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Use of the Pipeline Embolization Device for Anterior Communicating Artery Region Aneurysms

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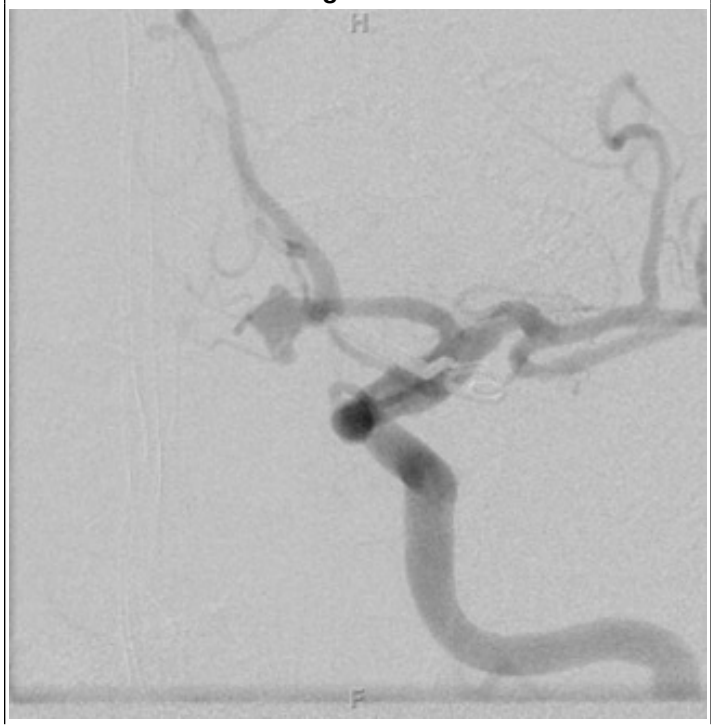
Introduction

Flow diversion has become an increasingly utilized technique for treating intracranial aneurysms. The Pipeline Embolization Device (PED) has been extensively studied for treating internal carotid artery aneurysms. However, the use of the PED for treating anterior communicating artery (ACoA) region aneurysms has not been well described.

Methods

We retrospectively reviewed an IRB approved, prospectively maintained institutional aneurysm database to identify all patients with ACoA region aneurysms who underwent treatment with the PED from January 2009 to October 2015. All patients consecutively treated were included. Data was obtained for patient demographics, procedural details as well as clinical and radiographic outcomes.

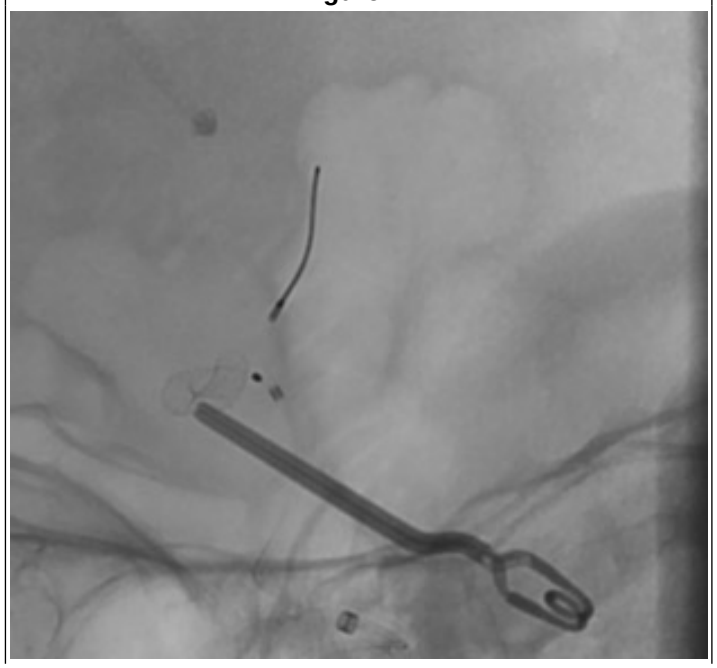
Figure #1



Results

The PED was used to treat 30 ACoA region aneurysms (mean size 3.7+/-1.8mm) in 29 patients in a total of 33 procedures. Four patients received bilateral PEDs. Previously untreated aneurysms comprised 53%(n=16) of aneurysms, while 47%(n=14) represented residuals or recurrences of previously clipped or coiled aneurysms. PED Flex was used in 36%(n=12) of cases. A Navien distal intracranial catheter was used in 88%(n=29) of cases. An intracranial exchange was performed in 21% (n=7) of the cases. There were 2 intra-procedural acute in-stent thromboses (6%), both successfully treated without permanent sequelae. A PED was successfully deployed in 97%(n=32) of cases. There was one significant delayed complication (3%) of a thrombosis on post-procedural day 2 which resulted in an infarct. Of the 23 aneurysms with follow-up angiography there was a combined complete (n=19) or partial (n=1) obliteration rate of 87% (mean follow-up 7.9+/-4.9 months).

Figure #2



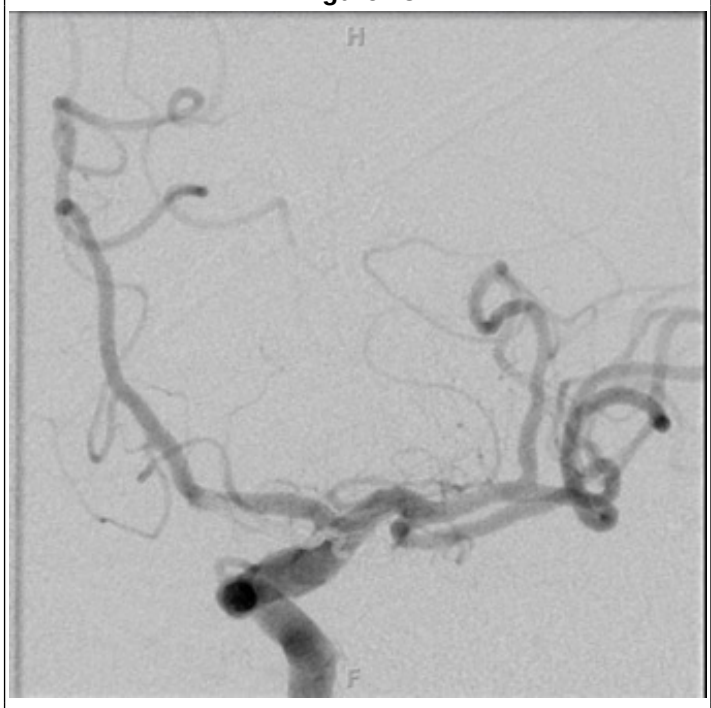
Conclusions

Flow diversion with the PED represents an important tool for the treatment of ACoA region aneurysms. The use of the PED for these aneurysms may be beneficial for both untreated, as well as previously treated aneurysms (either clipped or coiled). Our experience demonstrates a favorable safety profile as well and a high rate of early aneurysm obliteration.

Learning Objectives

By the conclusion of this session, participants should be able to understand the favorable safety profile as well as the high rate of early aneurysm occlusion with the use of the PED for ACoA region aneurysms.

Figure #3



1 year followup angiogram demonstrating complete aneurysm obliteration