



# ESALIO

DRIVEN TO ADVANCE PATIENT CARE  
IN VASCULAR OCCLUSION BY  
PROVIDING PHYSICIANS SUPERIOR TECHNOLOGY  
DESIGNED TO IMPROVE CLINICAL OUTCOMES

Designed for **1st PASS SUCCESS** with **ALL Clot Types**



# Neva<sup>TM</sup>

# WHY DEVELOP ANOTHER STENT-RETRIEVER

1

## TREAT ALL OCCLUSIONS

FROM SOFT, FRIABLE CLOTS  
THAT EASILY DISINTEGRATE  
TO HARD, FIBRIN-RICH CLOTS  
THAT ARE IMPENETRABLE

2

## IMPROVE PROCEDURAL PERFORMANCE

1<sup>ST</sup> PASS SUCCESS  
TIME TO RECANALIZATION  
HIGHER TICI 2C/3 RATES

3

## PROVIDE EASE OF USE

REAL TIME FEEDBACK  
DURING RETRIEVAL  
SYNERGISTIC WITH ALL  
ACCESS PHILOSOPHIES

TO ACHIEVE BETTER PATIENT OUTCOMES

# CONVENTIONAL STENT-RETRIEVERS



Work by **pinning** the clot to the artery wall and **dragging** it down

In most cases, clot **penetration** is **partial**

Hard clots simply slide outside the basket and **remain** in place

# DESIGN

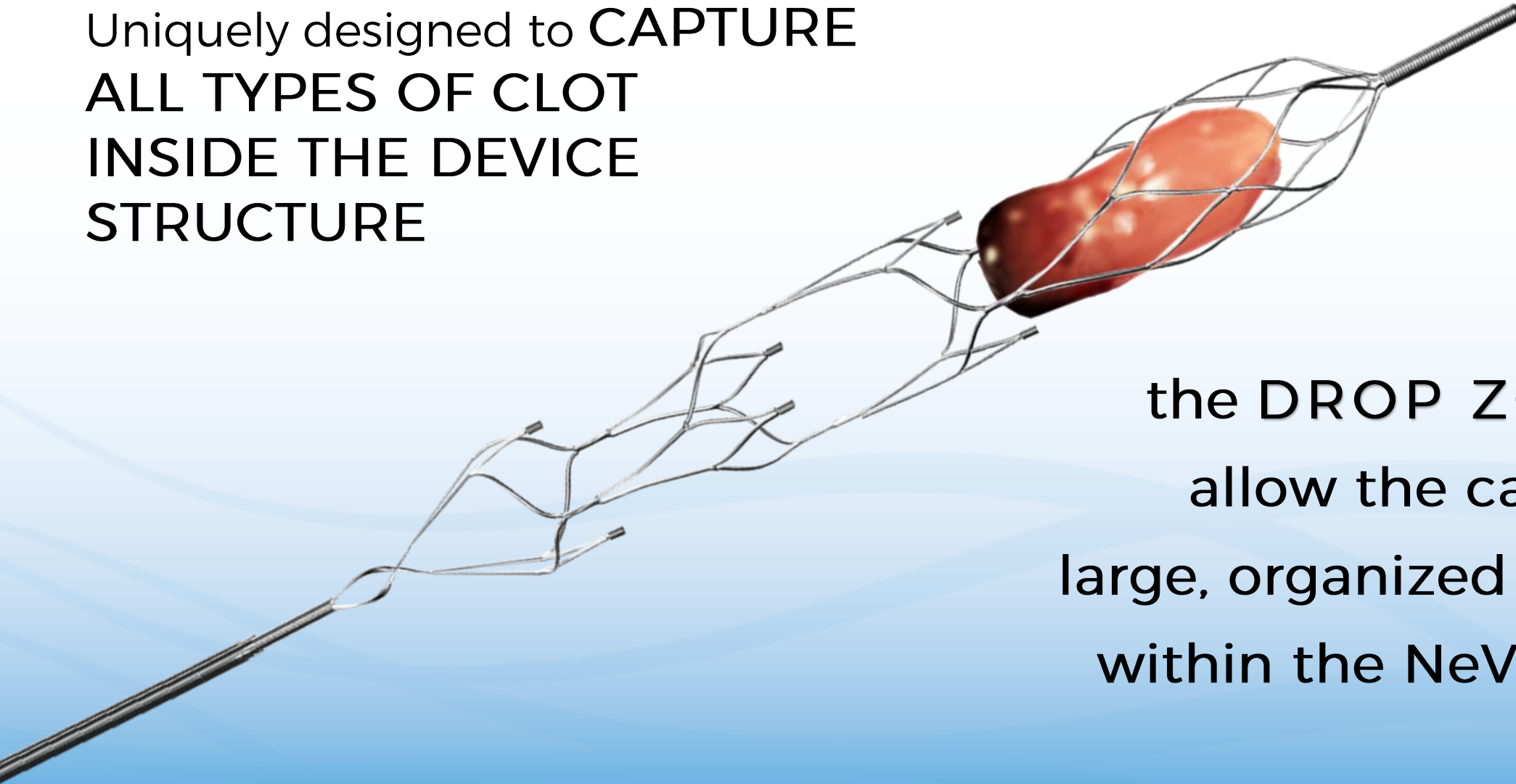
Designed for 1st PASS SUCCESS with ALL Clot Types

# Neva<sup>TM</sup>



# NeVa™ DROP ZONE™ THE CLOT INSIDE

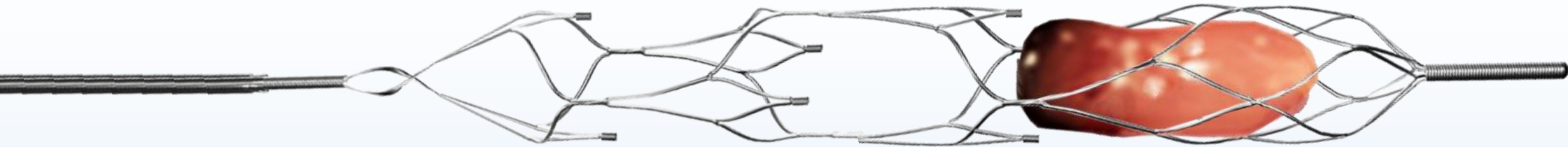
Uniquely designed to **CAPTURE**  
**ALL TYPES OF CLOT**  
**INSIDE THE DEVICE**  
**STRUCTURE**



the **DROP ZONES™**  
allow the capture of  
large, organized thrombi  
within the NeVa basket

## DROP ZONES™

2 or more Drop Zones offset at 90° work by acting as clot pockets: entry points to capture thrombi inside



### BALANCED DESIGN

Optimized radial force balanced with large openings & closed ends

### SMART MARKERS

2 per drop zone, for real-time feedback during retrieval

### CLOSED DISTAL TIP

Clot gets inside, clot stays inside!

**5.5 x 37 mm**

3 Drop Zones  
VN-5537-03RR

Ideal for

**Proximal Carotid  
occlusions**

Vessel diameters  
3.5 – 5.5 mm

Recommended MC: 0.027"

**4.5 x 29 mm**

3 Drop Zones  
VN-4529-03RR

Ideal for

**ICA tip & MCA  
occlusions**

Vessel diameters  
2.0 – 4.5 mm

Recommended MC > 0.021"

**4.0 x 22 mm**

2 Drop Zones  
30020V-MS

Ideal for

**Distal M1, M2, ACA, PCA  
occlusions**

Vessel diameters  
2.0 – 3.5 mm

Recommended MC > 0.021"

# CLINICAL DATA

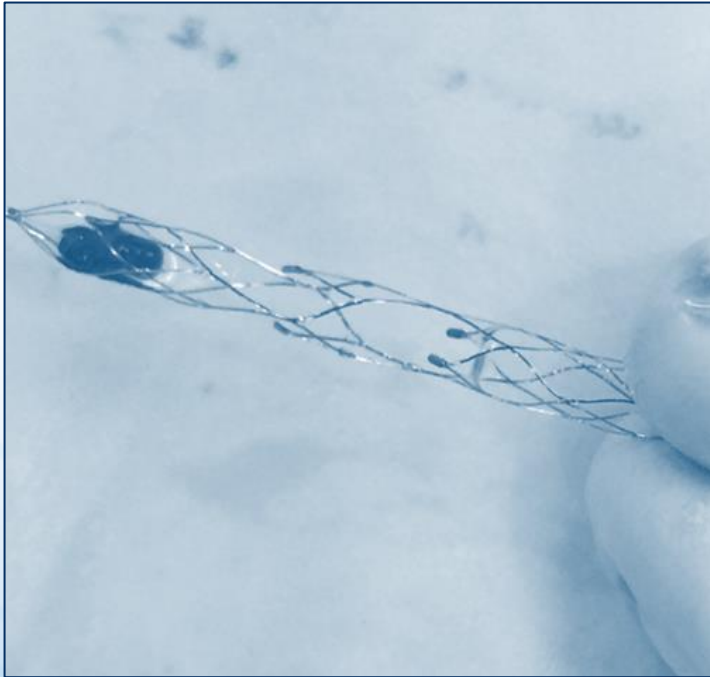
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# 97% RECANALIZATION SUCCESS WITH 1.2 PASSES ACROSS ALL CLOT TYPES



Clot Type	Soft	Hard	Ultra Hard	All Clots
Clot morphology	Whole Blood "RED" Clot	Plasma Rich "WHITE" Clot	Clot modeled from ONYX 500	RED, WHITE and ONYX 500
N =	19	5	11	35
Length of clots - mm	10-40	6-12	4-12	4-40
1 <sup>st</sup> Pass TICI 3	84%	60%	55%	71%
Final TICI 3	89%	NR	82%	83%
Final TICI 2b/3	100%	100%	91%	97%
Average # of passes for final recanalization	1,05	1,00	1,63	1,23



# CONSISTENT EFFECTIVENESS AT REMOVING ORGANIZED CLOTS

Data from Machi et al. Journal of Neuro-Int. Surgery, 2016 <sup>1</sup>

*“All stent retrievers failed when interacting with large white thrombi (≥ 6mm)”*

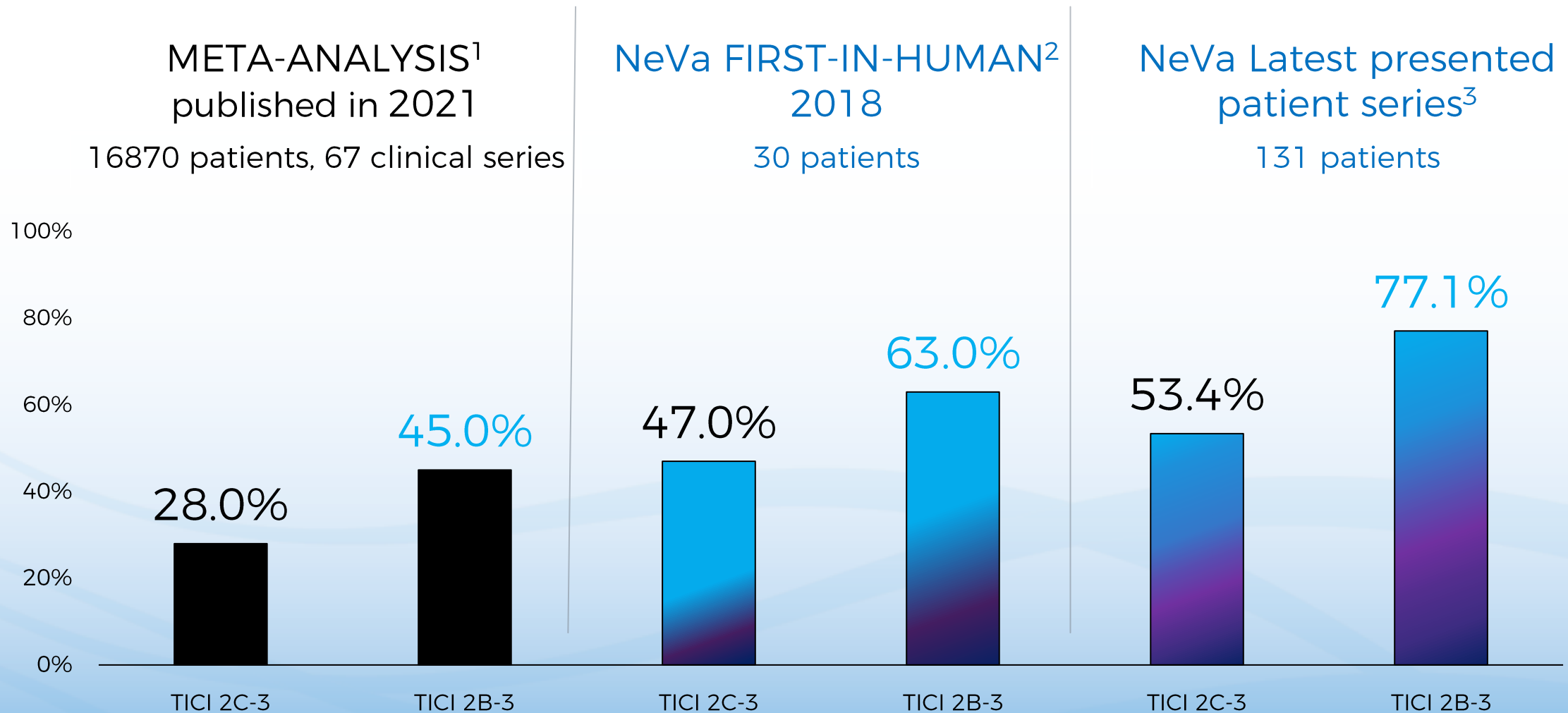
Solitaire*:	0/5	Trevo:	0/5
Embotrap*:	0/5	Eric:	0/5
Preset*:	0/5	Preset LT:	0/5
Catch*:	0/5	Separator 3D:	0/5
Revive*:	0/5	Mindframe:	0/5

Data from Machi P, et al., “Experimental evaluation of the NeVa™ thrombectomy device a novel stent retriever conceived to improve efficacy of organized clot removal”, Journal of Neuroradiology. 2018<sup>2</sup>

**NeVa: 6/10 successful complete removals of white thrombi ≥ 6 mm**

<sup>10</sup> 1. Machi P, et al. Journal of NeuroInterventional Surgery. 2016; 0:1-7 -- \* Some versions of these devices were able to minimally displace clots 1-2 times in 5, without succeeding in removing them; 2. Machi P, et al. Journal of Neuroradiology. April 2018

# NeVa™ 1<sup>ST</sup> PASS RATES TRENDING HIGH



1. Abbasi M, Liu Y, Fitzgerald S, et al. Systematic review and meta-analysis of current rates of first pass effect by thrombectomy technique and associations with clinical outcomes. J Neurointerv Surg 2021;13:212-216

11 2. Ribo, et al. published 2019 in Journal of Neuroradiology 3. Presented at iCureStroke 2021 by Bajrami et al., being prepared for publication



# SUMMARY OF CLINICAL DATA

## 348 CASES WITH FIRST-LINE NEVA USE

- First-pass TICl 2C/3 rates
  - Lowest reported: 45%
  - Highest reported: 63%
- First-pass TICl 2B/3 rates:
  - Lowest reported: 55%
  - Highest reported: 77%
- Final recan rates:
  - Lowest reported: 93%
  - Highest reported: 100%
- Technique:
  - 93.6% (326/348) done under local aspiration
  - 6.4% (22/348) done with BGC
  - 0% combination technique
- Mean number of passes for final recan:
  - ranging from 1.5 – 1.8

\*297 first-line case experience includes 3 publications + 2 large series presentations:

- M. Ribo, et al., Journal of Neuroradiology May 2019
- S. Geyik, Presented at iCureStroke, Feb. 2020

- Akpınar, Cetin K., et al., Interventional Neuroradiology, July 2020
- A. Sirvinskas, Presented at ESMINT, Sept. 2020
- Borggrete et al. World Neurosurg. Dec. 2020



# 1<sup>ST</sup> LINE TREATMENT ON “ALL” COMERS 30 PATIENTS -MULTI-CENTER

	2B/3	2C/3	
First Pass	19/30 → <b>63%</b>	14/30 → <b>47%</b>	Average # of passes for final recan → <b>1.7</b>
Final Recanalization	28/30 → <b>93%</b>	19/30 → <b>63%</b>	

## Patient Outcomes

- Mean NIHSS @ 24hr : 7
- 90 day mRS < 2 : 53%
- Zero NeVa related adverse events & sICH
- NeVa was effective with both balloon guide and local aspiration strategies
- In the 40 passes where the info was available: 70% clot incorporation into device basket





# 1<sup>ST</sup> LINE TREATMENT – ANTE & POSTERIOR

## 118 PATIENTS -MULTI-CENTER

	2B/3	2C/3	
First Pass	61/80 → <b>56.8%</b>	46/80 → <b>44.9%</b>	Median # of passes for final recan → <b>1</b> (IQR 1-2)
Final Recanalization	77/80 → <b>95.8%</b>		

### Favorable functional outcome (mRS ≤ 2):

- 53% in the “first-pass” subgroup
- 42.4% in the total patient population.

### Procedure related complications:

- Symptomatic ICH: 3.3%
- Asymptomatic ICH: 13.6%
- Embolization into new territory: 1.7%
- Dissection that did not require stenting: 1.7 %

### Flow Control strategies preferred:

- 92.4% of cases done with distal aspiration (Solumbra: Aspiration catheter + NeVa)
- Balloon Guide Catheter used only in 13.6% of cases





# 1<sup>ST</sup> LINE TREATMENT – ANTERIOR 131 PATIENTS -SINGLE-CENTER

	2B/3	2C/3	
First Pass	101/131 → <b>77.1%</b>	70/131 → <b>53.4%</b>	Average # of passes for final recan → <b>1.8</b>
Final Recanalization	128/131 → <b>97.6%</b>	113/131 → <b>86.2%</b>	

## Patient Outcomes:

- 24 hour mean NIHSS: 7
- mRS scores available in 67 patients
- mRS 0-1: 43 (61.2%)
- mRS 0-2: 48 (71.6%)
- 1 month mortality: 7.5%

## Safety Data:

- No device-related serious adverse events
- Asymptomatic ICH (HT): 36 pts (27.4%)
- SAH: 4 pts (3%), mild and asymptomatic

## FOCUS ON 38 ICA-cases:

- 21 patients (55 %) were recanalized in 1 pass
- 17 were TIC1 3
- 4 was TIC1 2C
- Only 1 patient required 6 passes
- Addition of a 2nd SR for the distal M2 occlusion





# 1<sup>ST</sup> LINE & RESCUE TREATMENT – M1 29 PATIENTS -SINGLE-CENTER

	2B/3	2C/3
First Pass	55%	48%
1-2 passes	79%	62%
Final Recanalization	100%	72%

## Patient Outcomes:

- Median NIHSS scores decreased from 16 to 12 after treatment
- 90-day mRS < 2 : 31%

## Safety Data:

- 1 asymptomatic carotico-cavernous fistula
- 1 asymptomatic M2 dissection
- 1 sICH
- Procedure-related vasospasm rate: 48% (no negative impact observed on outcomes)







# RESCUE TREATMENT – ANTERIOR 6 PATIENTS -SINGLE-CENTER

TICI>2B WAS ACHIEVED IN 5/6 AND IN 1.2 PASSES

Occlusion	NEVA USED AT	TICI SCORE BEFORE NEVA USE	NUMBER OF NEVA PASSES REQUIRED FOR FINAL TICI SCORE	TICI SCORE AFTER NEVA USE
1 M1	3 <sup>rd</sup> Pass	2A →	1 NeVa pass →	2B
2 M1	3 <sup>rd</sup> Pass	0 →	1 NeVa pass →	2B
3 ICA/M1	3 <sup>rd</sup> Pass	0 →	1 NeVa pass →	2C
4 M1	3 <sup>rd</sup> Pass	2A →	1 NeVa pass →	2C
5 M1/M2	2 <sup>nd</sup> Pass	0 →	2 NeVa passes →	2C
6 M1	3 <sup>rd</sup> Pass	2A →	1 NeVa pass →	2A



# 1<sup>ST</sup> LINE TREATMENT – ANTE & POSTERIOR

## 40 PATIENTS -SINGLE-CENTER

### 1<sup>st</sup> Pass rates

TICI 2B+

TICI 2C+

TICI 3

2 DZ NEVA  
30 cases

20/30 → **66%**

19/30 → **63%**

13/30 → **43%**

3 & 5 DZ NEVA  
10 cases

10/10 → **100%**

9/10 → **90%**

7/10 → **70%**

### Final rates

TICI 2B+

TICI 2C+

TICI 3

Mean no. of passes for  
final recanalization

2 DZ NEVA  
30 cases

28/30 → **93%**

26/30 → **86%**

19/30 → **63%**

**1.5**

3 or 5 DZ NEVA  
10 cases

10/10 → **100%**

9/10 → **90%**

7/10 → **70%**

**1.0**

# EVALUATION

Neva<sup>TM</sup>

Designed for 1st PASS SUCCESS with ALL Clot Types



## Proposal:

Retrospective analysis of 10 consecutive incoming AIS patients

No particular patient exclusion criteria, hospital protocol to be followed, but recommend to start with standard cases to gain familiarity with NeVa

NeVa tips & tricks training before use

## Expectations:

Use NeVa as first line treatment

At least 3 attempts to achieve TICl 2b/3 before trying an alternative device

A simple form to fill for each case

THANK YOU

Designed for 1st PASS SUCCESS with ALL Clot Types

Neva<sup>TM</sup>



# SUPPLEMENTARY INFORMATION

RADIAL FORCE

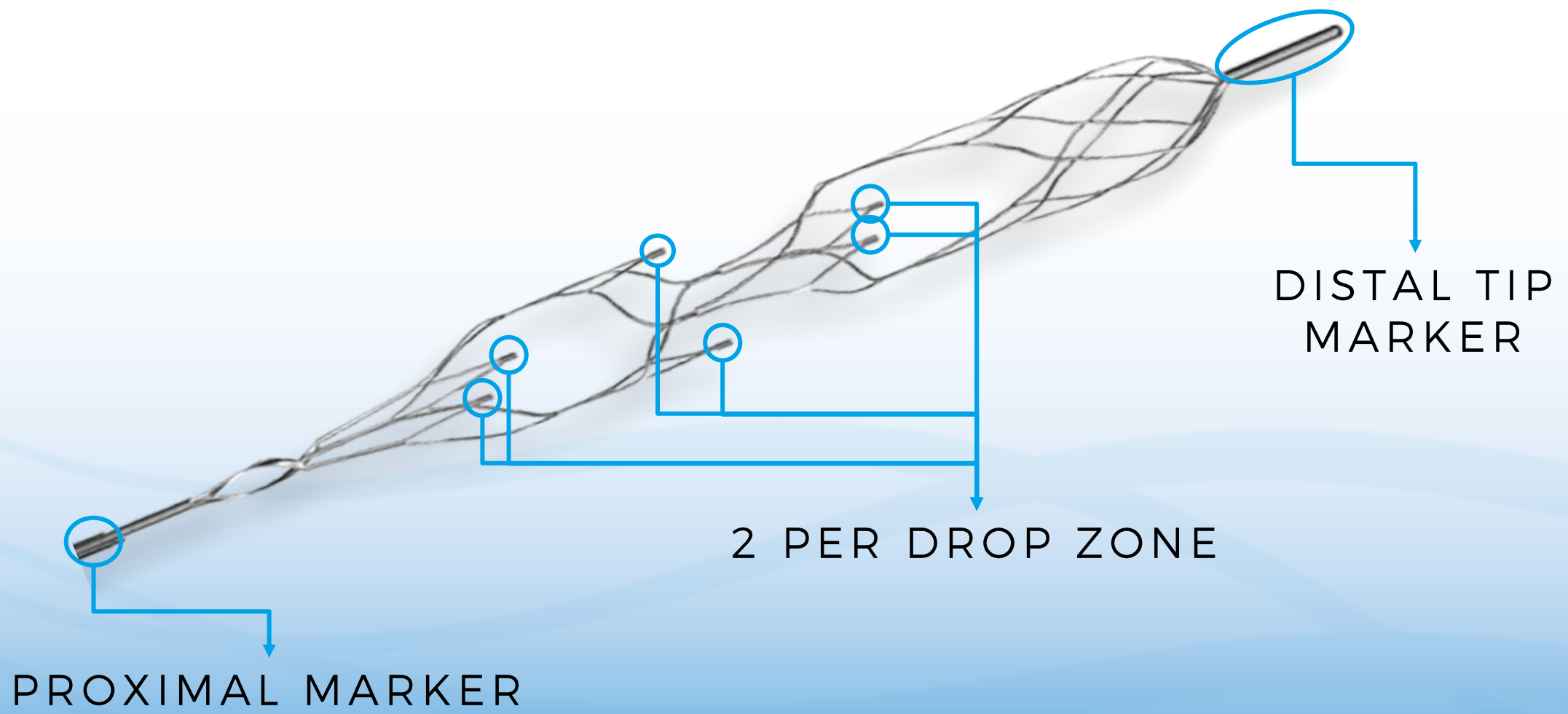
SMART MARKERS

EXAMPLE CASES &  
CLOTS BY NEVA

Nevia<sup>TM</sup>

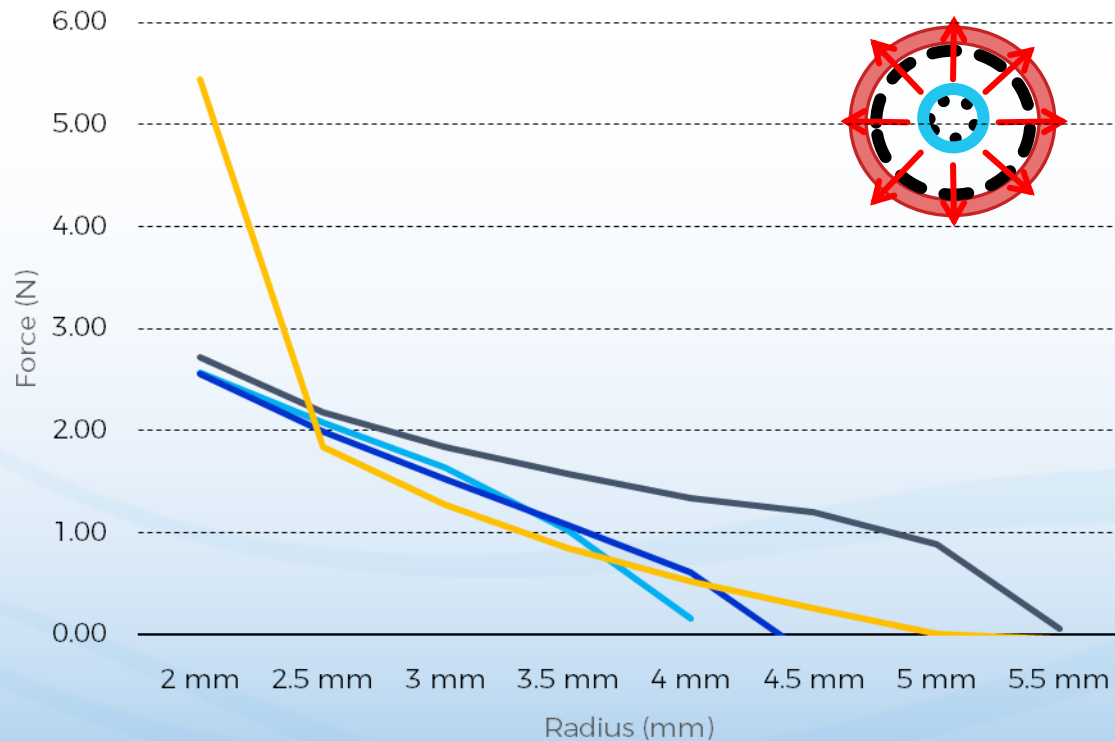
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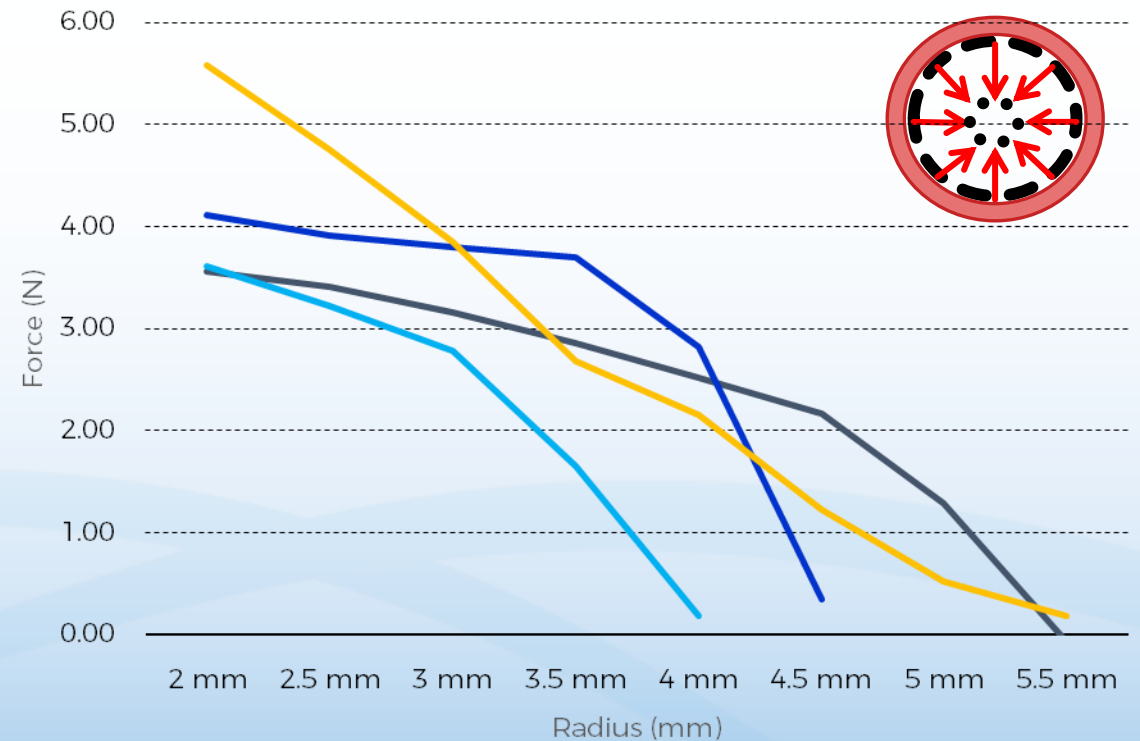


# OPTIMIZED RADIAL FORCE BALANCED WITH LARGE OPENINGS & CLOSED ENDS

### Expansive Radial Force



### Compressive Radial Force



— NeVa 5.5 x 37 mm — NeVa 4.0 x 22 mm — NeVa 4.5 x 29 mm — Solitaire 6x40 mm

— NeVa 5.5 x 37 mm — NeVa 4.0 x 22 mm — NeVa 4.5 x 29 mm — Solitaire 6x40 mm





## A PROXIMAL OCCLUSION: ONE AND DONE

*Right ICA Tip Occlusion, 1st Pass Success*

NeVa 4.5 x 37 mm

Prof Geyik, Aydin University, Istanbul, TURKEY

[READ CASE STUDY >](#)



## 1ST PASS IN STROKE WITH UNKNOWN ONSET

*Right M1 Occlusion, 1st Pass Success*

NeVa 4.0 x 30 mm

Dr. Kalousek, Sisters Charity Hospital, Zagreb, Croatia

[READ CASE STUDY >](#)



## SINGLE NEVA RESCUES KISSING RETRIEVERS

*Carotid T Occlusion, 1st Pass Success after 2 failed attempts with the kissing-stents technique*

NeVa 6.0 x 44 mm

Dr Tomasello, Vall d'Hebron, Barcelona, SPAIN

[READ CASE STUDY >](#)



## 1ST PASS IN BASILAR WAKE UP STROKE

*Basilar Occlusion, 1st Pass Success*

NeVa 4.5 x 29 mm

Dr Sirvinskas, Republic University, Vilnius, LITHUANIA

[READ CASE STUDY >](#)



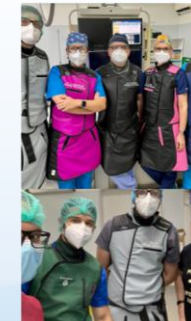
## NEVA IN TANDEM STROKE

*Tandem Occlusion, two single-pass retrievals, case from LINNC MASTERCLASS*

NeVa 4.0 x 30 mm

Prof Spelle, Prof Moret, Dr Mihalea, Neuri Bicetre, Paris, FRANCE

[READ CASE STUDY >](#)



## NEW! NEVA SAVES THE DAY AFTER A 5-PASS ORDEAL

*Left M1 Occlusion Success*

NeVa™ 4.5 x 37 mm

Bucharest University Emergency Hospital Stroke Team

[READ CASE STUDY >](#)



## 1ST PASS SUCCESS WITH 3 DROP ZONES

*Left M1 Occlusion, first pass success*

NeVa 4.5 x 29 mm

Dr Maurer, University Hospital, Augsburg, GERMANY

[READ CASE STUDY >](#)



## IMPACT OF 1ST PASS SUCCESS IN EARLY ONSET STROKE

*Left M1 Occlusion, first pass success*

NeVa 4.0 x 30 mm

Prof Mayer, University Hospital, Jena, GERMANY

[READ CASE STUDY >](#)



## 1ST PASS SUCCESS AFTER CAROTID BLOWOUT REPAIR

*Left M2 Occlusion, first pass success through the carotid stent graft*

NeVa 4.0 x 22 mm

Prof Kizilkilic, Dr Korkmazer, Cerrahpasa University, Istanbul, TURKEY

[READ CASE STUDY >](#)



## WAKE UP STROKE 1ST PASS SUCCESS

*Left M1 Occlusion, 1st Pass Success*

NeVa 4.0 x 30 mm

Prof Geyik, Aydin University Hospital, Istanbul, TURKEY

[READ CASE STUDY >](#)



## NEVA TO THE RESCUE

*Left M2 Occlusion, single pass rescue after failure of 2 different devices*

NeVa 4.0 x 22 mm

Prof Geyik, Aydin University, Istanbul, TURKEY

[READ CASE STUDY >](#)

# Neva™ DROP ZONE™ THE CLOT INSIDE

