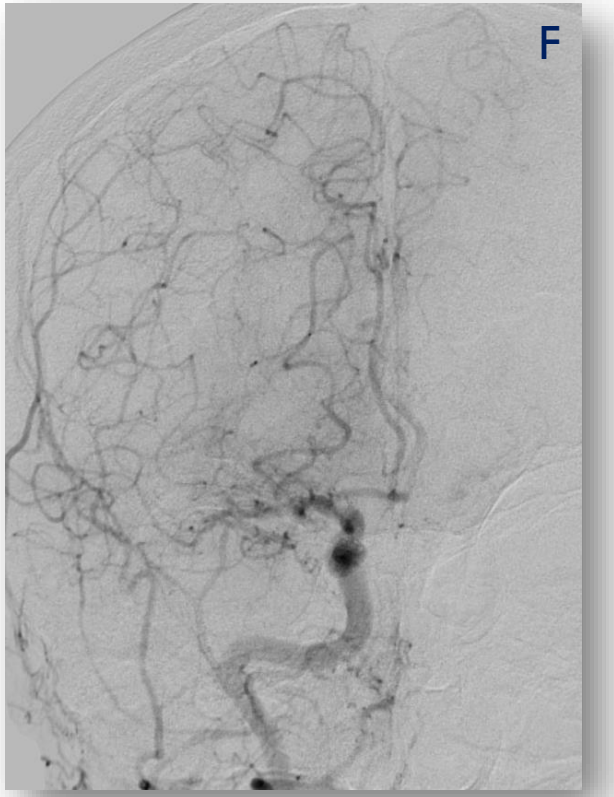


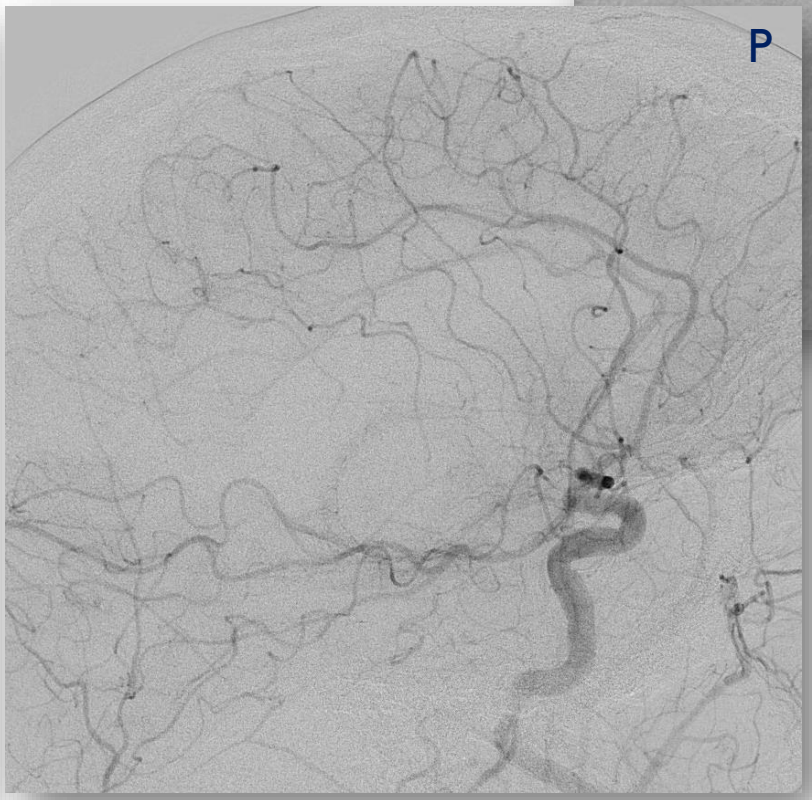


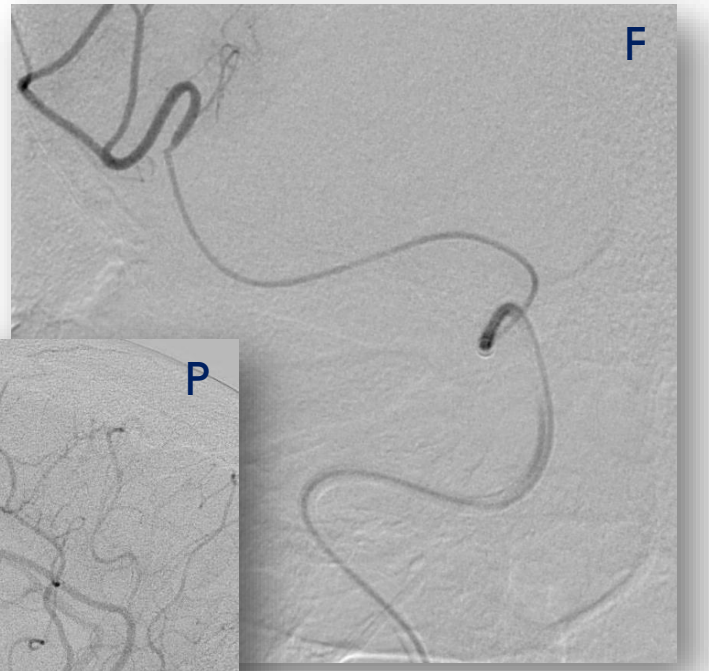
+/- Intérêt de l'injection par micro KT ?

→ Vérifier l'absence de complication distale lors du cathétérisme

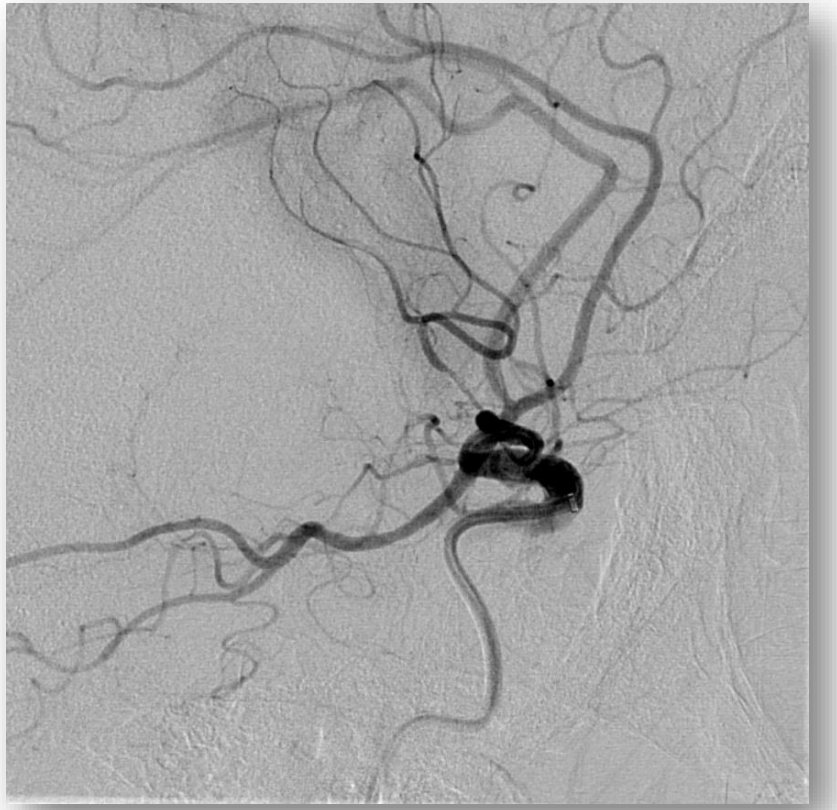
→ En cas d'occlusion M2



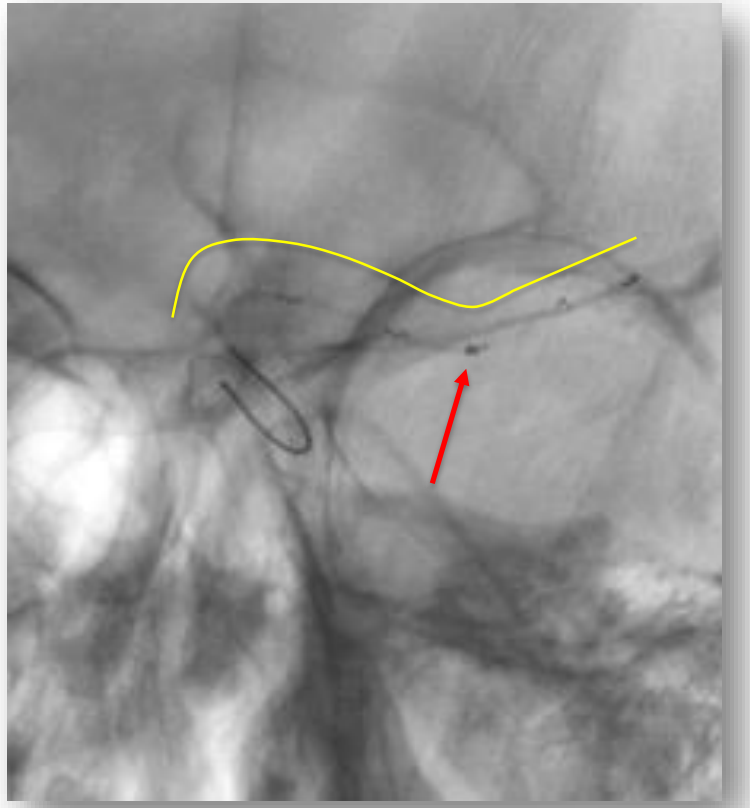


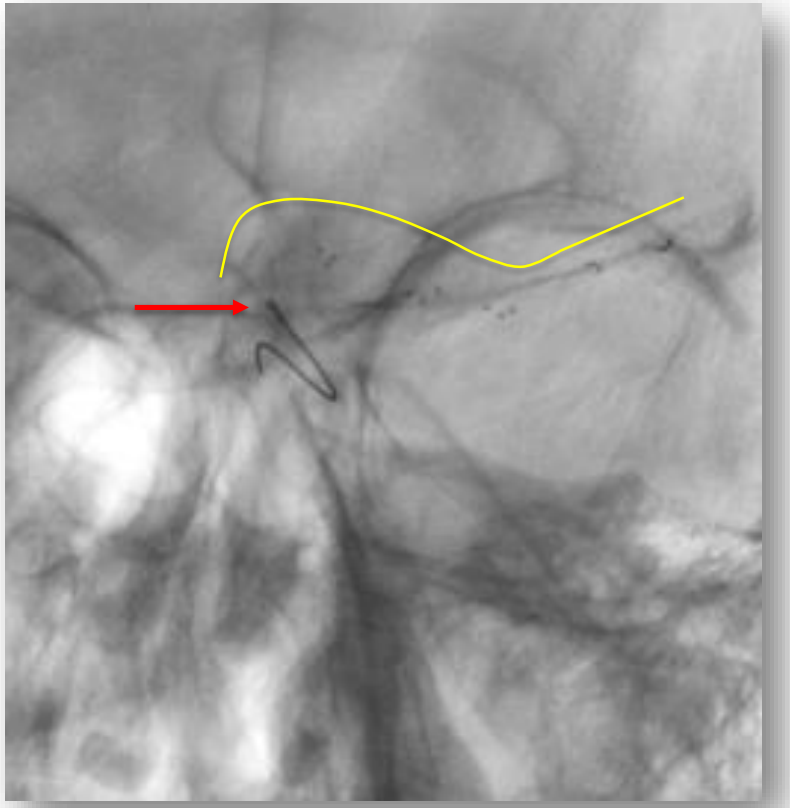


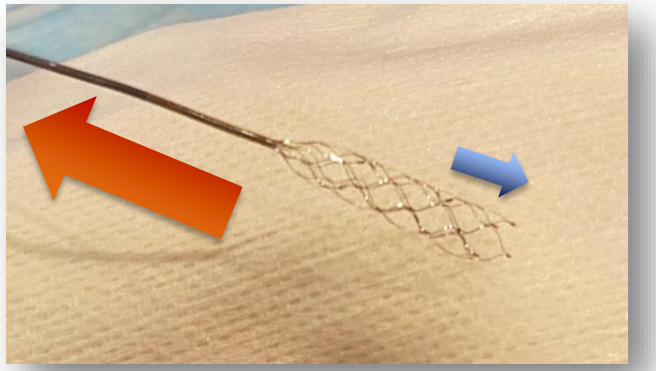
…localisation plus précise du caillot ?

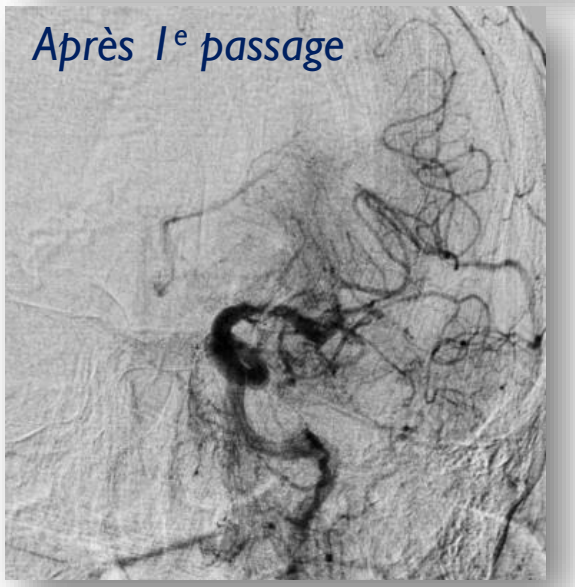


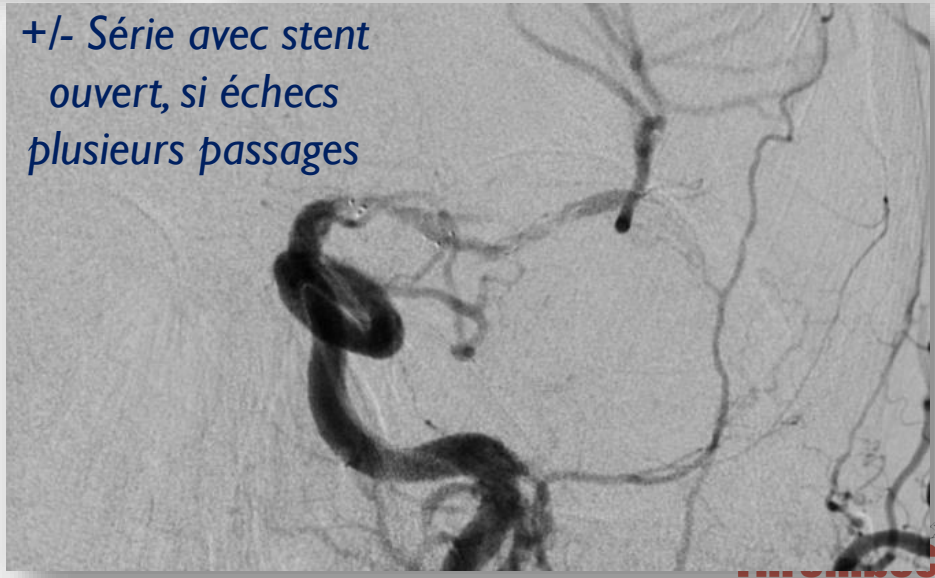
Déploiement du stent

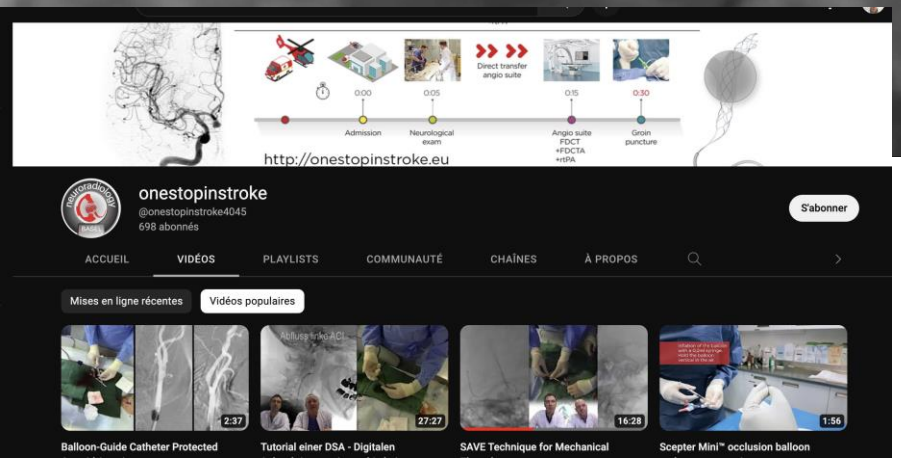


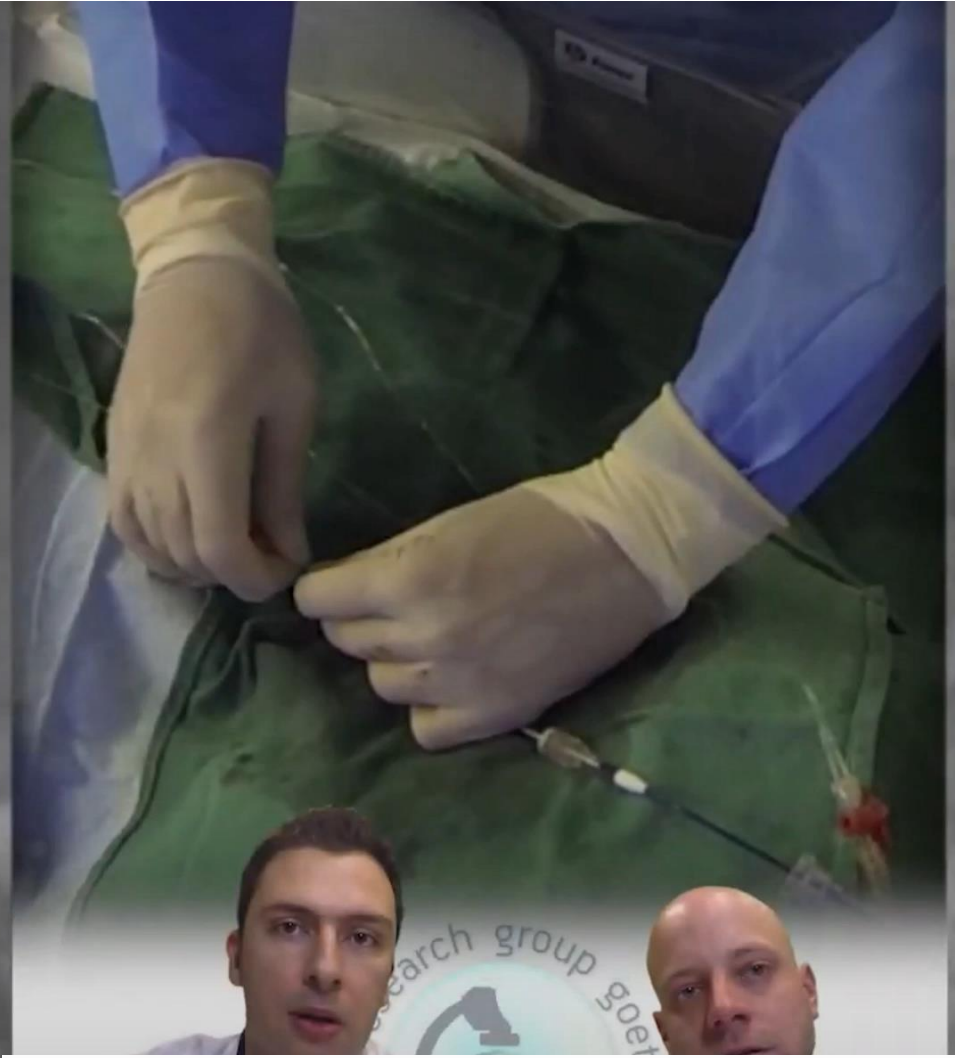












Original Article | Published: 13 February 2017

Maximizing First-Pass Complete Reperfusion with SAVE

Volker Maus, Daniel Behme, Christoph Kabbasch, Jan Borggrefe, Ioannis Tsogkas, Omid Nikoubashman, Martin Wiesmann, Michael Knauth, Anastasios Mpotsaris & Marios Nikos Psychogios

Clinical Neuroradiology **28**, 327–338 (2018) | Cite this article

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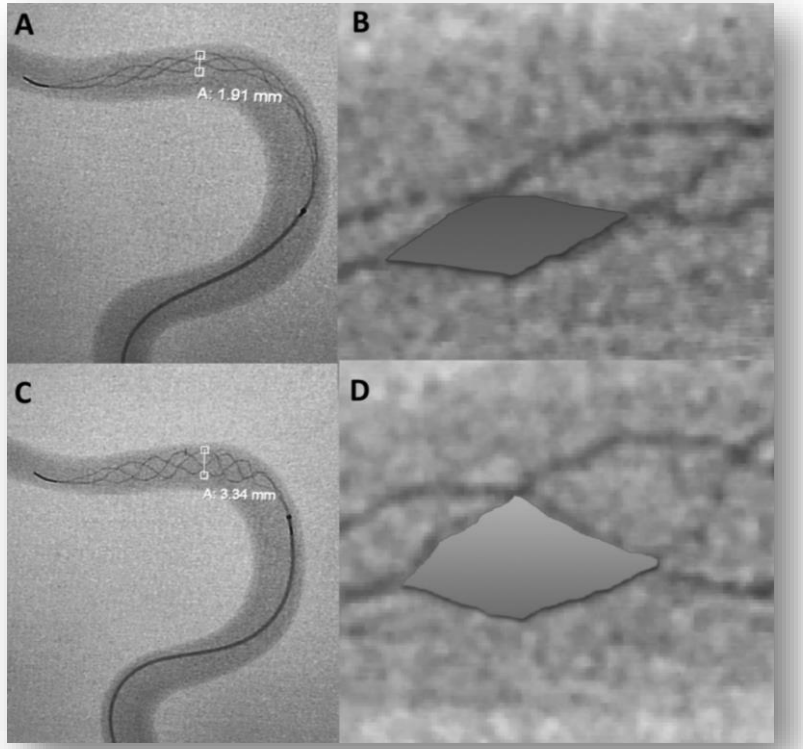
Optimizating Clot Retrieval in Acute Stroke

The Push and Fluff Technique for Closed-Cell Stentrievers

Diogo C. Haussen, MD; Leticia C. Rebello, MD; Raul G. Nogueira, MD

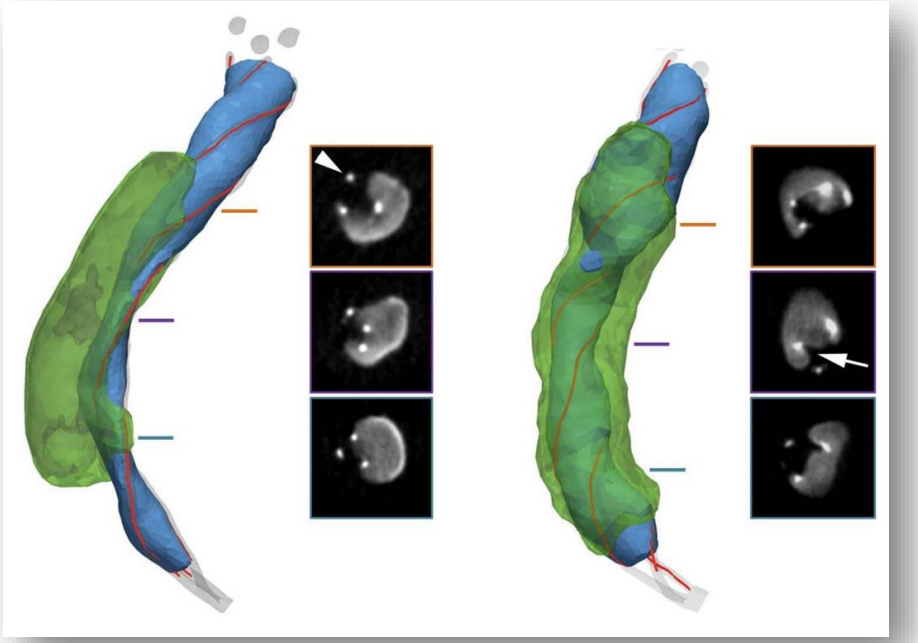


Conclusions—The PFT is safe and leads to optimization of wall apposition and cell size/configuration, resulting in higher chances of first-pass reperfusion, lower number of passes, and better rates of complete reperfusion. **(*Stroke*. 2015;46:2838-2842. DOI: 10.1161/STROKEAHA.115.010044.)**

Quantitative assessment of device–clot interaction for stent retriever thrombectomy

Kajo van der Marel,[1] Ju-Yu Chueh,[1] Olivia W Brooks,[1] Robert M King,[1] Miklos G Marosfoi,[1] Erin T Langan,[1] Sarena L Carniato,[2] Matthew J Gounis,[1] Raul G Nogueira,[3] Ajit S Puri[1]

J NeuroIntervent Surg 2016;**0**:1–6.



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CHOIX DE LA TAILLE DU STENT

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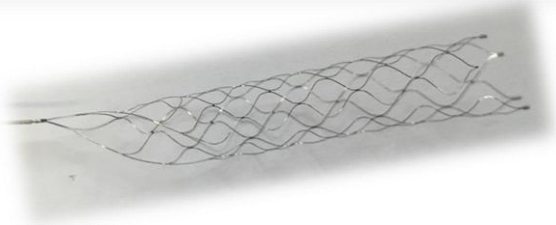
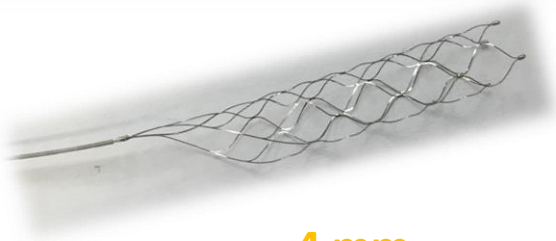
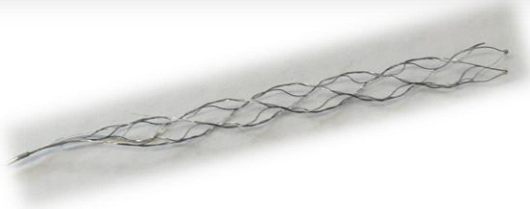


6 mm

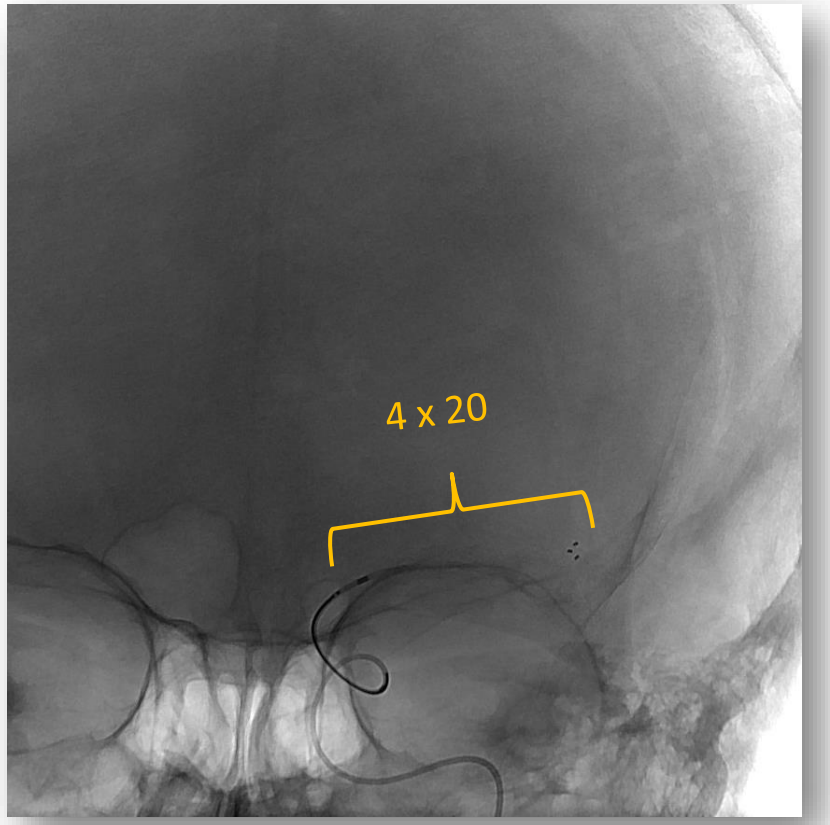


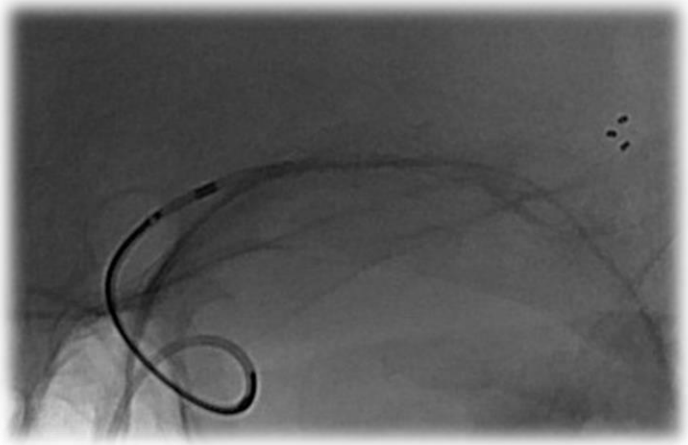
4 mm

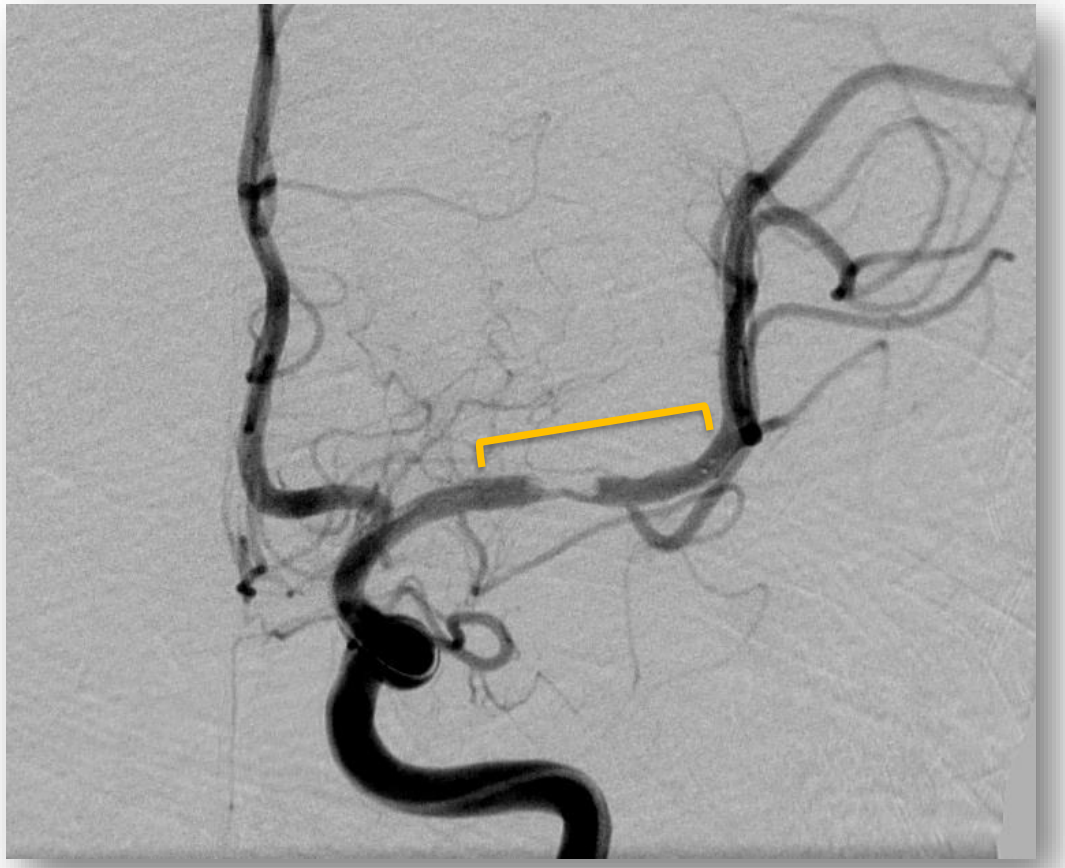


3 mm

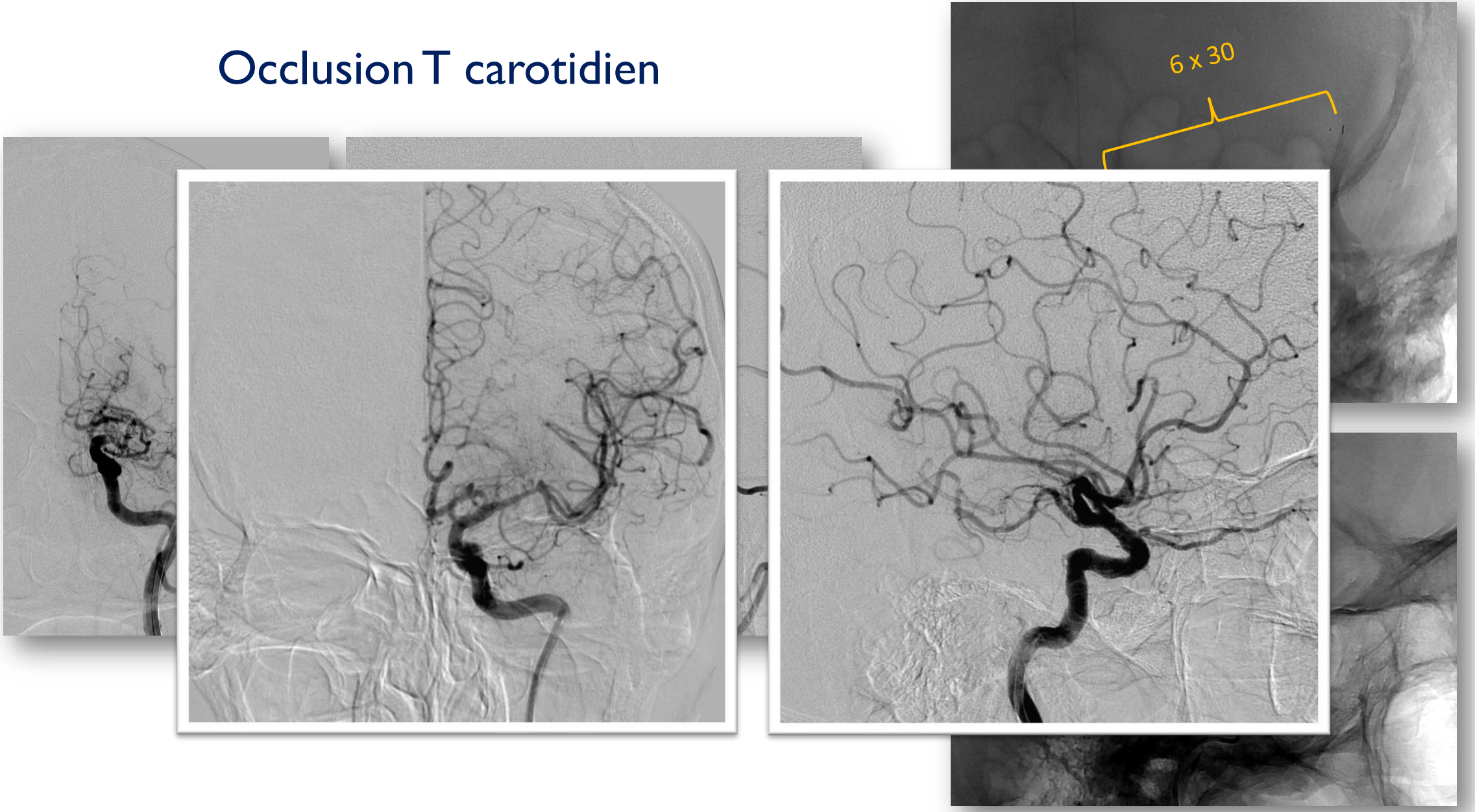
Occlusion M1







Occlusion T carotidien



Quelle longueur de stent ?

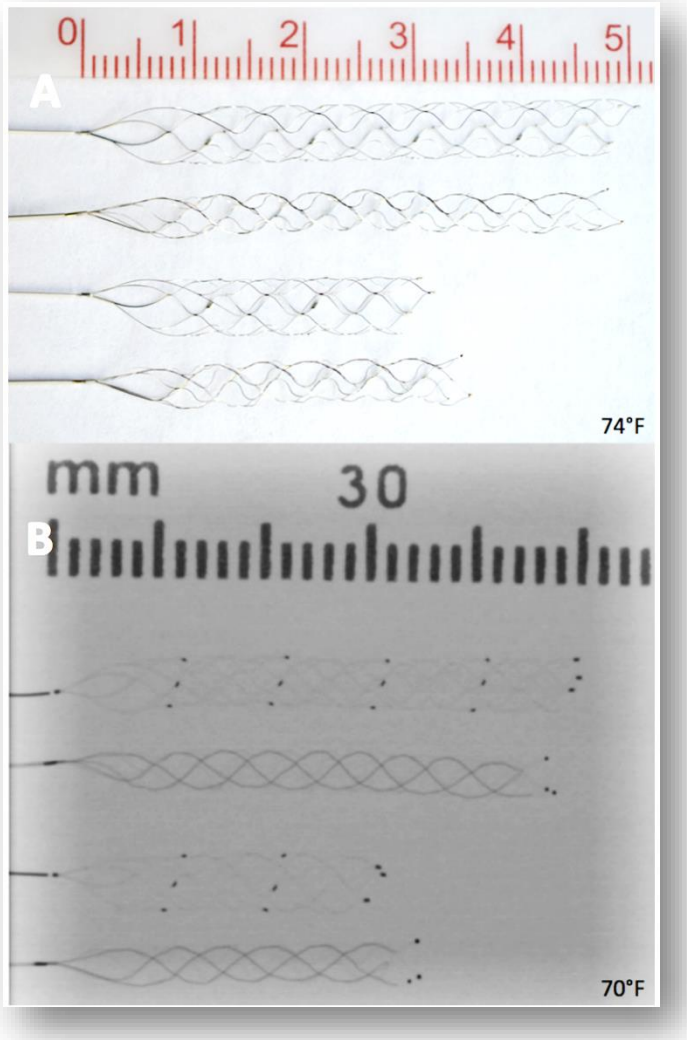


Figure 1 Illustrative image of the different 4 mm stent retriever lengths and fluoroscopic characteristics. (A) Macroscopic and (B) fluoroscopic appearance of the devices. From top to bottom: Solitaire 4×40 mm; Trevo 4×30 mm; Solitaire 4×20 mm; Trevo 4×20 mm.

Quelle longueur de stent ?

Longer stent retrievers enhance thrombectomy performance in acute stroke

Diogo C Haussen, Alhamza R Al-Bayati, Jonathan A Grossberg, Mehdi Bouslama, Clara Barreira, Nicolas Bianchi, Michael R Frankel, Raul G Nogueira

J NeuroIntervent Surg 2018;**0**:1–4.

Table 1 Univariate analysis comparing long versus short retrievers

	Long (n=221)	Short (n=199)	P value
Primary outcome			
First-pass reperfusion	138 (62%)	101 (50%)	0.01
Secondary outcomes			
First-pass full reperfusion	91 (41%)	66 (33%)	0.10
Parenchymal hematoma type 2	5 (2%)	6 (3%)	1.00
Subarachnoid hemorrhage	15 (6%)	12 (6%)	0.72

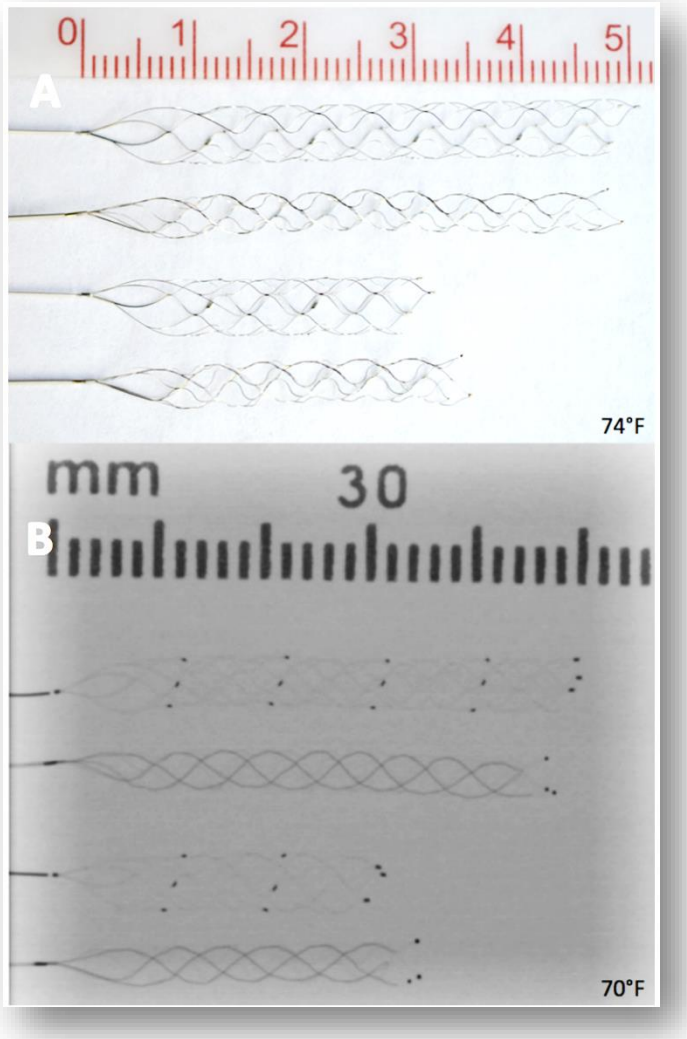


Figure 1 Illustrative image of the different 4 mm stent retriever lengths and fluoroscopic characteristics. (A) Macroscopic and (B) fluoroscopic appearance of the devices. From top to bottom: Solitaire 4×40 mm; Trevo 4×30 mm; Solitaire 4×20 mm; Trevo 4×20 mm.

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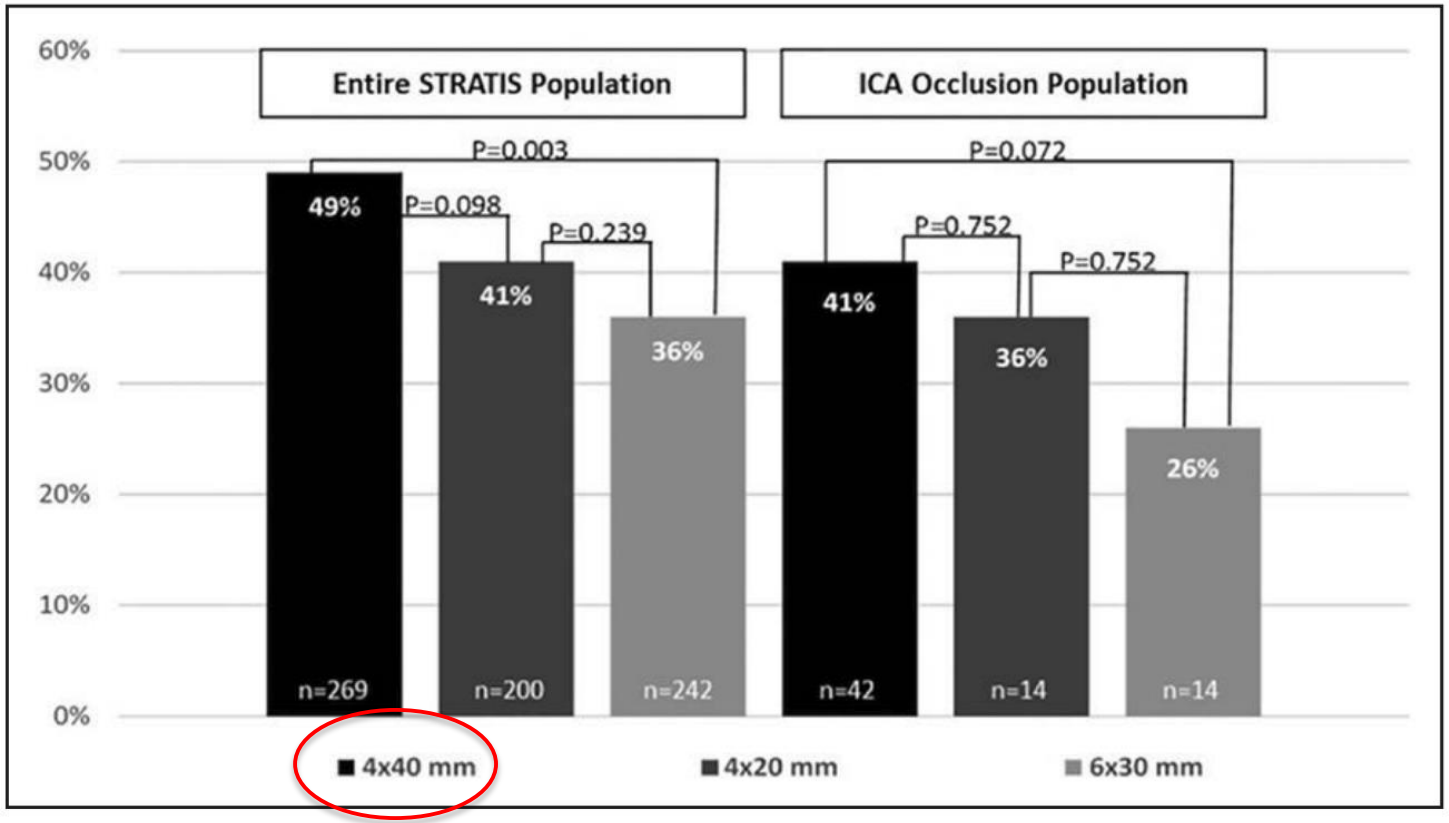
The longer, the better…

Impact of Stent Retriever Size on Clinical and Angiographic Outcomes in the STRATIS Stroke Thrombectomy Registry

Osama O. Zaidat, MD; Diogo C. Haussen, MD; Ameer E. Hassan, DO; Ashutosh P. Jadhav, MD, PhD; Brijesh P. Mehta, MD; Maxim Mokin, MD, PhD; Nils H. Mueller-Kronast, MD; Michael T. Froehler, MD, PhD

Stroke **February 2019**



Taux de first-pass effect, avec stents solitaires de tailles différentes, dans les occlusions de la circulation antérieure.

Ecole de la Thrombectomie

Interventional Neurology

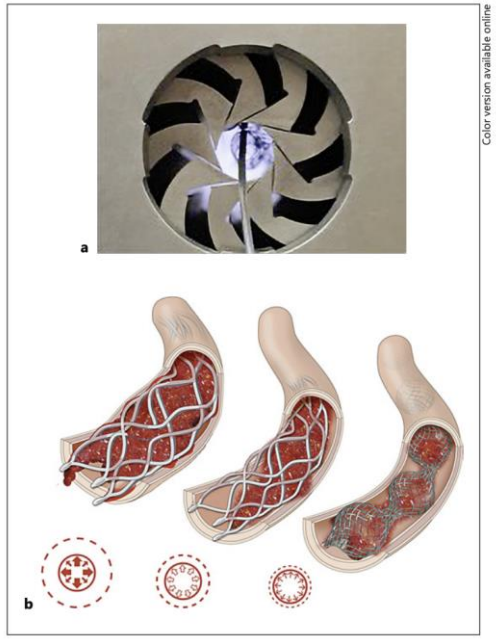
Intervent Neurol 2019;8:206–214
DOI: 10.1159/000501080
Published online: August 5, 2019

Research Article

Understanding the Radial Force of Stroke Thrombectomy Devices to Minimize Vessel Wall Injury: Mechanical Bench Testing of the Radial Force Generated by a Novel Braided Thrombectomy Assist Device Compared to Laser-Cut Stent Retrievers in Simulated MCA Vessel Diameters

Jeffrey M. Katz[a] Abdullah M. Hakoun[a] Amir R. Dehdashti[b] Alex B. Chebl[c]
Vikram Janardhan[d] Vallabh Janardhan[d]

[a]Department of Neurology, North Shore University Hospital, Manhasset, NY, USA;
[b]Department of Neurosurgery, North Shore University Hospital, Manhasset, NY, USA;
[c]Harris Stroke and Neurovascular Center, Henry Ford Health System, Detroit, MI, USA;
[d]Division of Stroke Devices Research, Insera Therapeutics, Inc., Dallas, TX, USA



Recherche in vitro +++

Experimental evaluation of stent retrievers' mechanical properties and effectiveness

Paolo Machi,[1] Franck Jourdan,[2] Dominique Ambard,[2] Cedric Reynaud,[2]
Kyriakos Lobotesis,[3] Mathieu Sanchez,[2] Alain Bonafé,[1] Vincent Costalat[1]

Table 2 Result of *Flat plate tests* and *Pull up traction tests*

Size	*Flat plate tests* Radial force density N/mm	*Pull up traction tests* Radial pressure Pa (N/m^2) (1.5 mm tube)	*Pull up traction tests* Radial pressure Pa (N/m^2) (3.5 mm tube)
Trevo PV			
4–20	0.01480	920	50* (p=0.050)
3–20	0.00600	300	60* (p=0.030)
Eric			
3–20	0.01100	220	–
4–24	0.01850	1540	340* (p=0.008)
6–44	0.01304	770	400* (p=0.010)
Embotrap			
5–21	0.00642	1430	770* (p=0.014)
Separator 3D			
4.5–26	0.00791	1360	400* (p=0.006)
Revive			
4.5–22	0.01269	1360	850* (p=0.021)
Mindframe			
3–23	0.00451	1250	330* (p=0.034)
Solitaire FR			
4–20	0.00448	1110	530* (p=0.014)
6–30	0.00351	1060	580* (p=0.020)
Preset			
4–20	0.00521	1090	730* (p=0.018)
6–30	0.00368	630	600* (p=0.25)
Preset LT			
3–20	0.00320	1060	160* (p=0.03)
4–20	0.00370	460	480* (p=0.77)
Catch			
3–15	0.00350	840	220* (p=0.049)
4–20	0.00444	1810	360* (p=0.010)
6–30	0.00368	1870	900* (p=0.030)

*p Value for the comparison between force exerted in tubes of 1.5 and 3.5 mm inner diameter during *Pull up traction tests*. Note results obtained with Preset 6–30 and Preset LT 4–20 for which there is not significant shift of the radial pressure when retrieved in tubes of different diameter; p=0.25 and p=0.77, respectively.

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METHODE COMBINÉE

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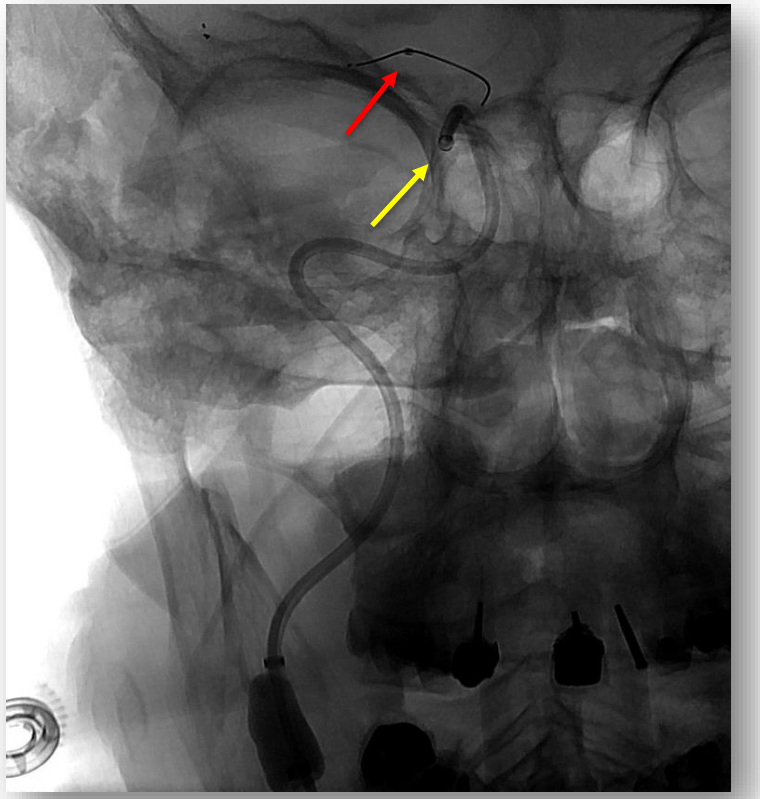
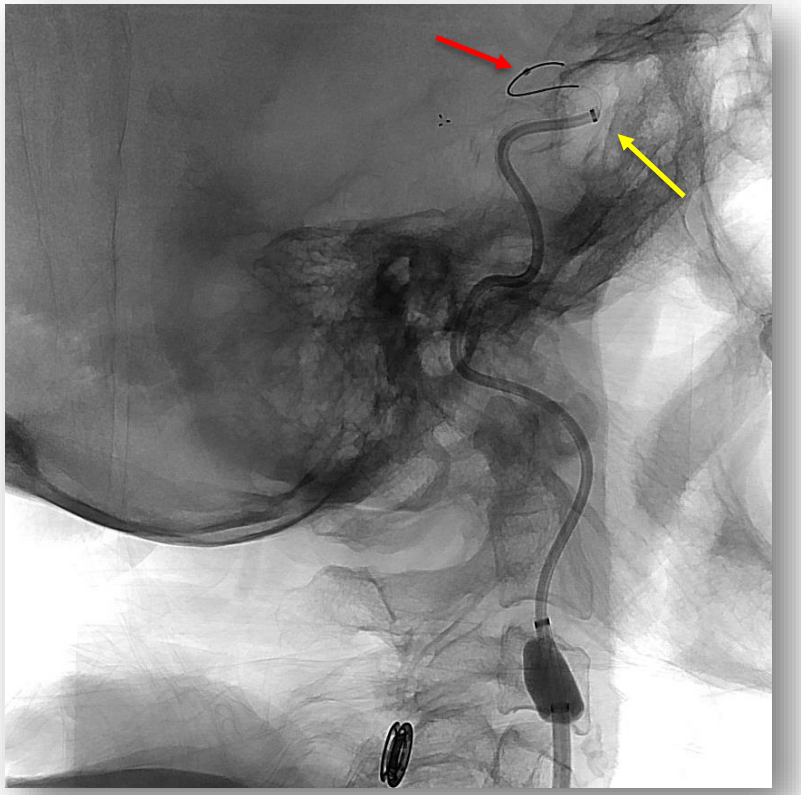
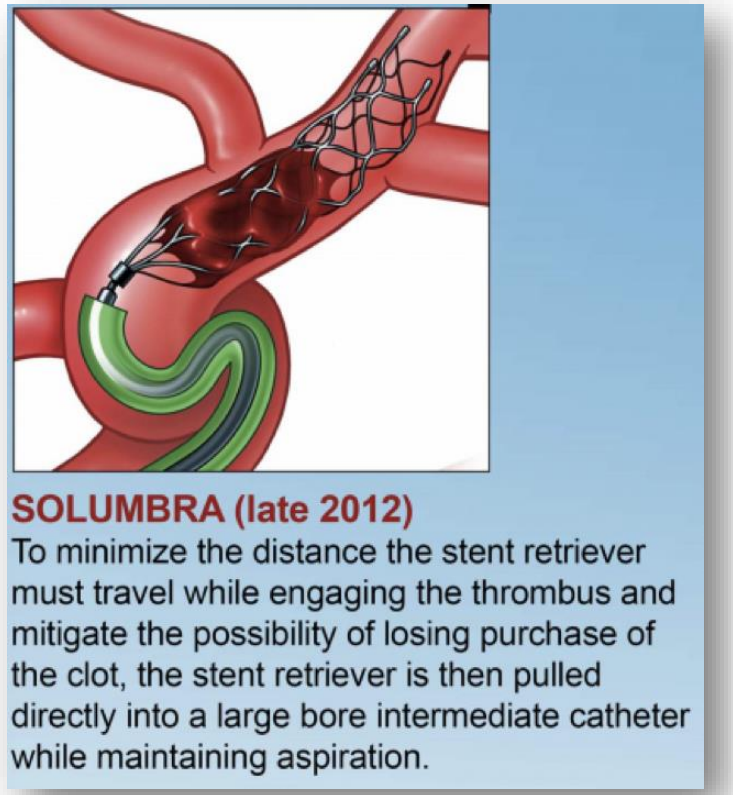
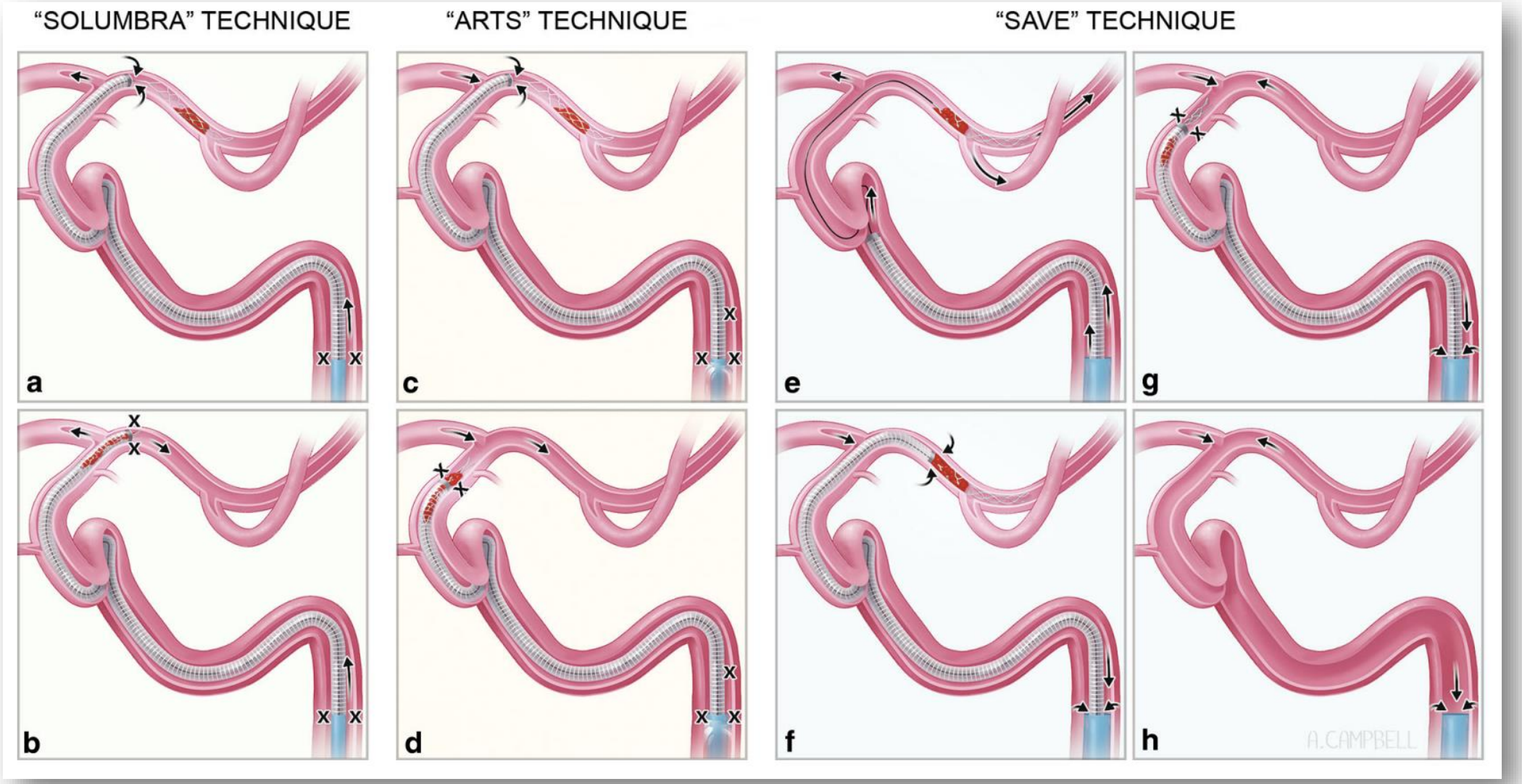
Utilisation combinée du stent retriever + cathéter intermédiaire d'aspiration
Historiquement = « solumbra »









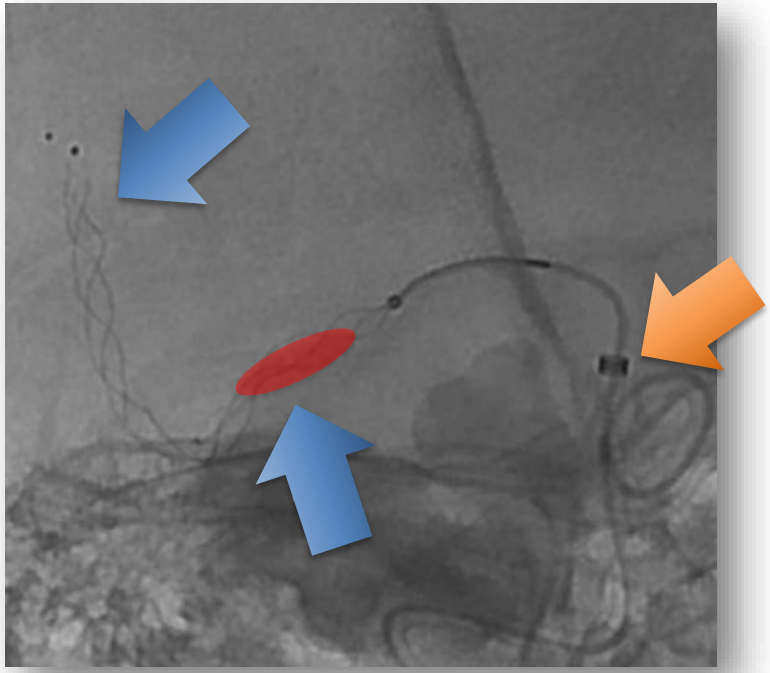
Nombreuses variantes décrites…

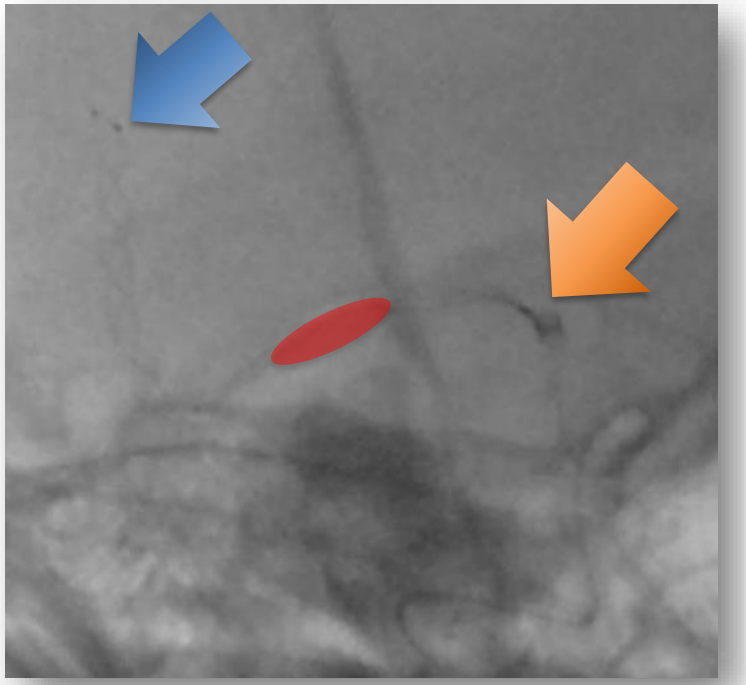
Maximizing First-Pass Complete Reperfusion with SAVE

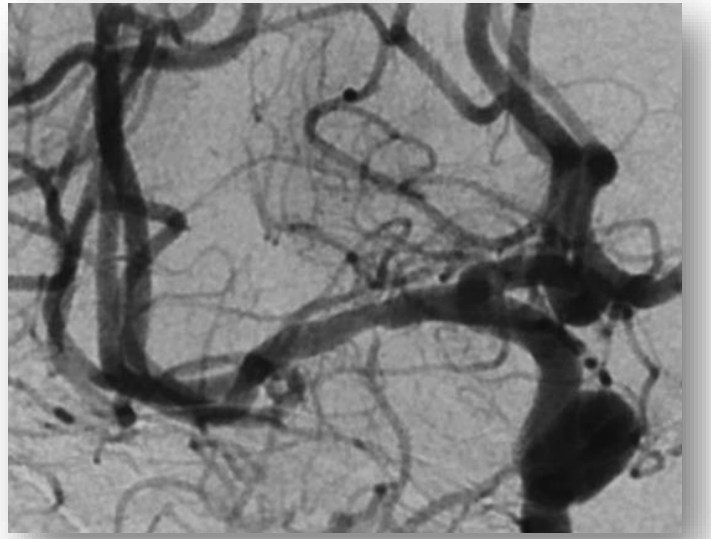
Volker Maus[1] · Daniel Behme[2] · Christoph Kabbasch[1] · Jan Borggrefe[1] · Ioannis Tsogkas[2] · Omid Nikoubashman[3] · Martin Wiesmann[3] · Michael Knauth[2] · Anastasios Mpotsaris[1] · Marios Nikos Psychogios[2]

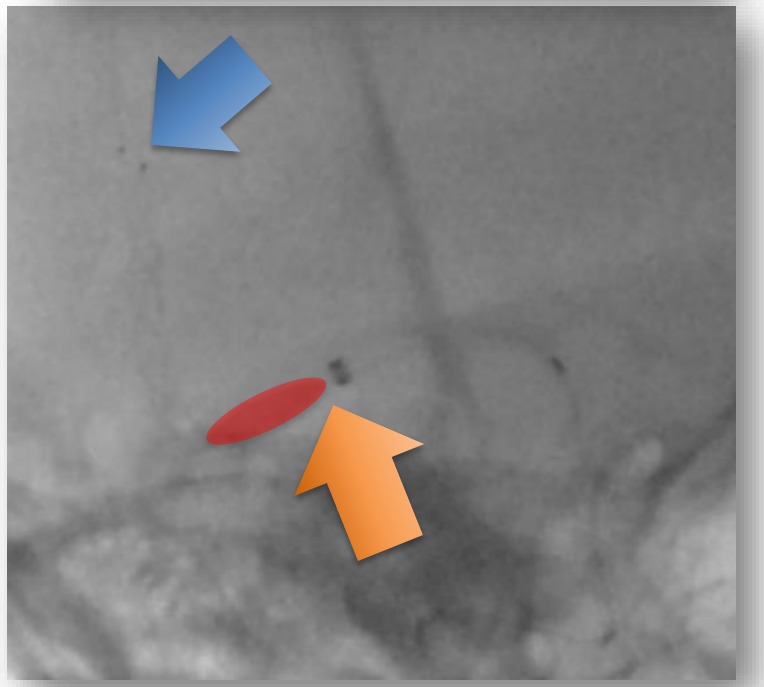
Clin Neuroradiol
13 February 2017

SR: l'ancrage









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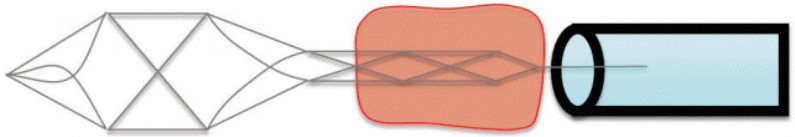
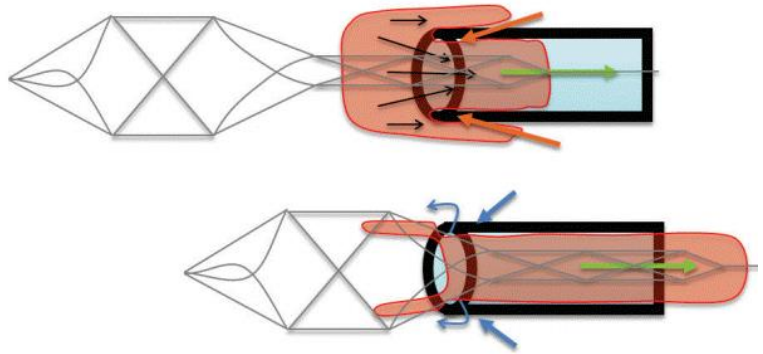
Thrombectomy in Acute Ischemic Stroke: Challenges to Procedural Success

Albert J. Yoo,[a] Tommy Andersson[b,c,d] Journal of Stroke 2017;19(2):121-130

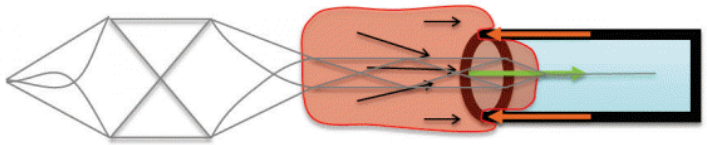
Quelle position du stent par rapport au KT d'aspiration ?



Pas de contact caillot – KT aspiration



Stent trop retiré dans le KT aspiration



Position satisfaisante du stent/KT aspiration

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Vitesse optimale de retrait?

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Vitesse optimale de retrait?

ORIGINAL RESEARCH
INTERVENTIONAL

Fast Stent Retrieval during Mechanical Thrombectomy Improves Recanalization in Patients with the Negative Susceptibility Vessel Sign

S. Soize, J.-B. Eymard, S. Cheikh-Rouhou, P.-F. Manceau, C. Gelmini, M. Sahnoun, M. Gawlitza, M. Zuber, L. Pierot, and E. Touzé

AJNR 2021

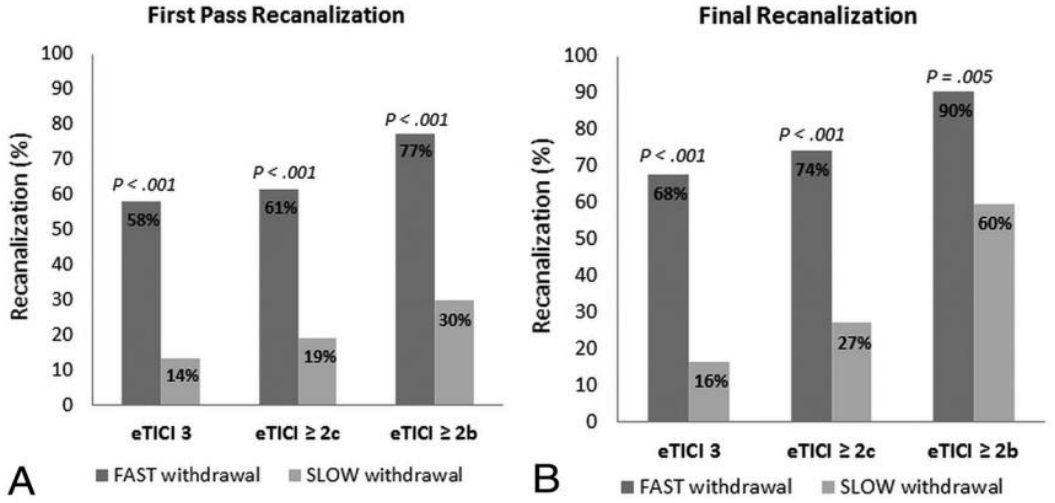
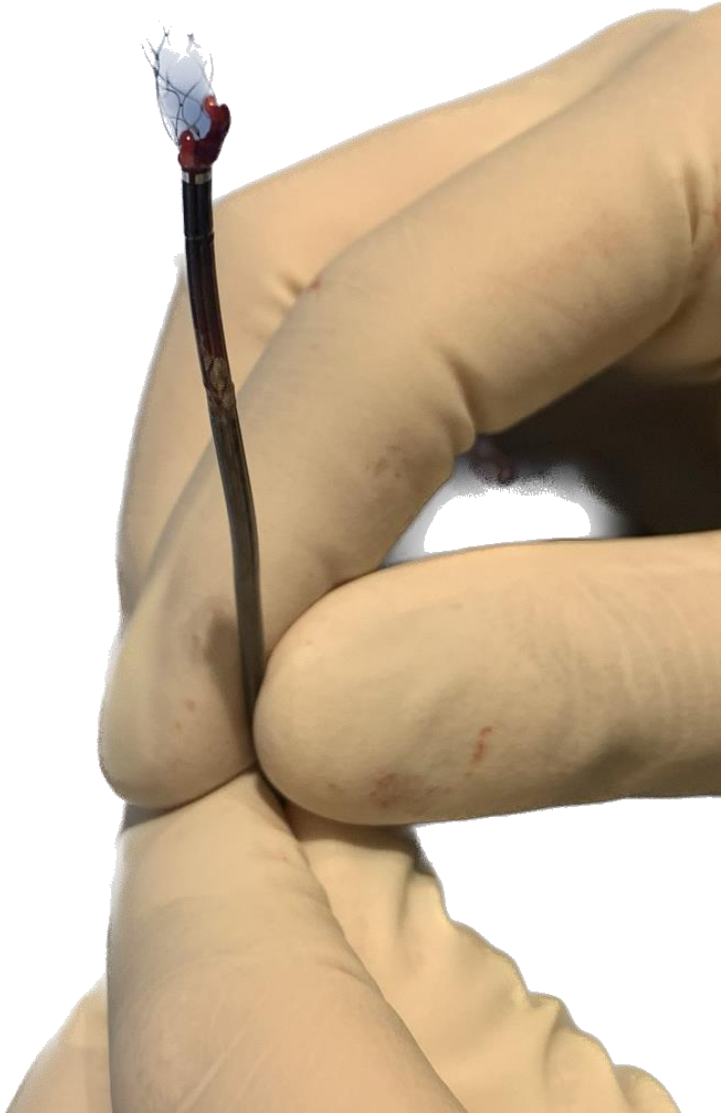


FIG 2. *A*, First-pass recanalization rates according to fast and slow retrieval. *B*, Recanalization rates according to fast and slow retrieval.



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ASTER 2 COMBINED

Combined Use of Contact Aspiration and the Stent Retriever Technique Versus Stent Retriever Alone for Recanalisation in Acute Cerebral Infarction (ASTER2 Combined)

Bertrand Lapergue, Raphaël Blanc , Julien Labreuche,, Xavier Barreau, Jérome Berge, Arturo Consoli, Georges Rodesch, Susanna Saleme, Vincent Costalat, Serge Bracard, Hubert Desal, Alain Duhamel, Mikael Mazighi, Laurent Spelle, Emmanuel Houdart, Frédéric Clarençon, Jean Christophe Ferré , Maalek Ben Maacha, C Prevot, Benjamin Gory, Michel Piotin.

On behalf of the ASTER2 Trial Investigators.

→ Méthode combinée Stent + KT aspiration

vs

Stent seul

Frontline Treatment	TICI 2c/3 % Patients
Combined CA+SR	131 (64.5%)
STENT RETRIEVER	117 (57.9%)

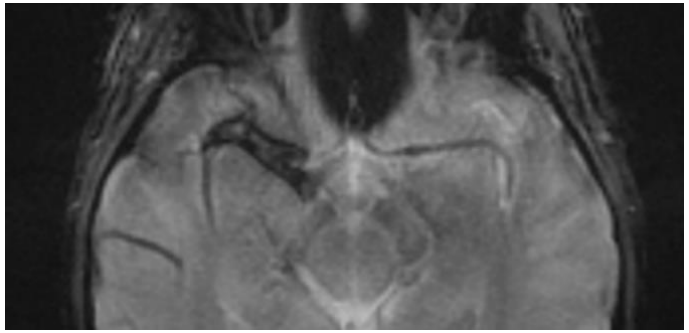
P value = 0.17

Pas de différence statistiquement significative entre les 2 méthodes

Ecole de la Thrombectomie

En considérant l'imagerie de l'occlusion comme BIOMARQUEUR?

Adapter la stratégie endovasculaire selon le caillot



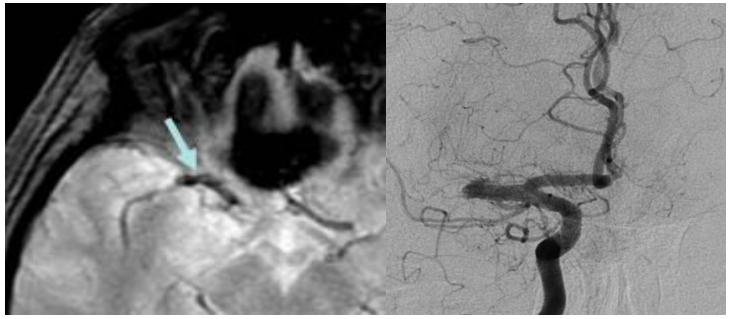
VECTOR

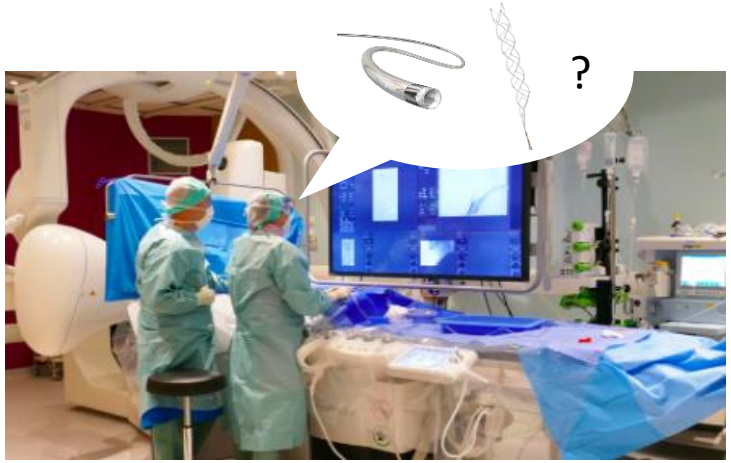
adaptatiVe Endovascular strategy to the CloT MRI in large intracranial vessel Occlusion

JENI

JEUNES EN NEURORADIOLOGIE INTERVENTIONNELLE EN FRANCE

SVS+: Stent+Aspiration vs Aspiration seule





Et…
Corrélations anatomopathologiques: COMPO-CLOT
Aspect angiographique de l'occlusion
Clot Burden Score

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INTERACT
Jeunes en neuroradiologie interventionelle

JENI
JEUNES EN NEURORADIOLOGIE INTERVENTIONNELLE

Intracranial technical factors associated with first pass effect during mechanical thrombectomy for acute ischemic stroke.

Facteurs techniques intracrâniens associés au FPE lors d'une thrombectomie mécanique pour un AVC ischémique aigu.

Dr Vincent L'ALLINEC : vincent.lallinec@chu-angers.fr – PH – CHU d'Angers – Service de Radiologie
Sylvain THERY : Interne – CHU D'Angers – service de radiologie

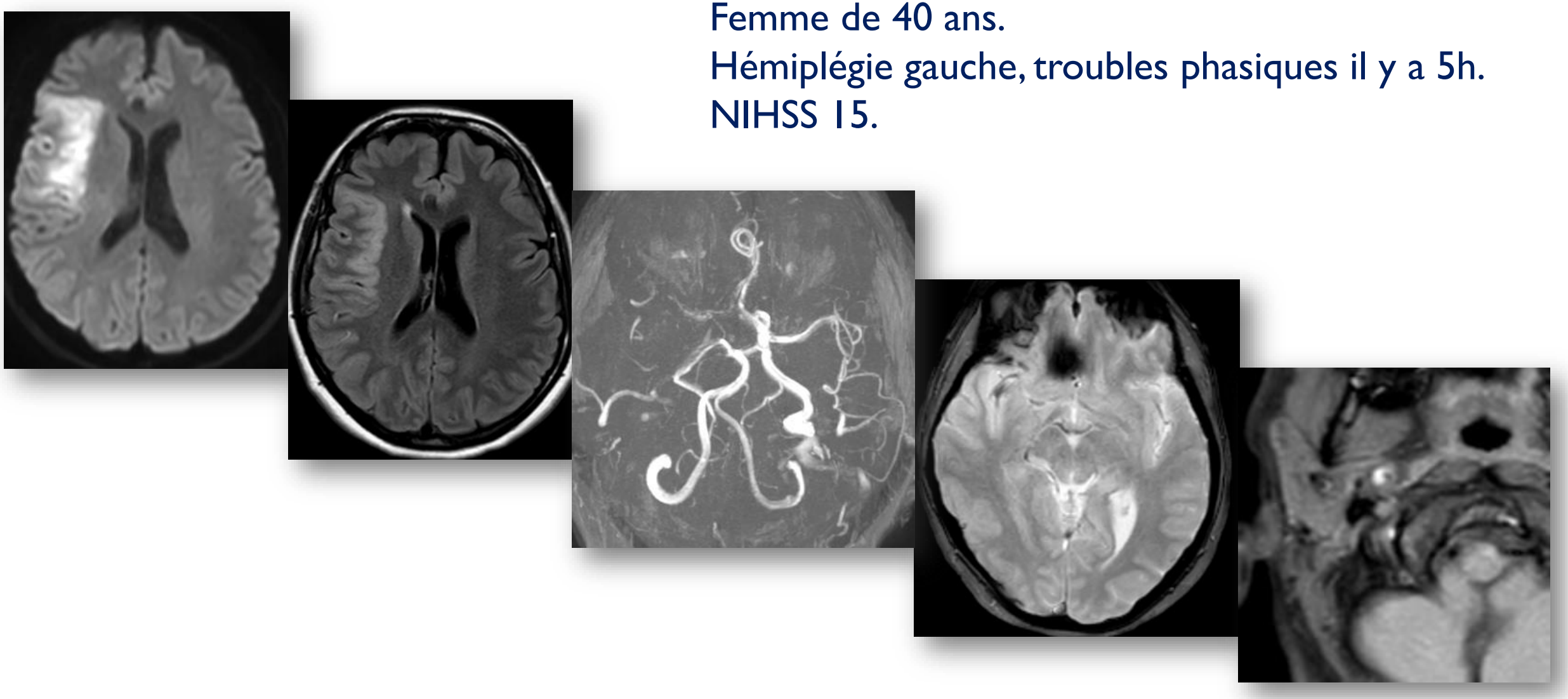
Données nouvelles à collecter : 8 paramètres PROSPECTIF.
!!!Les données sont à préciser seulement pour le premier passage !!!
!!!Les données sont à compléter directement sur eCRF ETIS !!!

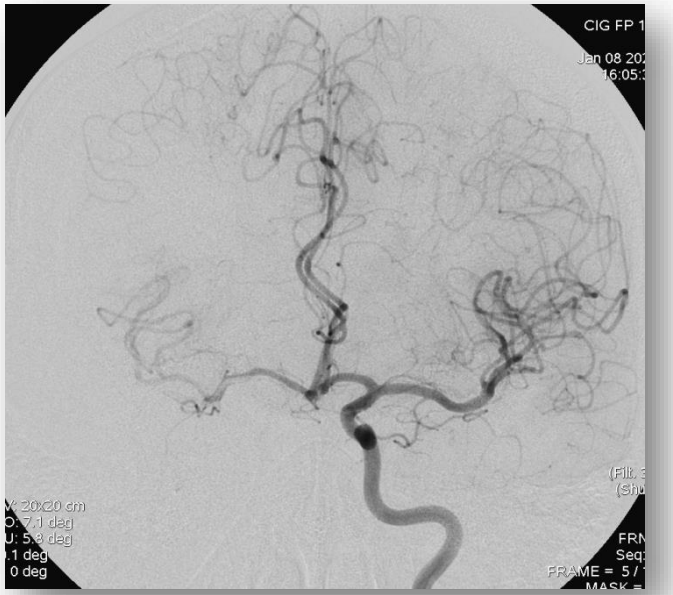
- Temps d'impaction du stent (sec), position du stent par rapport au thrombus
- Temps d'aspiration (sec), avec aspiration bloquée ou non
- Technique avec retrait du microcathéter ou non
- Utilisation d'une pompe d'aspiration ou de seringue d'aspiration.
- Aspiration via la porteuse (BGC, NeuronMax…) oui non
- Positionnement du BGC / aspiration
- Si technique combinée : Retrait ou non du stent dans le cathéter d'aspiration
- Retrait rapide / lent

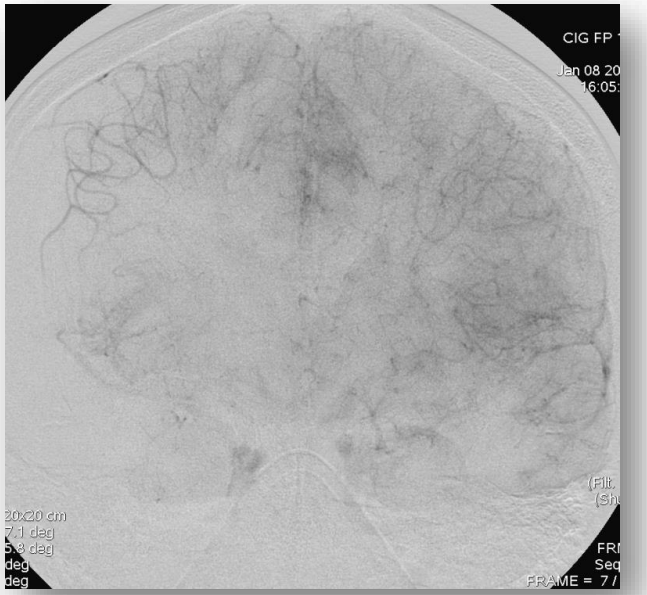
Ecole de la thrombectomie

CAS PARTICULIERS: Précautions

Femme de 40 ans.
Hémiplégie gauche, troubles phasiques il y a 5h.
NIHSS 15.





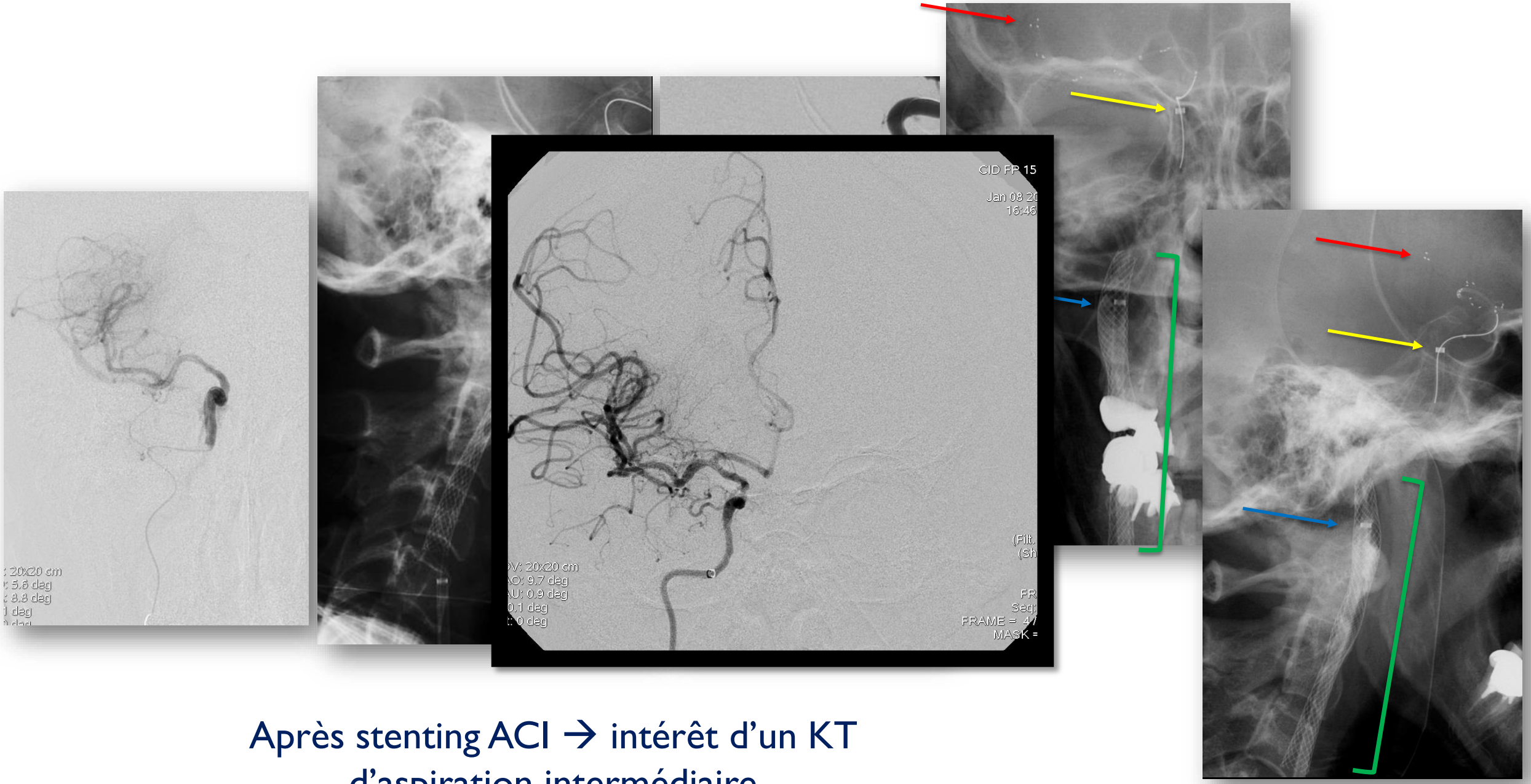


Dissection ACI

+

occlusion M1-M2

Ecole de la Thrombectomie



Après stenting ACI → intérêt d'un KT d'aspiration intermédiaire

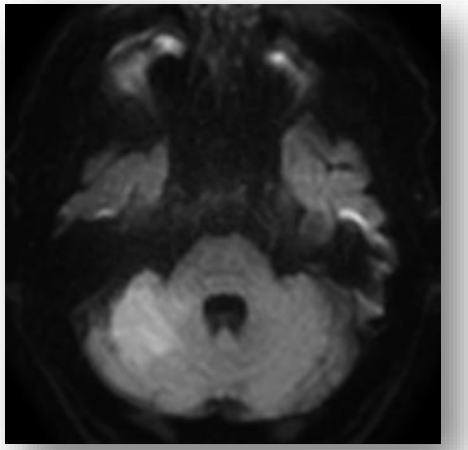
Ecole de la Thrombectomie

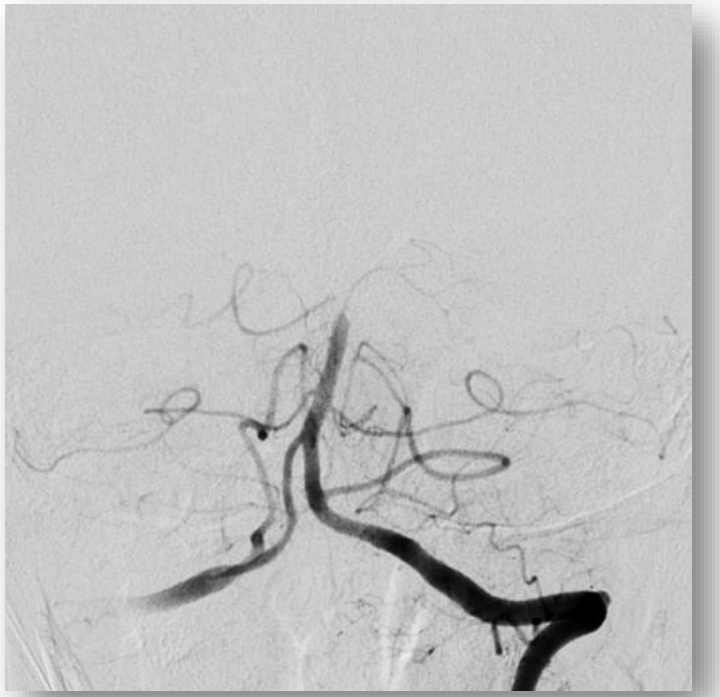
CAS PARTICULIERS: Tronc Basilaire

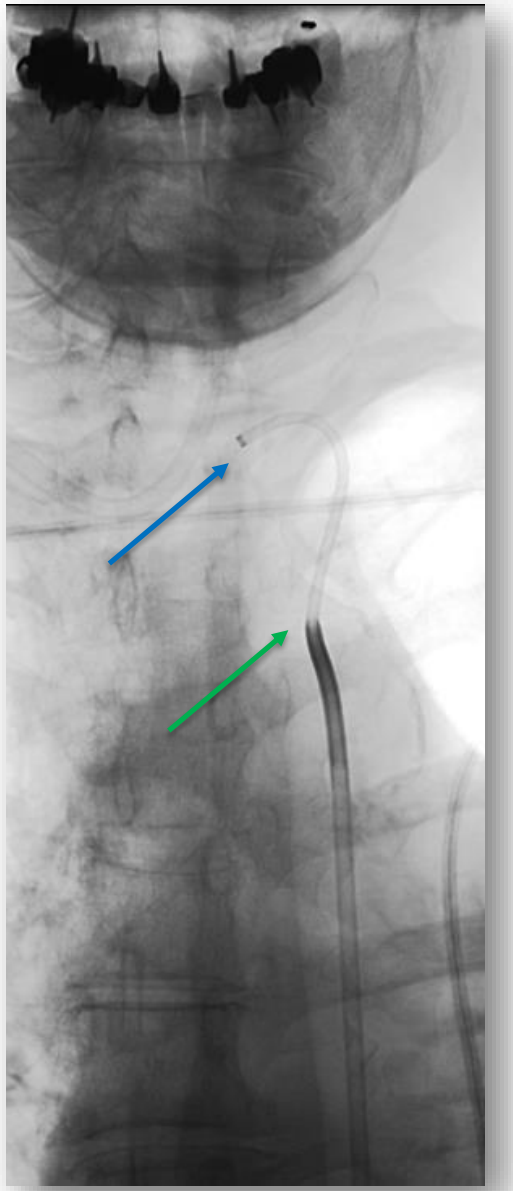
Ecole de la Thrombectomie

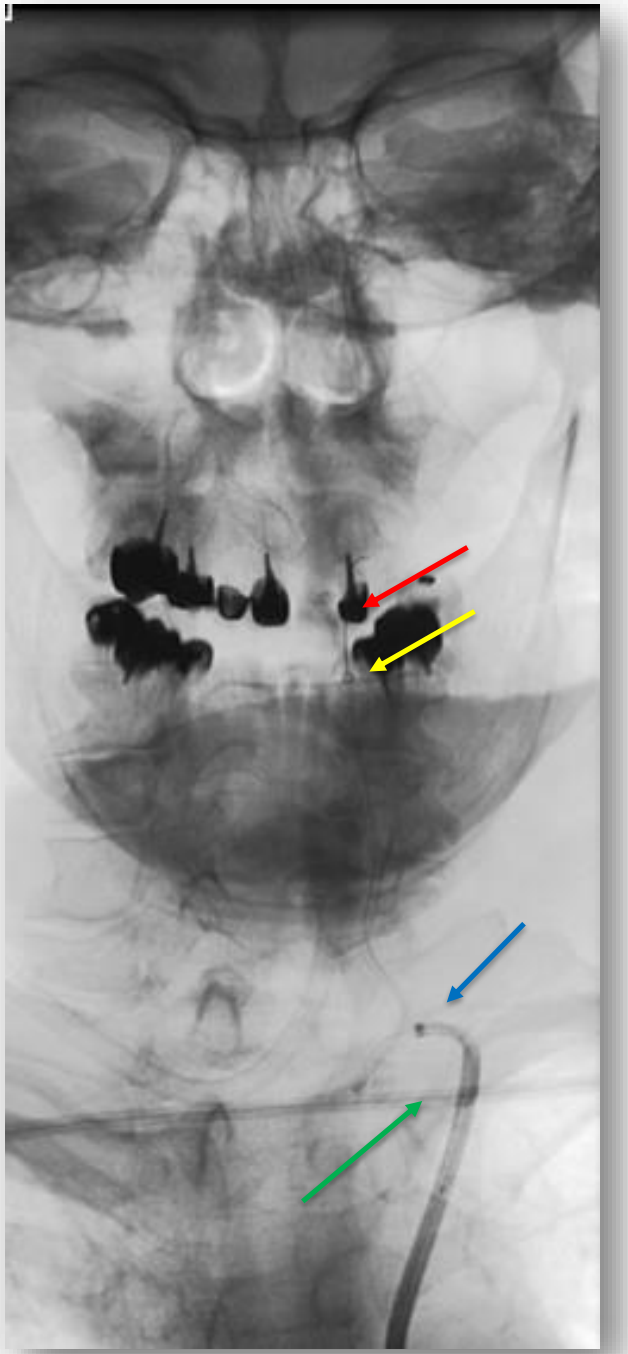
Ex : occlusion du tronc basilaire avec accès difficile…

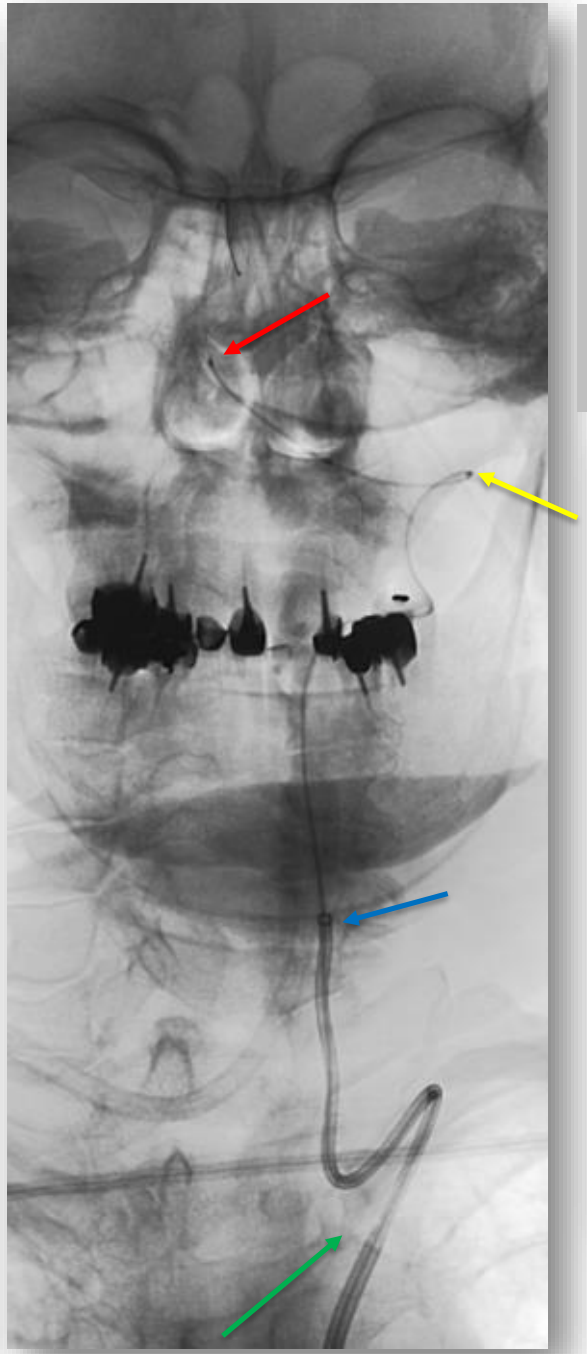
S'aider d'autres moyens pour monter le stent : *stratégie coaxiale, intro long, KT guide plus souple, KT intermédiare etc.*



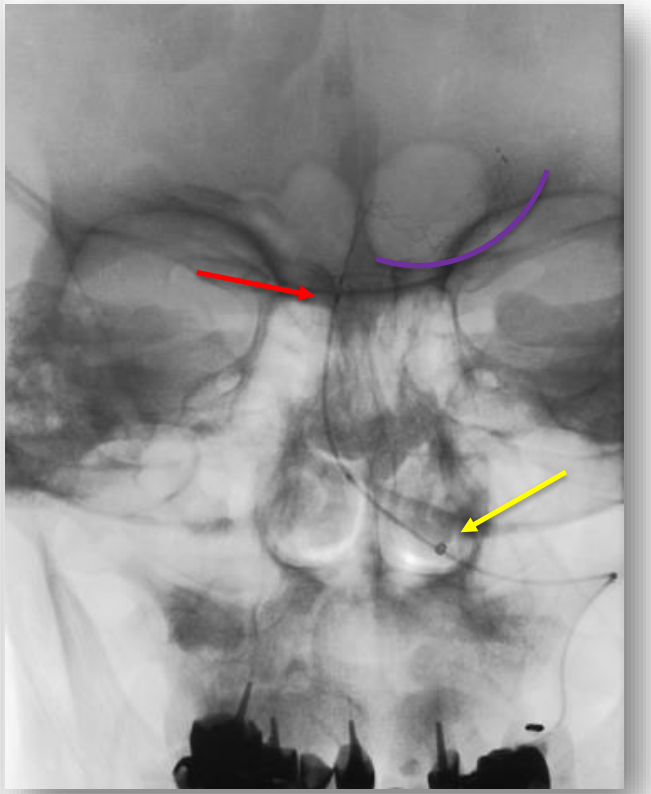




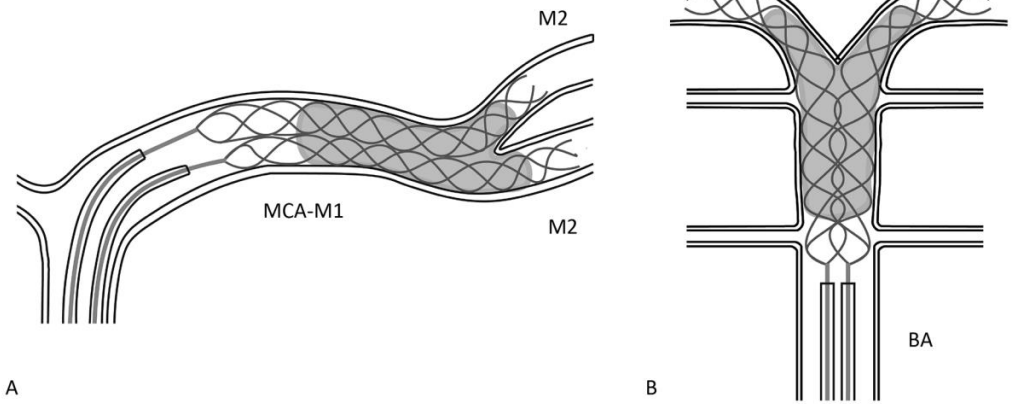


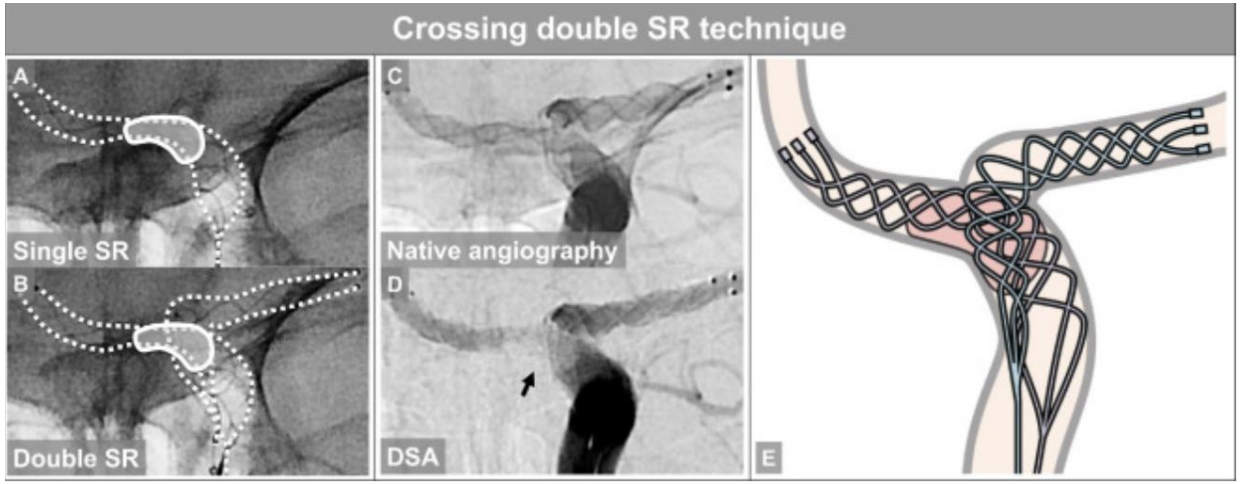


Intro long 6F
Neuron 0.70
Sofia 5F
Rapid Transit
Trevo 4x20



CAS PARTICULIERS: Occlusions réfractaires





PRACTICE | INNOVATIONS CPD

Dual-stent retrieval for mechanical thrombectomy of refractory clot in acute stroke as a rescue technique

Satya Narayana Patro MD, Daniela Iancu MD MSc

Case Report

Crossing double stent retriever technique for refractory terminal internal carotid artery occlusion

Isao Sasaki MD, MBA [a], Taichiro Imahori MD, PhD [a, b], Tatsuya Yano MD [a], Masanori Gomi MD [a], Junko Kuroda MD, PhD [a], Norikata Kobayashi MD, MBA [a], Kimitoshi Sato MD [a], Yoji Niwa MD [a], Koichi IwasaKi MD, PhD [a], Hiroshi Hasegawa MD, PhD [a]

Le double stent retriever ?

Original Article | Open Access | Published: 13 April 2022

First-line Double Stentriever Thrombectomy for M1/TICA Occlusions

Initial Experiences

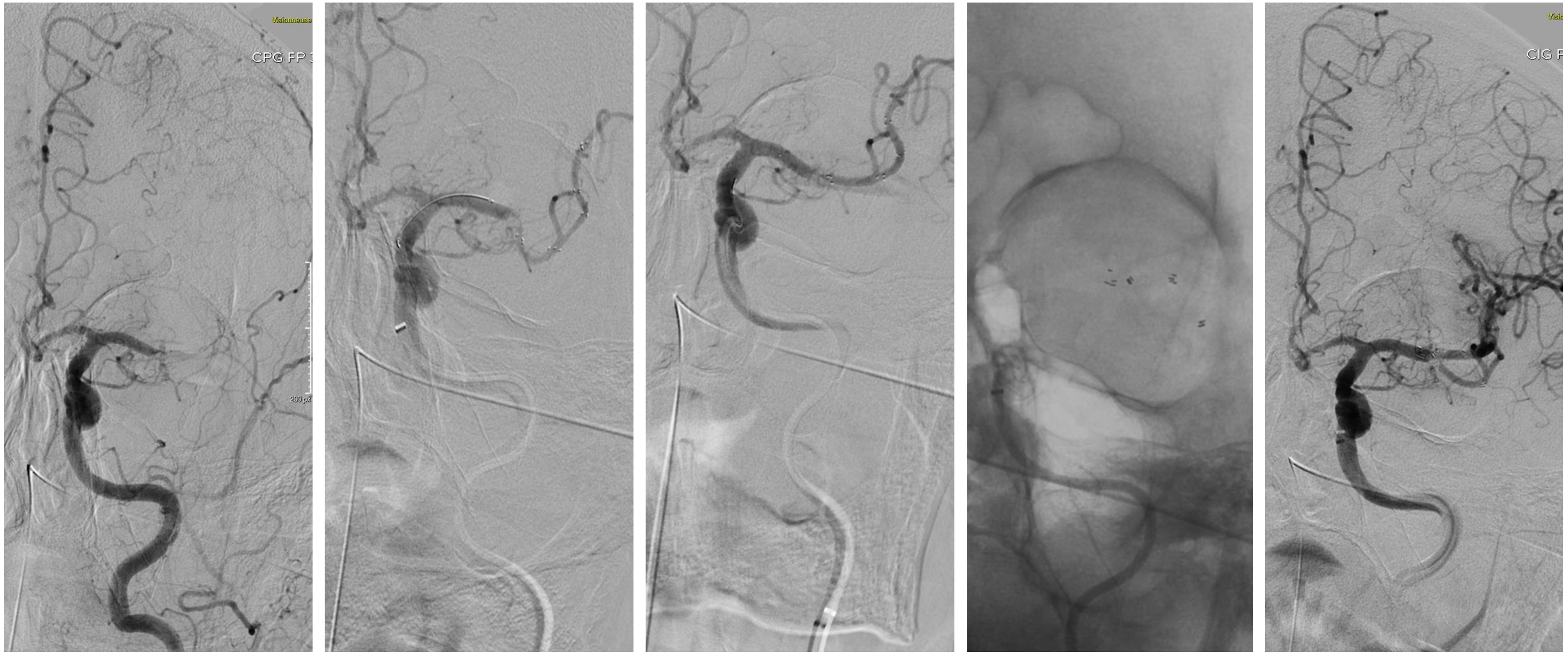
Pedro Vega, Eduardo Murias, Jose Maria Jimenez, Juan Chaviano, Jose Rodriguez, Sergio Calleja, Montserrat Delgado, Lorena Benavente, Maria Castañon, Josep Puig, Helena Cigarran, Faustino Arias & Rene Chapot

Clinical Neuroradiology **32**, 971–977 (2022) | Cite this article

2449 Accesses | **5** Citations | **16** Altmetric | Metrics

CAS PARTICULIERS: Occlusions réfractaires

Ecole de la Thrombectomie



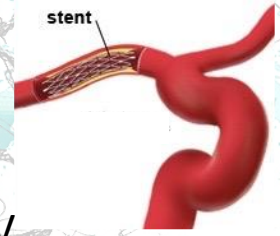
Le stent ~~retriever~~ permanent ?

RESCUE STENTING : Stenting intracrânien de phase aigue comme stratégie de sauvetage pour les occlusion intracrâniennes réfractaires après thrombectomie mécanique. Etude contrôlée multicentrique ETIS et JENI

Héloise IFERGAN, Grégoire BOULOUIS

Cohorte "rescue stenting"

- AIS-LVO traité par TM +/- TIV
- Occlusion réfractaire= TICI 0-2b ≥2 passage
- Stenting de phase aigüe
- +/- Angioplastie préalable



Groupe « contrôle »

- AIS-LVO traité par TM +/- TIV
- Occlusion réfractaire= TICI 0-2b ≥2 passage

Propensity Matching 1:1

J0 J1 J90

- **TICI J1 (Primary N-Point)**
- SICH

- 90d mRS
- Mortality

TAKE HOME MESSAGE

Ecole de la Thrombectomie

Stent retriever seul vs avec KT aspi vs aspi seule…

Stratégie standardisée/systématique : améliore le workflow

Connaître quelques méthodes alternatives dans les cas difficiles

…et penser à récupérer les caillots !
Recherche in vitro et in vivo développé

Clot Based Strategy = Objectif Thrombectomie personnalisée?

JENI

JEUNES EN NEURORADIOLOGIE INTERVENTIONNELLE
GROUPE DE RECHERCHE COLLABORATIVE

SFNR

- Rassemblement de juniors (mails, rencontres)
  - Circulation de l'information
  - Engagement dans les évènements NRI
  - Participation à la recherche multicentrique
  - Réseau dynamique et impliqué
- Existe depuis 2017
  - Organisation comme RC depuis 2018
  - 75 membres (ré)inscrits en 2021

- Publications scientifiques de qualité
  - Amélioration de la prise en charge des patients
  - Compagnonage
  - Exposition positive à la recherche
  - **Authorship proportionnel au travail engagé**

- Valorisation de la NRI / Enseignement

JFR 2019

- Collaborations Européennes (Suisse, Allemagne), et Multisociétés

ETIS REGISTRY

BEYOND-SWIFT

YOUNICORN

ESMINT
European Society of Minimally Invasive Neurological Therapy

SFAR jeunes

Collège des Cardiologues en Formation

Ecole de la Thrombectomie

Ecole de la Thrombectomie