



# Combined aspiration and thrombectomy

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NO DISCLOSURE STATEMENT  
OF FINANCIAL INTEREST

# DISCLOSURE STATEMENT OF FINANCIAL INTEREST

I, A Ozcan Ozdemir, DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.

# Aim of the endovascular treatment

**EFFECTIVE AND FAST  
RECANALIZATION**

**TICI 2b/3 –TICI 2c/3  
First pass thrombectomy  
Early recanalization**

**DECREASE THE RATE OF  
COMPLICATION**

**Rupture  
Dissection  
Distal emboli  
ENT**

**Good prognosis (mRS 0-2)**



# Carotid/vertebral access

## 6F guiding catheter

- ENVOY XB (Cordis)
- JR (Medtronic) (coronary)
- Chaperon
- (MicroventionTerumo)

## 8F guiding catheter

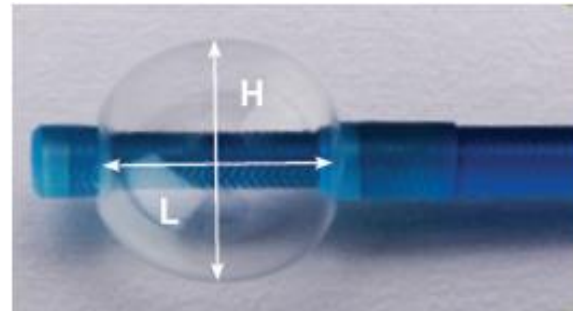
- Multipurpose MPD (Cordis)

## Guiding sheath

- Flexor® Shuttle® (Cook Medical)
- Neuron MAX Large Lumen Cathether (Penumbra)
- Epsylar (Optimed)
- Destination (Terumo)
- Arrow sheath
- AXS Infinity (Stryker)

# Balloon guiding catheters

- CORAIL 8F (BALT)
- CELLO 8F (Medtronic)
- Concentric 8F, 9F (Stryker)
- MO.MA Ultra (Medtronic, INVAtec)
- FLOW-GATE (STRYKER)



Balloon guide catheter improves recanalization, procedure time, and clinical outcomes with Solitaire in acute stroke: analysis of the NASA Registry. T Nguyen et al. J Neurointervent Surg 2013(5) A2-A3 2013. Stroke. 2014

# Stent retriever

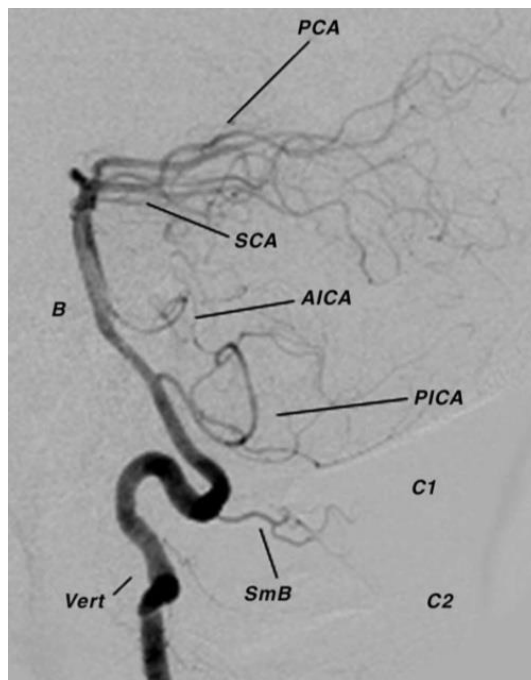
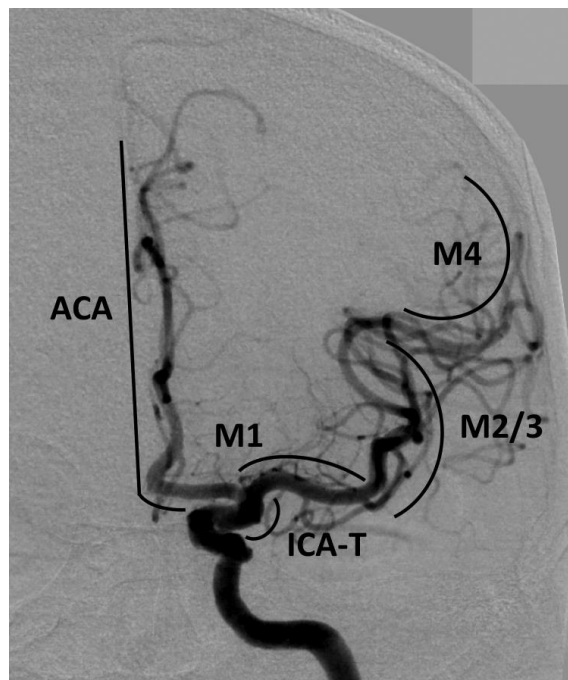


Fig. 1

## **Carotid T Occlusison-M1-Basilar**

Solitaire 6-30 mm (Medtronic)

Trevo 6-25 mm (Stryker)

Catch maxi mm (BALT)

Preset 6-30 mm (Phenox)

Aperio 6-40 mm (Acandis)

ERIC 6 (Microvention)

Tiger

## **M1, M2, ACA, PCA, Basilar**

Solitaire 4-20 mm (Medtronic)

Trevo 4-20 mm (Stryker)

Catch 4-20 mm (BALT)

Preset 4-20 mm (Phenox)

Aperio 4.5-30 mm (Acandis)

REVIVE 4-22 mm

ERIC 4 (Microvention)

Tiger

## **M2 and distal, P2, A2,3**

Solitaire 3.5-15 mm (Medtronic)

Trevo 3.5-15 mm (Stryker)

Catch mini (BALT)

Preset 3.5-15 mm (Phenox)

Aperio 3.5-30 mm (Acandis)

ERIC 3 (Microvention)

## DAC

NAVIEN-ARCH (Medtronic)

FARGOMAX -Fargo (BALT)

ACE 64-65 (Penumbra)

LIR (Phenox)

Sofia (Microvention)

REVIVE (Cordis)

CATALYST (STRYKER)

STRYKER (NEW)

MEDTRONIC (NEW)





# Ballon guiding- catheter-guiding sheath insertion

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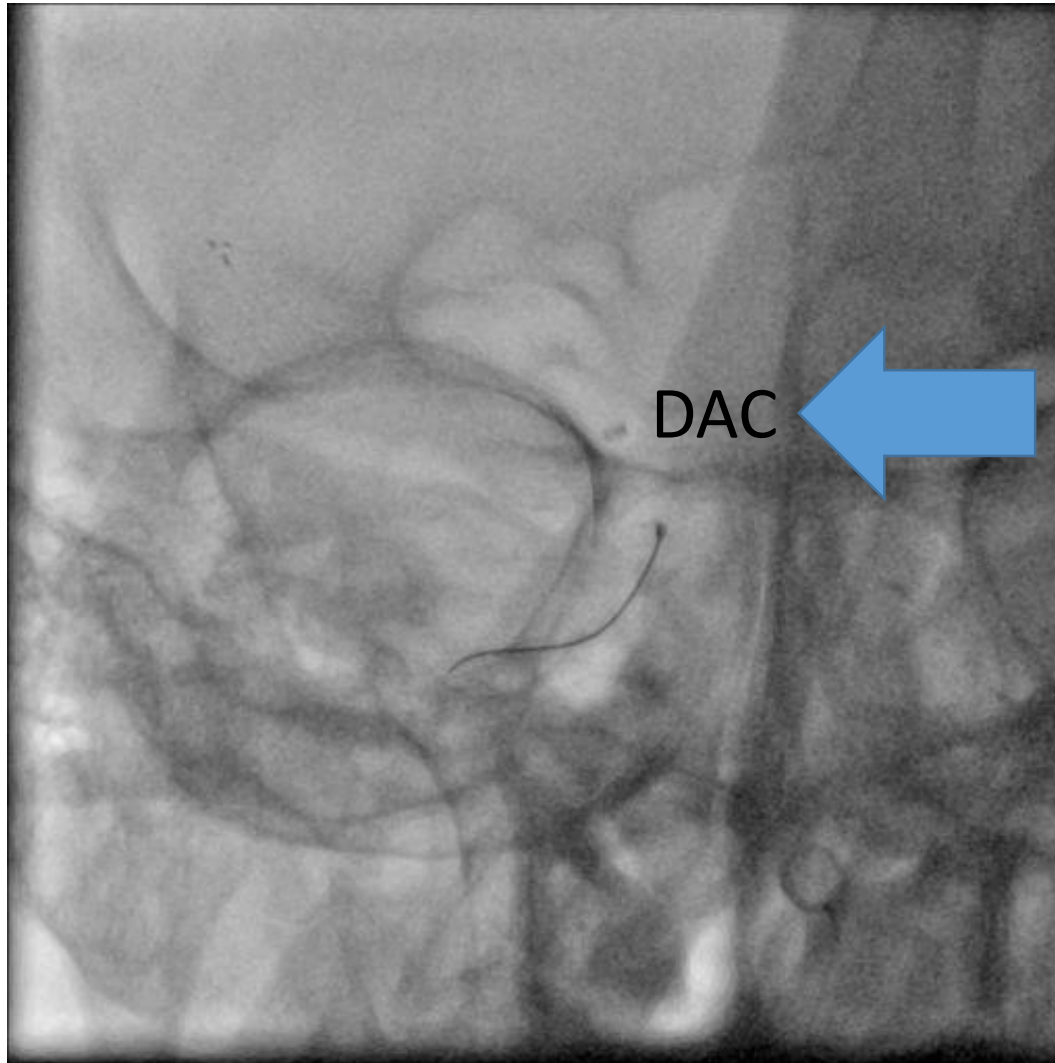


## Telescopic-coaxial approach

- 125 cm Berenstein
- 125 cm SIM 2
- 125 cm SIM 1
- 125 cm Vitek ???
- 125 cm Valavanis ???

125 cm SIM -2 , Berenstein, Vertebral

# SOLUMBRA-Total retrieval of stent



ACE 64 and SOLITEIRE 6-30 mm

Im: 1/149  
Se: 22

OSMAN GAZI UNIVERSITESI HASTANESI  
R201807020302102  
Head  
Fluoroscopy

DAC

WL: 511 WW: 1023 [D]  
LAO: 22 CRA: 6

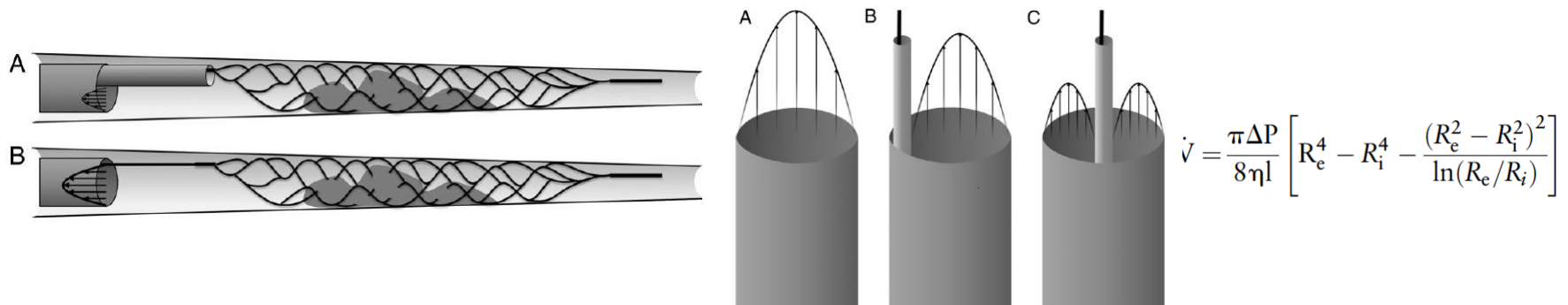
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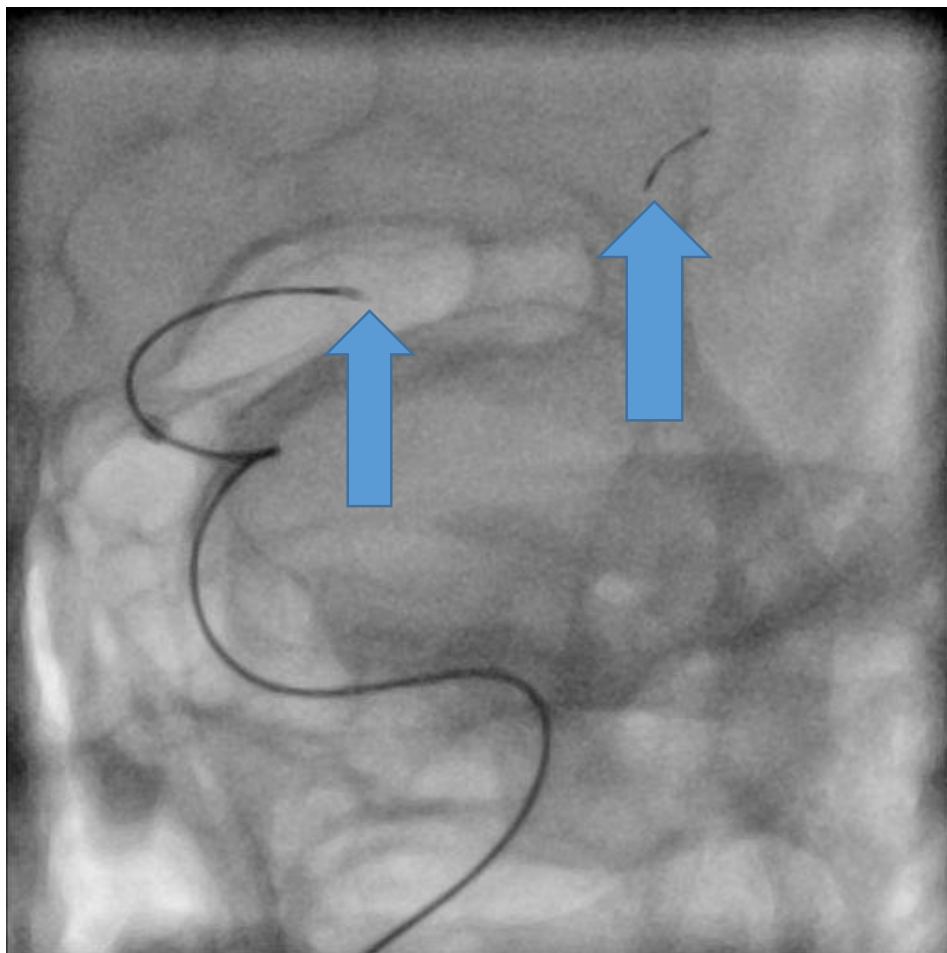
ORIGINAL RESEARCH

# Optimizing endovascular stroke treatment: removing the microcatheter before clot retrieval with stent-retrievers increases aspiration flow

Omid Nikoubashman,<sup>1,2</sup> Jan Patrick Alt,<sup>1</sup> Arash Nikoubashman,<sup>3</sup> Martin Büsen,<sup>4</sup>  
Sarah Heringer,<sup>1</sup> Carolin Brockmann,<sup>1</sup> Marc-Alexander Brockmann,<sup>1</sup>  
Marguerite Müller,<sup>1</sup> Arno Reich,<sup>5</sup> Martin Wiesmann<sup>1</sup>

Nikoubashman O, et al. *J NeuroIntervent Surg* 2017;**9**:459–462. doi:10.1136/neurintsurg-2016-012319





# SOLUMBRA

## Advantages

- No need to pass the lesion again
- Contrast from DAC

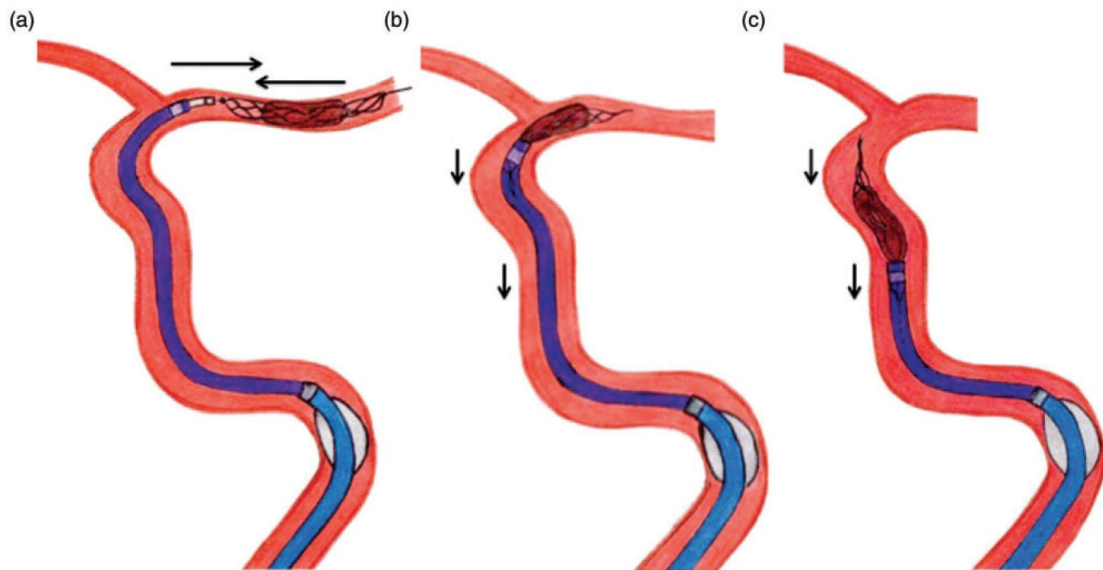
## Disadvantages

- Distal emboli –collateral emboli
- Be careful for back up



## ARTS (Aspiration-Retriever Technique for Stroke): Initial clinical experience

Francesco Massari<sup>1</sup>, Nils Henninger<sup>2</sup>, Juan Diego Lozano<sup>1</sup>, Anand Patel<sup>2</sup>,  
Anna Luisa Kuhn<sup>1</sup>, Mary Howk<sup>1</sup>, Mary Perras<sup>1</sup>, Christopher Brooks<sup>1</sup>,  
Matthew J Gounis<sup>1</sup>, Peter Kan<sup>3</sup>, Ajay K Wakhloo<sup>1</sup> and Ajit S Puri<sup>1</sup>







65, male , NIHSS:18,



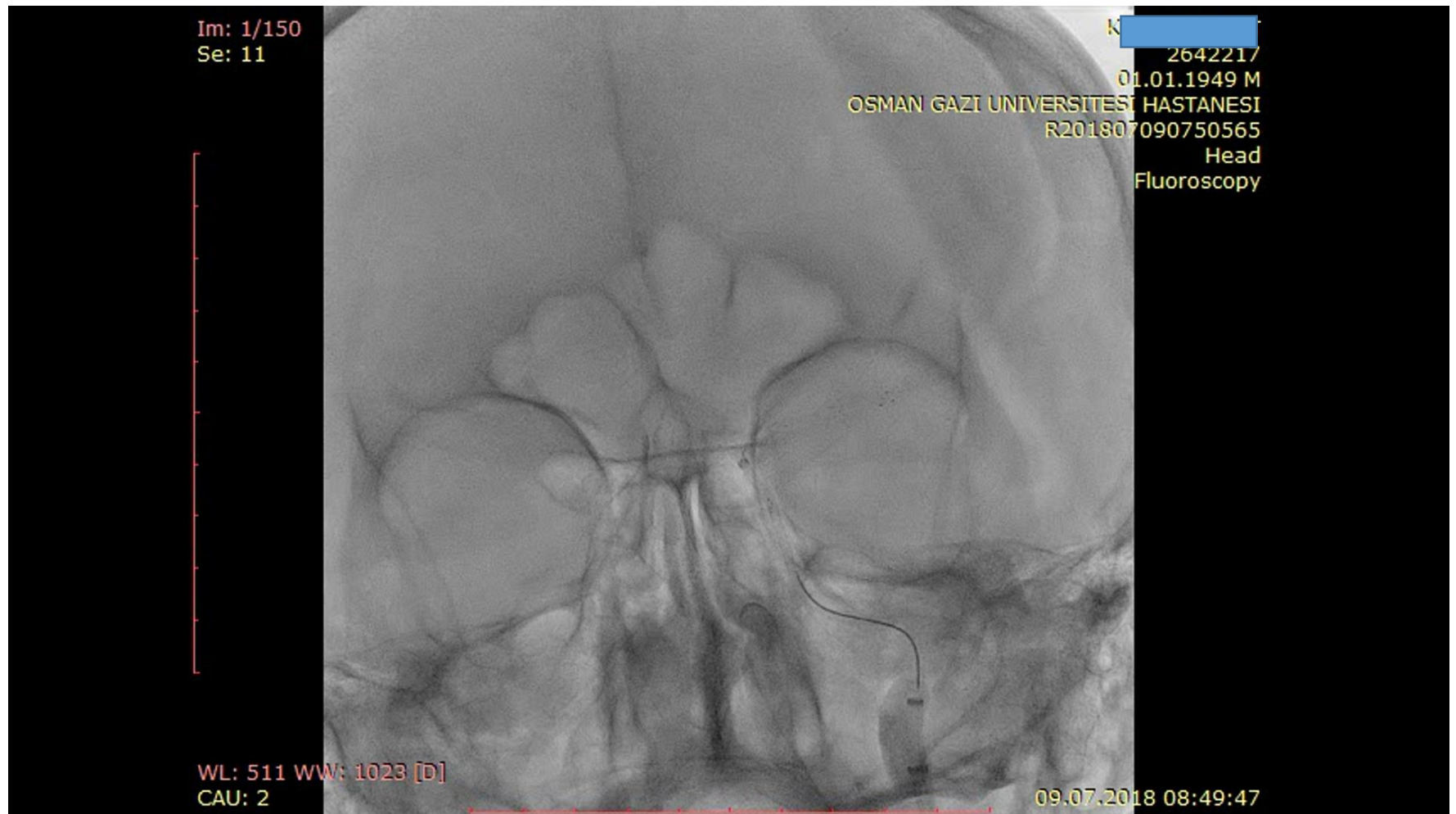
Im: 1/148  
Se: 10

2642217  
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R201807090750565  
Head  
Fluoroscopy

WL: 511 WW: 1023 [D]  
CAU: 2

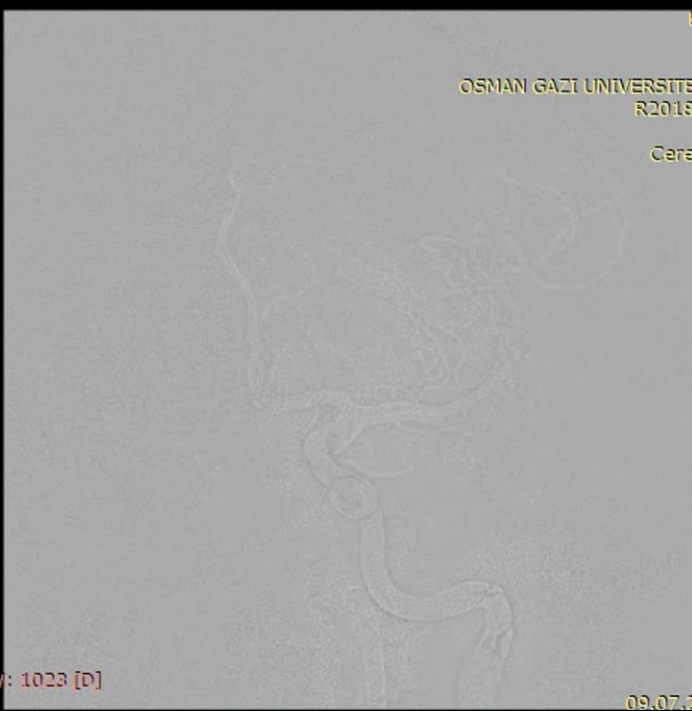
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Soliteire 6-40 platinum  
Navien 5F navigation



Balon guiding 9F-DAC-stent retrieval under aspiration

Im: 1/13  
Se: 12



K  
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R201807090750565  
Head  
Cerebral 2fps 50%

WL: 511 WW: 1023 [D]  
CAU: 2  
Im: 1/16  
Se: 15



09.07.2018 09:00:43  
KAYIR MEHMET  
2642217  
01.01.1949 M  
OSMAN GAZI UNIVERSITESI HASTANESI  
R201807090750565  
Head  
Cerebral 2fps 50%

WL: 511 WW: 1023 [D]  
LAO: 87 CRA: 1

09.07.2018 09:00:43

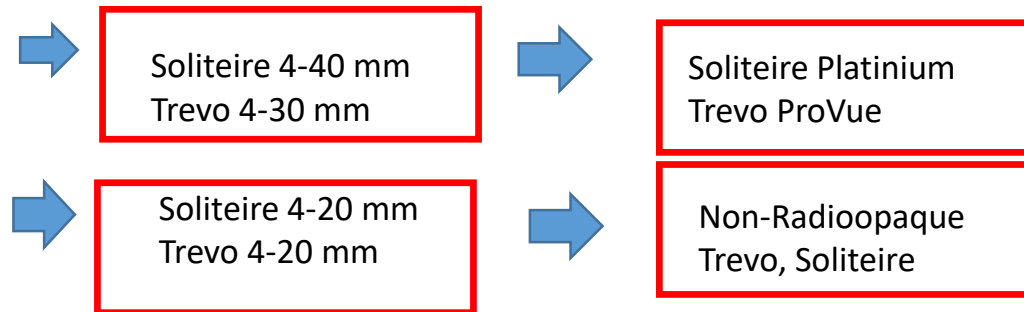
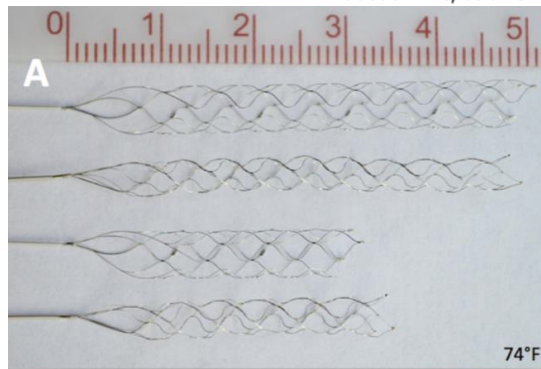


ORIGINAL RESEARCH

# Longer stent retrievers enhance thrombectomy performance in acute stroke

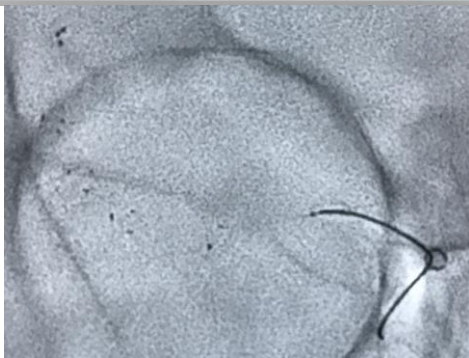
Diogo C Haussen, Alhamza R Al-Bayati, Jonathan A Grossberg, Mehdi Bouslama, Clara Barreira, Nicolas Bianchi, Michael R Frankel, Raul G Nogueira

Haussen DC, et al. *J NeuroIntervent Surg* 2018;0:1–4. doi:10.1136/neurintsurg-2018-013918



## Multivariate analysis for first pass thrombectomy

	OR	%95 CI	p
Lon stent retriever	2.21	1.36-3.60	0.001
Radiopaque device	2.10	1.29-3.42	0.003
Local tromboaspiration	2.43	1.34-4.38	0.003
IV rtPA	1.57	0.99-2.49	0.05
NIHSS	1.01	0.57-1.05	015

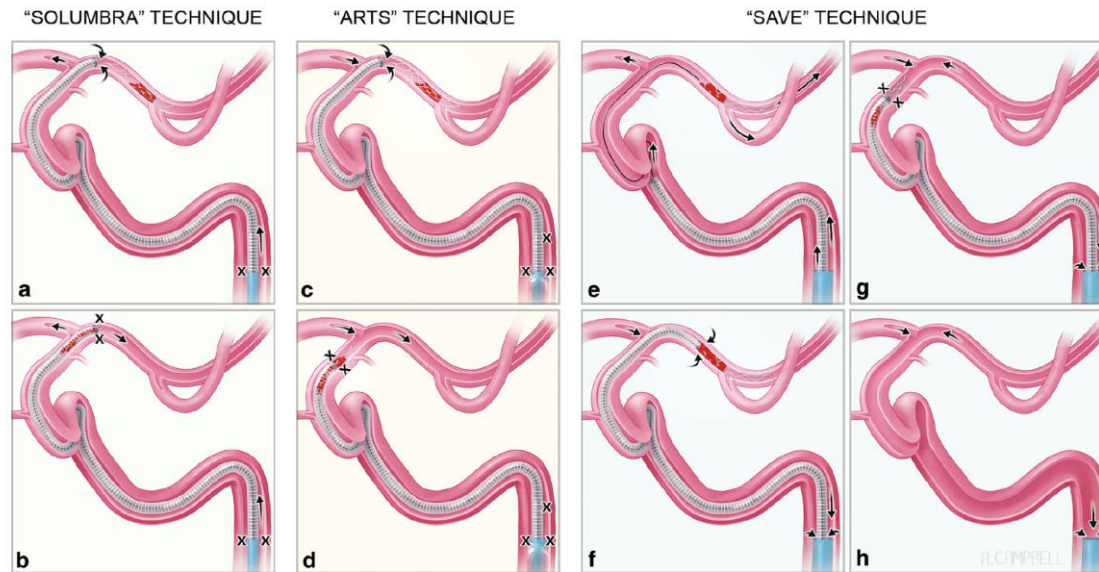


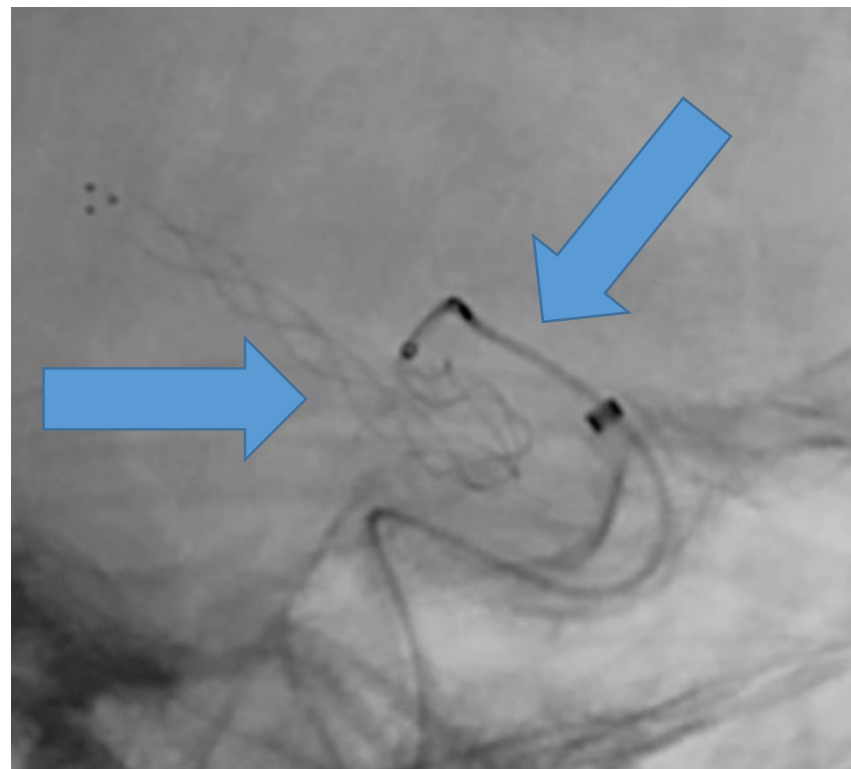
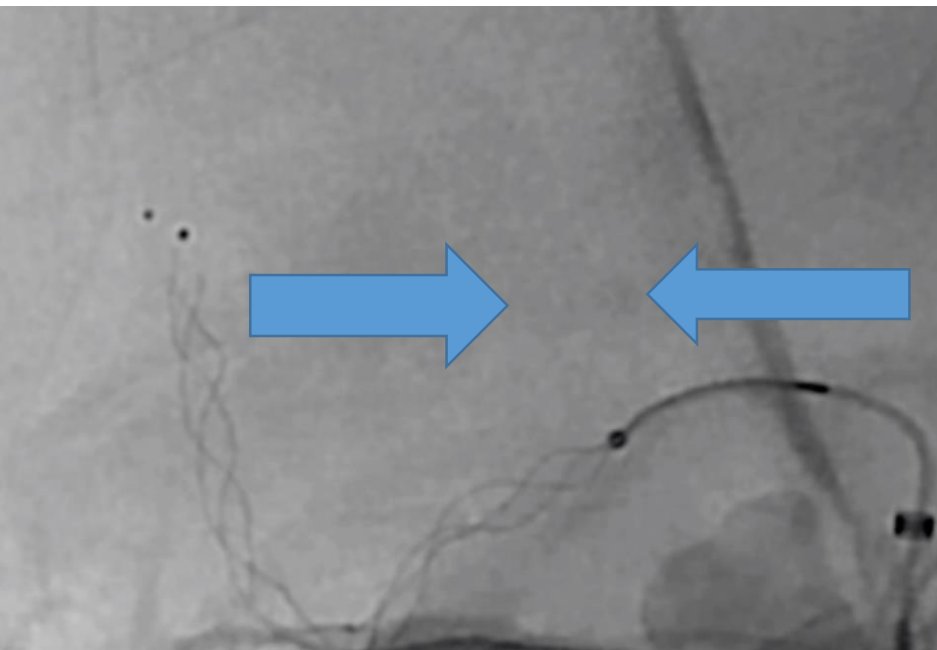


ORIGINAL ARTICLE

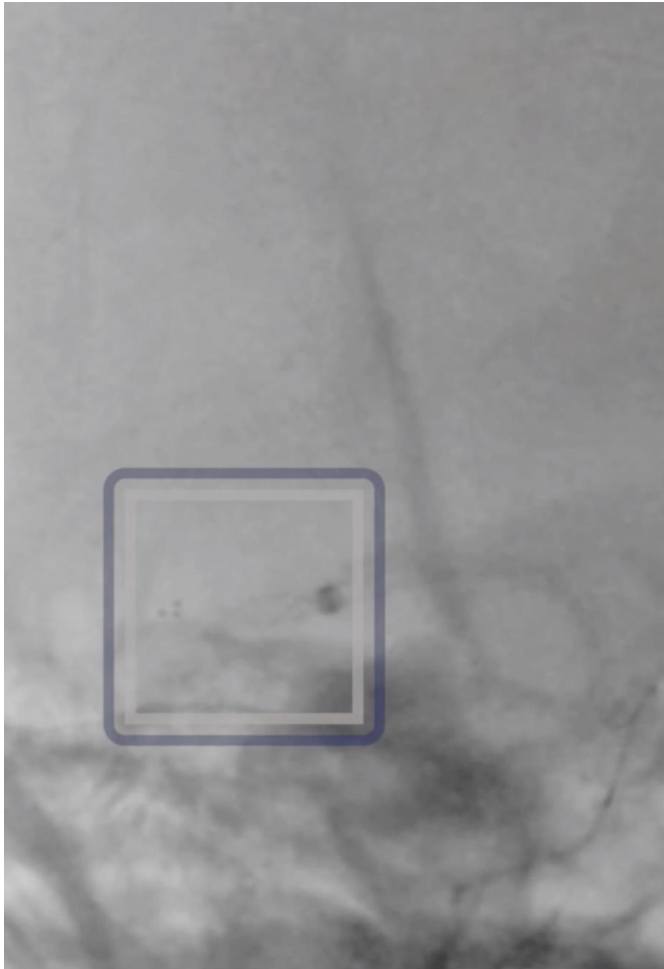
## Maximizing First-Pass Complete Reperfusion with SAVE

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



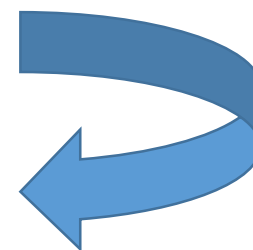


Stent-distal  
DAC-cavernous segment



Stent retrieval-DAC aspiration  
Wedge position

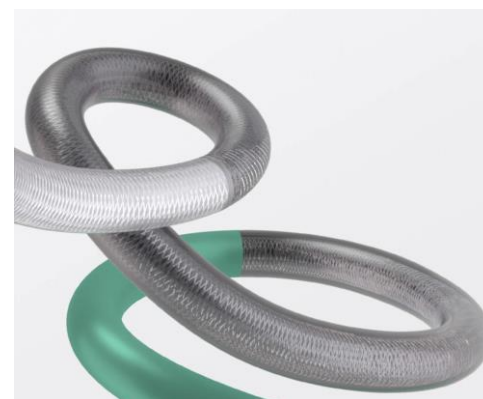




DAC



LARGER LUMEN



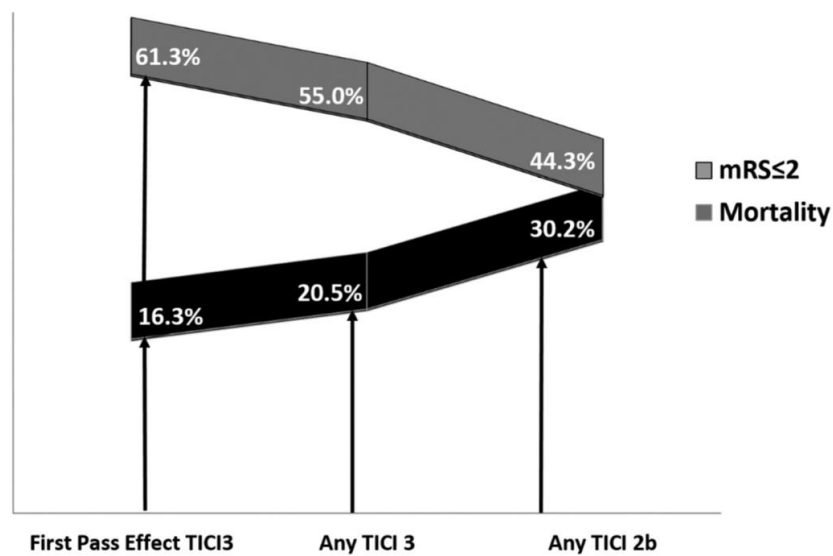
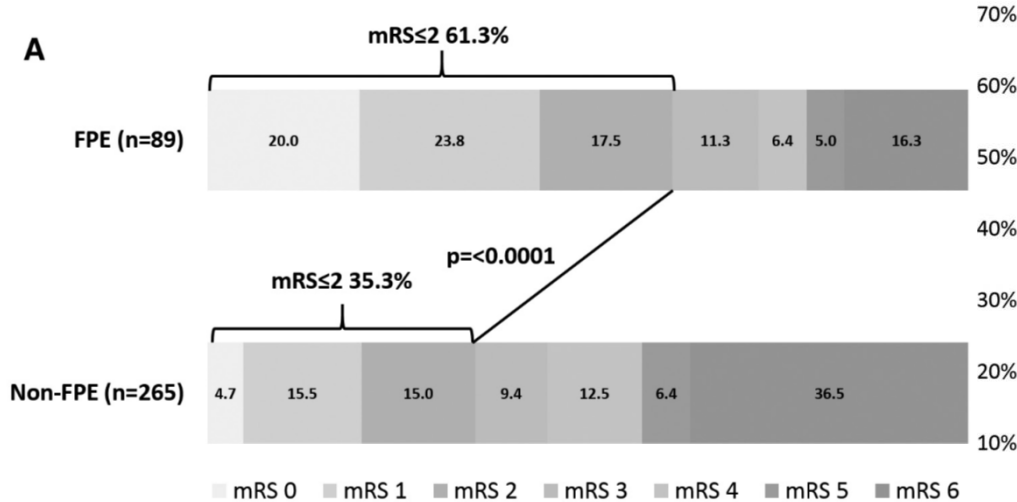
# First Pass Effect

## A New Measure for Stroke Thrombectomy Devices

Osama O. Zaidat, MD; Alicia C. Castonguay, PhD; Italo Linfante, MD; Rishi Gupta, MD;  
 Coleman O. Martin, MD; William E. Holloway, MD; Nils Mueller-Kronast, MD;  
 Joey D. English, MD, PhD; Guilherme Dabus, MD; Tim W. Malisch, MD;  
 Franklin A. Marden, MD; Hormozd Bozorgchami, MD; Andrew Xavier, MD; Ansaar T. Rai, MD;  
 Michael T. Froehler, MD, PhD; Aamir Badruddin, MD; Thanh N. Nguyen, MD; M. Asif Taqi, MD;  
 Michael G. Abraham, MD; Albert J. Yoo, MD, PhD; Vallabh Janardhan, MD; Hashem Shaltoni, MD;  
 Roberta Novakovic, MD; Alex Abou-Chebl, MD; Peng R. Chen, MD; Gavin W. Britz, MD;  
 Chung-Huan J. Sun, MD; Vibhav Bansal, MD; Ritesh Kaushal, MD; Ashish Nanda, MD;  
 Raul G. Nogueira, MD

NASA REGISTRY .Stroke 2018

A



## Recommendation–Combined system

- ✓ Withdrawal of microcatheter is recommended when a combined DAC and stent system is performed
- ✓ Use of DAC system is recommended in tandem ICA occlusions
- ✓ Combined DAC and stent system may be recommended in patients with tortuous anatomy
- ✓ Be careful for the back flow in aspiration catheter
- ✓ Longer stents > shorter stents

	2b (%)	3 (%)	2b/3 (%)	First pass 2b/3 (%)
EXTEND-IA	38	48	86	NA
<b>SWIFT-PRIME</b>	<b>19</b>	<b>69</b>	<b>88</b>	<b>NA</b>
ESCAPE	NA	NA	72	NA
REVASCAT	47	19	65	NA
MR CLEAN	35	24	59	NA
<b>STAR (BG+stent)</b>	<b>30</b>	<b>55</b>	<b>84</b>	<b>NA</b>
SOLUMBRA (Humphries et al)	44	44	88	37
<b>ARTS</b>	<b>43</b>	<b>55</b>	<b>98</b>	<b>43</b>
<b>SAVE</b>	<b>22</b>	<b>78</b>	<b>98</b>	<b>72</b>
ASTER	48	37	85	NA
ADAPT (Vargas et al)	12	45	94	NA

TICI 2b/2c/3 ( ADAPT)