

# Distal MCA Flow Diversion

R. Webster Crowley, M.D.

Division of Cerebrovascular and Endovascular  
Neurosurgery

Rush University Medical Center

## Endovascular Treatment of a Fusiform Aneurysm at the M3-M4 Junction of the Middle Cerebral Artery Using the Pipeline Embolization Device

**Christopher R. Durst<sup>1</sup>, H. Robert Hixson<sup>1</sup>, Paul Schmitt<sup>2</sup>, Jean M. Gingras<sup>1</sup>, R. Webster Crowley<sup>2</sup>**

### Key words

- Angiography
- Cerebral aneurysm
- Embolization
- Flow diversion
- Fusiform
- Pipeline
- Pipeline embolization device

### Abbreviations and Acronyms

**MCA:** Middle cerebral artery

**PED:** Pipeline embolization device

*From the Departments of <sup>1</sup>Radiology and Medical Imaging, and <sup>2</sup>Neurosurgery, University of Virginia Health System, Charlottesville, Virginia, USA*

*To whom correspondence should be addressed:*

*R. Webster Crowley, M.D.*

*[E-mail: [rc9dd@hscmail.mcc.virginia.edu](mailto:rc9dd@hscmail.mcc.virginia.edu)]*

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■ **BACKGROUND:** Peripheral fusiform cerebral aneurysms remain difficult to treat. Current surgical approaches to the treatment of fusiform aneurysms include wrapping, clip occlusion or vessel reconstruction without parent vessel sacrifice, and aneurysm trapping with or without bypass, although these may carry high morbidity (36%). Classic endovascular approaches to the treatment of peripheral aneurysms include selective or parent artery occlusion, which imparts the risk of distal infarction. It may be possible to use a flow diversion device off label to treat the aneurysm and preserve flow to the distal territory.

■ **CASE DESCRIPTION:** After a presyncopal event, a patient was found to have an unruptured fusiform aneurysm at the junction of the M3 and M4 segments of the right middle cerebral artery. After initiating dual antiplatelet therapy, the aneurysm was successfully treated with a Pipeline embolization device. Three months after treatment, the aneurysm has completely thrombosed, the parent artery remains widely patent, and the patient remains at her neurologic baseline.

■ **CONCLUSIONS:** Flow diversion devices may provide the neurointerventional surgeon with an opportunity to treat fusiform peripheral aneurysms and preserve flow to the distal territory.

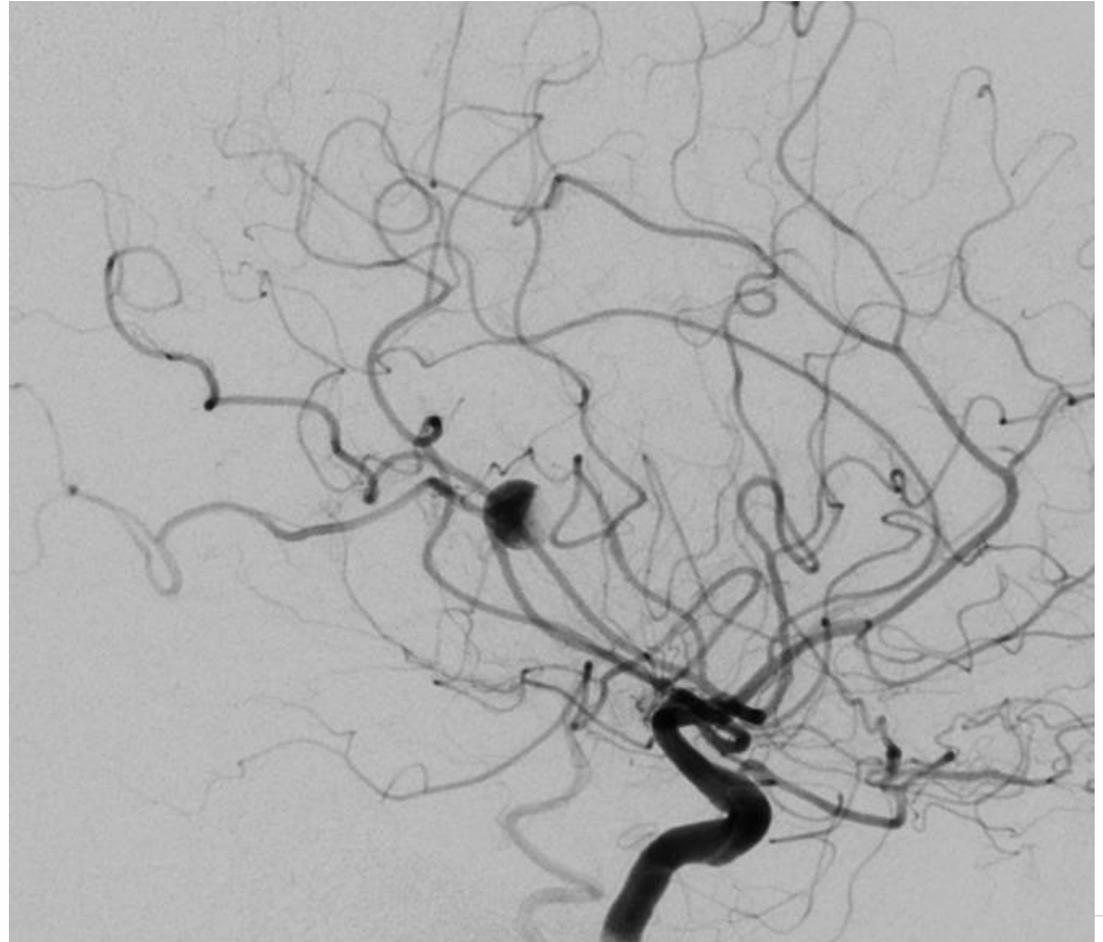
- Woman in her 60's presented to medical attention with syncopal event
- Aneurysm arising off right M3-M4 was detected on MRI

# Pre-PED Lateral Whole Head

10.8mm  
length

7.1 x 8mm  
diameter

MCA  
diameter =  
<1.5mm

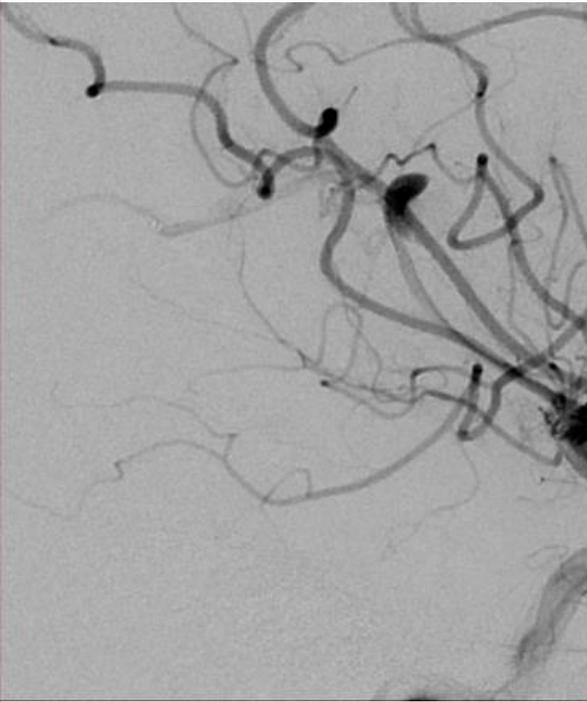


- Pre-treatment with Aspirin/Clopidogrel, with response confirmed by VerifyNow prior to treatment
- 6F 80 Shuttle Sheath (Cook)
- 6F 070 Neuron guide (Penumbra)
- XT-27 microcatheter over Synchro 2 (Stryker)
- 2.5 x 20 mm Pipeline (Medtronic)
- 10 mg verapamil given IA prior to aneurysm access

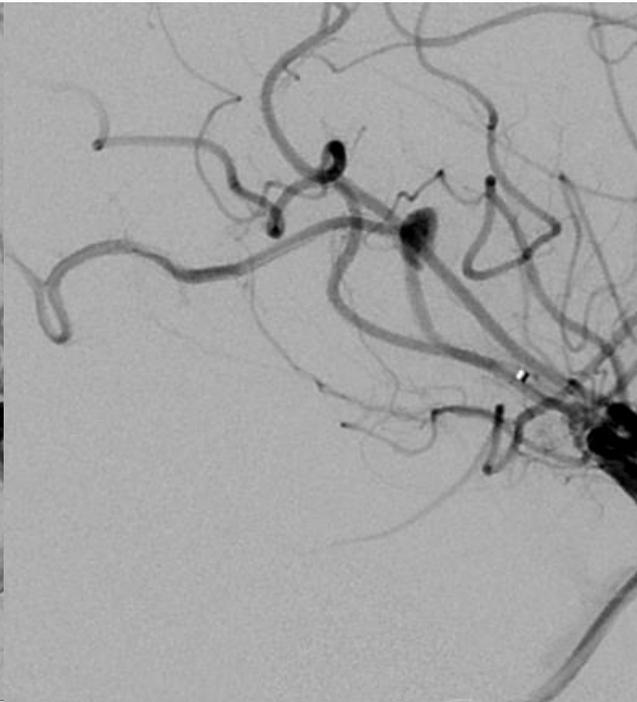
# Working Angles Pre, Post, Delayed



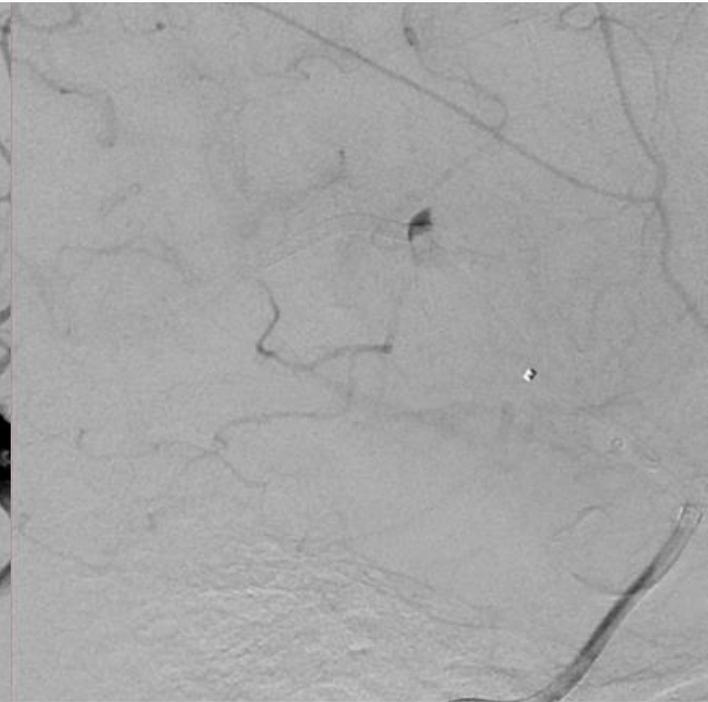
2.5 x 20 mm PED through XT-27



Pre – Flow into aneurysm with delayed flow into distal segment of the vessel.



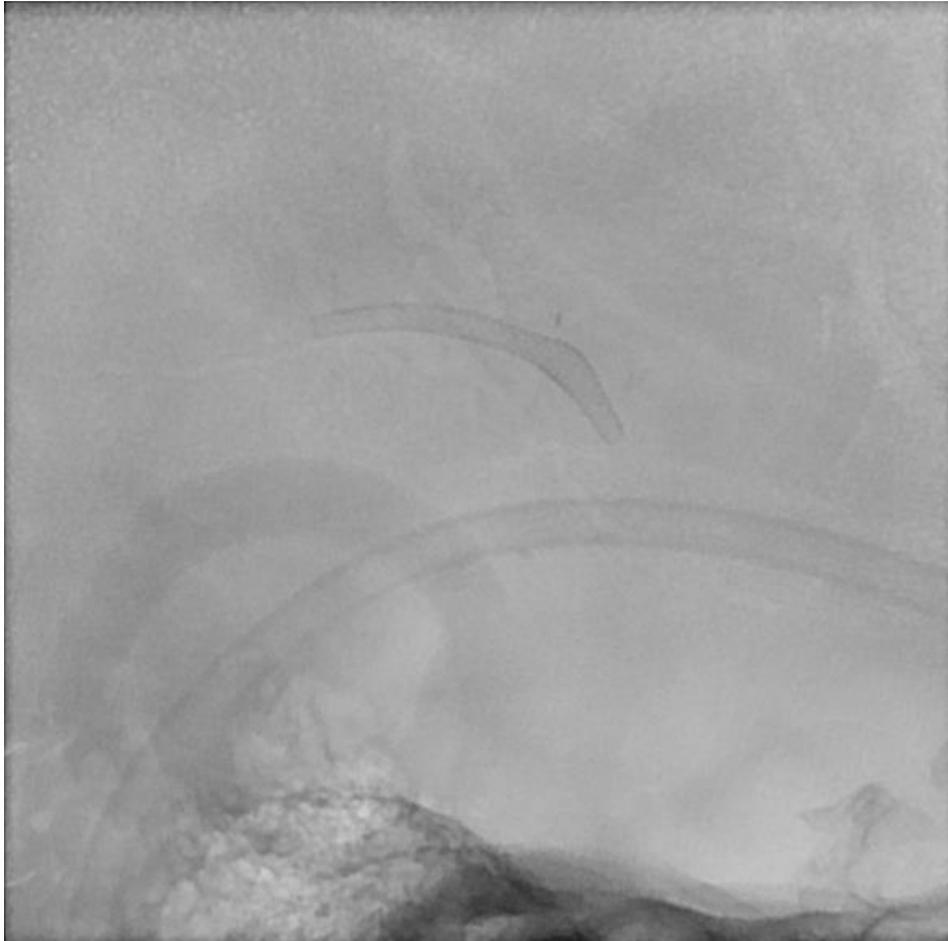
Post – Good wall apposition with redirection of flow into the distal segment of the vessel.



Delayed – Some stasis of flow in the aneurysm sac.



# 3 month Follow-up



# 3 month Follow Up

