

## Introduction

Fusiform aneurysms arising from segments of the anterior, middle, and posterior cerebral arteries are uncommon entities. These aneurysms can be managed microsurgically or via endovascular means. Due to the inherent geometry of many fusiform aneurysms, treatment may be difficult to achieve without sacrificing the parent vessel. This observational study aims to describe our experience with parent artery occlusion for the management of fusiform aneurysms.

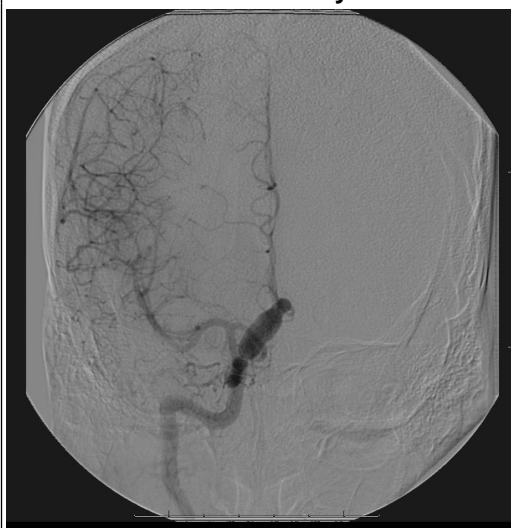
## Methods

A retrospective chart review of cases from our institutional aneurysm database was performed. Of this collection, 14 cases were identified as having fusiform geometry aneurysm with management via parent artery occlusion. We reviewed the clinical presentation, imaging, treatment method, clinical progression, and imaging follow up.

## Results

Of the 14 patients with fusiform aneurysms, involved arteries included the middle cerebral artery (2), the anterior cerebral artery (3), the posterior cerebral artery (7), the anterior inferior cerebellar artery (1), and the posterior inferior cerebellar artery (1). All cases were managed via parent artery occlusion, of which 6 were treated microsurgically and 8 were treated via endovascular means. Post-procedural imaging demonstrated stroke in 9 patients. At 6 month follow up, 10 patients were without neurological deficit.

### Posterior Communicating Artery Fusiform Aneurysm



Posterior Communicating Artery Fusiform Aneurysm

### Fusiform Aneurysm status post endovascular embolization



Fusiform Aneurysm status post endovascular embolization

## Conclusions

From our observational study, it appears that parent artery occlusion of fusiform aneurysms via endovascular or microsurgical means is a viable treatment method in select patients with relatively few neurologic deficits post-treatment. Although in most cases parent artery occlusion results in radiographic stroke, patients clinically do quite well with limited long term sequela.

## Discussion

The two main modalities for treatment of fusiform aneurysms can be broken up into endovascular management and microsurgical management. Most methods of aneurysm treatment involve mobilizing the aneurysm, identifying the parent artery and branches, and clipping or embolizing just the aneurysm itself. Especially in the case of fusiform aneurysms, mobilization of the aneurysm itself may not be possible. In such situations, various studies have demonstrated the use of parent artery occlusion to lead to satisfactory clinical outcomes. This has been demonstrated in PCA (1), ACA (2), MCA (3), SCA (4), and vertebral (5) artery fusiform aneurysms. Although, as in our study, a large percentage (12.9%) of strokes have been seen in a Japanese registry review (6), clinical outcomes have been shown to be well tolerated with few residual symptoms after 30 days. Additional treatment options include pipeline stenting or occlusion with bypass.

## References

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## Learning Objectives

By the conclusion of this session, participants should be able to identify parent artery occlusion as an effective alternative for management of fusiform aneurysms