



**BIG**

Coil

**Advantages**

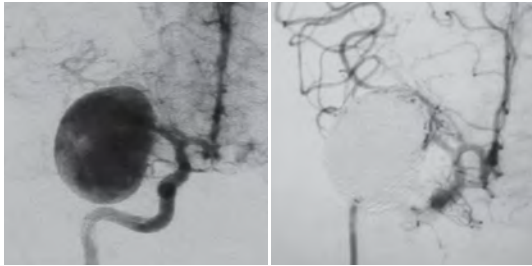
**Penumbra Coil 400™**

# Big Coils

## Less Radiation<sup>1,10</sup>

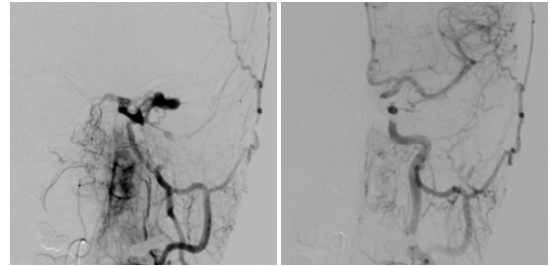
## Faster 25% Procedure

### Large Middle Cerebral Artery Aneurysm



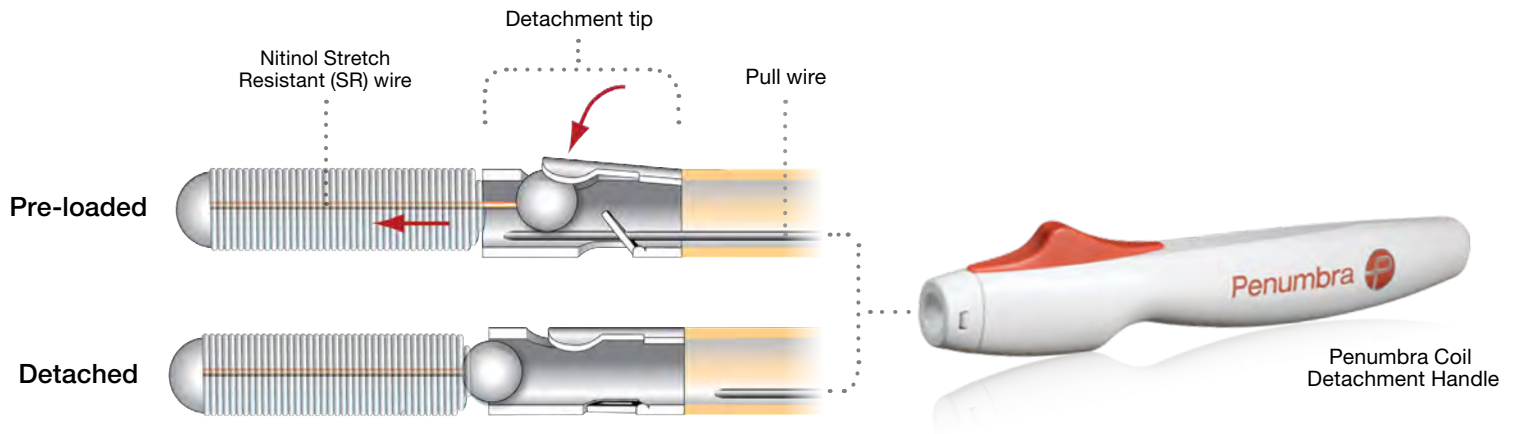
Dr. Nelson Lobelo  
Hospital Infantil San José, Bogotá, Colombia

### Indirect Cavernous Carotid Fistula



Dr. Donald Frei  
Swedish Medical Center, CO

### Reliable, Instant Detachment



1. Chowdhary A, Baxter B, Zaidat O, et al. Multicenter analysis of radiation exposure in large and giant aneurysms with the Penumbra Coil 400 System: A comparison. Presented at: 13th Congress of the World Federation of Interventional and Therapeutic Neuroradiology (WFITN); November 9-13, 2015; Gold Coast, Australia.
2. Mascitelli JR, Patel AB, Polykarpou MF, Patel AA, Moyle H. Analysis of early angiographic outcome using unique large diameter coils in comparison with standard coils in the embolization of cerebral aneurysms: A retrospective review. *J NeuroIntervent Surg.* 2015;7:126-130. doi:10.1136/neurintsurg-2013-11008.
3. Kaesmacher J, Müller-Leisse C, Huber T, et al. Volume versus standard coils in the treatment of intracranial aneurysms [Published online October 21, 2015]. *J NeuroIntervent Surg.* doi:10.1136/neurintsurg-2015-012014.
4. Baxter B, Quarfordt S, Patel A, et al. Initial multicentre clinical experience with treating small aneurysms (<5mm) with the Penumbra PC400 large volume coil: Improving the treatment of small aneurysms at 4 high volume US centres. *J NeuroIntervent Surg.* 2013;5(suppl 2) A20. doi:10.1136/neurintsurg-2013-010870.33.
5. Kulcsár Z, Wanke I, Rüfenacht D, et al. Safety and effectiveness of large volume coils in the treatment of small aneurysms [Published online January 20, 2016]. *J NeuroIntervent Surg.* doi:10.1136/neurintsurg-2015-012100.
6. Dörfler A, Struffert T, Dolitz P, et al. Early clinical experience of the Penumbra Coil 400 in Europe. *Intervent Neuroradiol.* 2011;17(suppl 1):141-146.
7. Alexander M, Chowdhary A, Baxter B, et al. Initial U.S. multi-center experience with Penumbra Coil 400™: A series of 30 cases. *Intervent Neuroradiol.* 2011;17(suppl 1):141-146.
8. Milburn J, Pansara AL, Vidal G, et al. Initial experience using the Penumbra Coil 400: Comparison of aneurysm packing, cost effectiveness, and coil efficiency [Published online: 15 March, 2013]. *J NeuroIntervent Surg.* doi:10.1136/neurintsurg-2012-010587.
9. Villwock M, Singla A, Padalino DJ, Deshaies EM. The Penumbra Coil 400 system for treatment of wide-necked intracranial aneurysms: Initial single-center experience. *Acta Neurochir Suppl.* 2015;120:191-195. doi:10.1007/978-3-319-04981-6\_33.
10. Berge J, Gariel F, Marnat G, Dousset V. PC400 volumetric coils minimize radiation, reduce procedure time and optimize packing density during endovascular treatment in medium sized cerebral aneurysms. *J Neuroradiol.* 2016 Feb;43(1):37-42. doi:10.1016/j.neurad.2015.10.002.

# Big Advantages

# Dense Occlusion

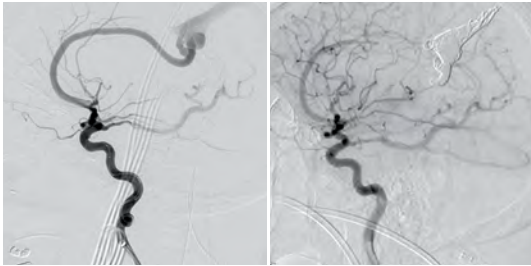
2,3,4,5,6,7,8

# 67% Cost Effective

8,9,10

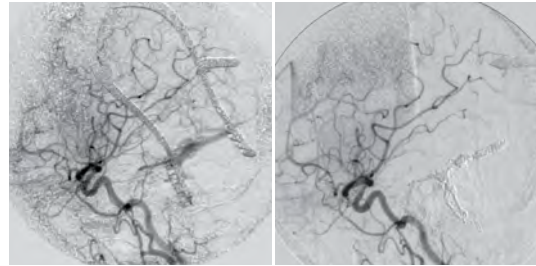
2,10

## Vein of Galen



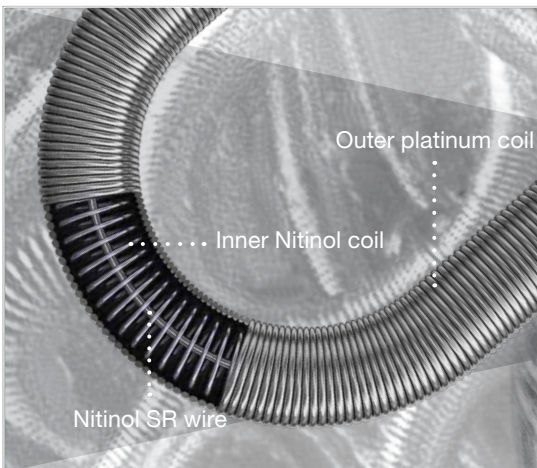
Dr. Adnan Siddiqui  
University at Buffalo, NY

## Transverse Sinus Embolization





Dr. Philippe Gailloud  
Johns Hopkins University Medical Center, MD

## Stable, Multi-layer Metal Structure



Photograph taken by and on file at Penumbra, Inc. Rendering for illustrative purposes only.



Frame			Fill			Fill/Finish					
COMPLEX STANDARD			COMPLEX SOFT			COMPLEX EXTRA SOFT			CURVE EXTRA SOFT		
											

Catalog Number	Secondary Diameter (mm)	Length (cm)	Catalog Number	Secondary Diameter (mm)	Length (cm)	Catalog Number	Secondary Diameter (mm)	Length (cm)	Catalog Number	Secondary Diameter (mm)	Length (cm)
4002C0408	4	8	4004C0306	3	6	4006C0202	2	2	4006U0201	2	1
4002C0506	5	6	4004C0310	3	10	4006C0203	2	3	4006U0202	2	2
4002C0510	5	10	4004C0406	4	6	4006C0204	2	4	4006U0203	2	3
4002C0610	6	10	4004C0408	4	8	4006C0303	3	3	4006U0204	2	4
4002C0615	6	15	4004C0412	4	12	4006C0304	3	4	4006U0302	3	2
4002C0710	7	10	4004C0509	5	9	4006C0305	3	5	4006U0303	3	3
4002C0715	7	15	4004C0513	5	13	4006C0306	3	6	4006U0304	3	4
4002C0720	7	20	4004C0610	6	10	4006C0308	3	8	4006U0305	3	5
4002C0820	8	20	4004C0615	6	15	4006C0404	4	4	4006U0306	3	6
4002C0830	8	30	4004C0710	7	10	4006C0406	4	6	4006U0308	3	8
4002C0925	9	25	4004C0715	7	15	4006C0408	4	8	4006U0404	4	4
4002C0935	9	35	4004C0720	7	20	4006C0410	4	10	4006U0406	4	6
4002C1020	10	20	4004C0815	8	15				4006U0408	4	8
4002C1030	10	30	4004C0820	8	20				4006U0410	4	10
4002C1040	10	40	4004C0925	9	25						
4002C1135	11	35	4004C1020	10	20						
4002C1145	11	45	4004C1030	10	30						
4002C1235	12	35	4004C1135	11	35						
4002C1245	12	45	4004C1235	12	35						
4002C1348	13	48	4004C1335	13	35						
4002C1450	14	50	4004C1440	14	40						
4002C1557	15	57	4004C1645	16	45						
4002C1660	16	60									
4002C1857	18	57									
4002C2060	20	60									
4002C2260	22	60									
4002C2457	24	57									
4002C2860	28	60									
4002C3260	32	60									

Catalog Number	Secondary Diameter (mm)	Length (cm)
4002C1020	10	20
4002C1030	10	30
4002C1040	10	40
4002C1135	11	35
4002C1145	11	45
4002C1235	12	35
4002C1245	12	45
4002C1348	13	48
4002C1450	14	50
4002C1557	15	57
4002C1660	16	60
4002C1857	18	57
4002C2060	20	60
4002C2260	22	60
4002C2457	24	57
4002C2860	28	60
4002C3260	32	60

Catalog Number	Secondary Diameter (mm)	Length (cm)
4004C0306	3	6
4004C0310	3	10
4004C0406	4	6
4004C0408	4	8
4004C0412	4	12
4004C0509	5	9
4004C0513	5	13
4004C0610	6	10
4004C0615	6	15
4004C0710	7	10
4004C0715	7	15
4004C0720	7	20
4004C0815	8	15
4004C0820	8	20
4004C0925	9	25
4004C1020	10	20
4004C1030	10	30
4004C1135	11	35
4004C1235	12	35
4004C1335	13	35
4004C1440	14	40
4004C1645	16	45

compromise the structural integrity of the device or increase the risk of contamination or infection leading to device failure and/or cross-infection and potential patient injury, illness, or death.

- Do not use kinked or damaged devices. Do not use opened or damaged packages. Return all damaged devices and packaging to the manufacturer/distributor.
- Use prior to the "Use By" date.
- Use device in conjunction with fluoroscopic guidance.
- Do not advance or retract the device against resistance without careful assessment of the cause using fluoroscopy.
- Moving or torquing the device against resistance may result in damage to the vessel or device.
- Maintain a constant infusion of an appropriate flush solution.

**Potential Adverse Events**  
Potential complications include, but are not limited to: acute occlusion; air embolism; death; distal embolization; emboli; false aneurysm formation; hematoma or hemorrhage at puncture/access site/site of entry; infection; intracranial hemorrhage; ischemia; neurological deficits including stroke; vessel spasm, thrombosis, dissection, or perforation; thromboembolic episodes; neurological deficits including stroke and possibly death; vascular thrombosis; post-embolization syndrome; revascularization; recanalization; inadequate occlusion; aneurysm rupture; parent artery occlusion; incomplete aneurysm filling.

**Indication For Use**  
The Penumbra Coil System is indicated for the endovascular embolization of:

- Intracranial aneurysms
- Other neurovascular abnormalities such as arteriovenous malformations and arteriovenous fistulae
- Arterial and venous embolizations in the peripheral vasculature

**Contraindications**  
There are no known contraindications.

**Warnings**  
The Penumbra Coil System should only be used by physicians who have received appropriate training in neuro-interventional techniques.

**Precautions**  
The device is intended for single use only. Do not resterilize or reuse. Resterilization and/or reuse may

**Indication For Use**  
The Penumbra Delivery Microcatheters are intended to assist in the delivery of diagnostic agents, such as contrast media, and therapeutic agents, such as occlusion coils to the peripheral and neuro vasculature.

**Contraindications**  
There are no known contraindications.

**Warnings**  
The Penumbra Delivery Microcatheters should only be used by physicians who have received appropriate training in interventional techniques.

**Precautions**  
The devices are intended for single use only. Do not resterilize or reuse. Resterilization and/or reuse may result in ineffective catheter coating lubrication, which may result in high friction and the inability to access the target location.

- Do not use kinked or damaged devices. Do not use open or damaged packages. Return all damaged devices and packaging to the manufacturer/distributor.
- Use prior to the "Use By" date.
- Use the Penumbra Delivery Microcatheters in conjunction with fluoroscopic visualization.
- Do not advance or withdraw the Penumbra Delivery

### Fill

#### J SOFT



Catalog Number	Length (cm)
4004J7	7
4004J10	10
4004J15	15
4004J25	25

### Penumbra Coil Detachment Handle



Catalog Number	Description
DH1	Detachment Handle

### PX SLIM™ Delivery Microcatheter



Catalog Number	Tip Shape	ID (in.)	Distal and Proximal OD	Guidewire Compatibility (in.)	Tip Markers	Length (cm)
PXSLIMSTR	Straight	.025	2.6/2.95 F	.020	2	150
PXSLIM045	45°	.025	2.6/2.95 F	.020	2	150
PXSLIM090	90°	.025	2.6/2.95 F	.020	2	150
PXSLIM130	130°	.025	2.6/2.95 F	.020	2	150

Microcatheters against resistance without careful assessment of the cause using fluoroscopy. If the cause cannot be determined, withdraw the device. Moving or torquing the device against resistance may result in damage to the vessel or device.

- Maintain a constant infusion of an appropriate flush solution.
- If flow through the device becomes restricted, do not attempt to clear the lumen by infusion. Remove and replace the device.

**Potential Adverse Events**  
Possible complications include, but are not limited to, the

following: acute occlusion; hematoma or hemorrhage at access site; death; intracranial hemorrhage; hemorrhage; infection (at access site); distal embolization; ischemia (cardiac and/or cerebral); embolus (air, foreign body, thrombus, plaque); aneurysm perforation; false aneurysm formation; neurological deficits including stroke; vessel spasm, thrombosis, dissection, perforation or rupture; air embolism; emboli.



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info@penumbrainc.com

Product availability varies by country. Caution: Federal (USA) law restricts these devices to sale by or on the order of a physician. Prior to use, please refer to the Instructions for Use for Penumbra Coil System and Penumbra Delivery Microcatheters for complete product indications, contraindications, warnings, precautions, potential adverse events, and detailed instructions for use. Please contact your local Penumbra representative for more information.

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