

Flow Diversion of Unruptured Basilar Apex Aneurysms: A Single Center Experience

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Introduction

Despite advances in the management of intracranial aneurysms, successful treatment of basilar apex (BA) aneurysms remains challenging, due to the high risk of neurological morbidity associated with surgical intervention and the high risk of recurrence associated with endovascular therapy. Flow diversion is commonly employed for proximal ICA aneurysm, but the high density of perforators at the basilar quadrifurcation has tempered its use for BA aneurysms. The aim of this single-center, retrospective cohort study is to report the outcomes of flow diversion for unruptured BA aneurysms.

Methods

We retrospectively evaluated a prospectively maintained database of aneurysm patients who underwent flow diversion with the Pipeline Embolization Device at our institution from 2009-2017. Patients with BA aneurysms were included. Patient, aneurysm, treatment, and outcomes data were analyzed.

Pre-operative Angiogram of the Basilar Apex Aneurysm



Results

This study cohort was comprised of seven patients each with an unruptured basilar apex aneurysm treated with flow diversion. Four were previously treated with stent-assisted coiling (58%). The median age was 63 years (range: 54- 68 years), and the median preoperative modified Rankin Scale (mRS) was 1 (range: 0-5). The median aneurysm size were 8.9 mm (range: 7-12 mm). The median number of flow diverters used was 1. One recently treated patient is pending a follow-up evaluation. All six patients with available follow-up (median duration: 53 months) had complete aneurysm occlusion. No thromboembolic or hemorrhagic complications occurred, although one patient experienced transient gait instability and diplopia. At last follow-up, four patients had a mRS of 0, one with mRS of 1 and one patient with mRS of 3.

1-year follow-up angiogram Post pipeline with coiling



Conclusions

Flow diversion affords a reasonable risk to benefit profile for highly selected cases of unruptured BA aneurysms. Our preliminary data suggests that this versatile modality can be employed as a primary treatment for large, wide-necked BA aneurysms or as a salvage treatment for BA aneurysms which have failed one or multiple prior endovascular interventions.

Learning Objectives

By the conclusion of this session, participants should be able to

 Describe the role of flow diversion in the treatment of posterior circulation aneurysms
Discuss the outcomes of basilar apex aneurysm patients who were treated primarily or as a rescue therapy with flow diversion and
Identify an effective strate put for more sing basil

3) Identify an effective strategy for managing basilar apex aneurysms

References

1. Dmytriw AA, Adeeb N, Kumar A, et al. Flow Diversion for the Treatment of Basilar Apex Aneurysms. Neurosurgery. Feb 26 2018.