

## Indications for Surgical Treatment of Cranial Dural Arteriovenous Fistulas cDAVF

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### Introduction

CDAVF are rare, complex, highly individual lesions. With retrograde venous drainage into epicerebral, epicerebellar or perimedullary veins, they may cause congestive brain edema or acute fatal hemorrhage.

### Methods

We evaluate 96 cDAVF cases between 2001 and 2013 for criteria determining timing and modalities for treatment as well as factors determining risk and postoperative course.

### Learning Objectives

To demonstrate that once a cDAVF with retrograde drainage is diagnosed it should be eliminated from the circulation

### Results

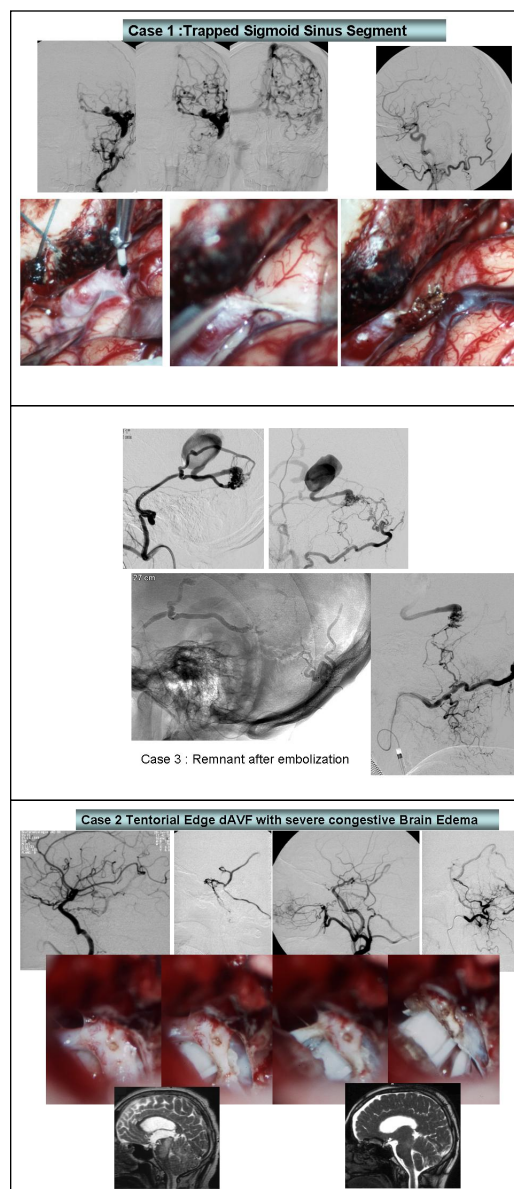
Lateral fistulas without cerebral involvement underwent endovascular occlusion (n=46) or were watched (n = 15). 35 patients underwent surgery. The surgical group presented with hemorrhage (subdural, subarachnoid or intracerebral) or progressive neurological deficit due to congestive edema or seizures. One patient presented as emergency with massive acute subdural and intracerebral hemorrhage and died. There was an even distribution between tentorial, frontobasal, lateral (transverse/sigmoid) and parasagittal and two cDAVFs at the petrous apex.. Tentorial cDAVF drained strictly supratentorial or infratentorial never

Extent of hemorrhage was not related to the size or flow of the lesions. Likewise, the extent of epicerebral venous drainage was unrelated to extent of edema. Only four fistulas had more than one, spatially separated draining veins of which two were missed during surgery and appeared at control angiography. Three were reoperated and closed. One petrous apex fistula was missed and reoperated because an antegrade arterialized vein was mistaken for the drainage of the fistula.

Readjustment to regular perfusion after interruption of the fistula was accompanied by neurological symptoms like visual hallucinations (occipital), seizures (parasagittal) or cardiovascular dysregulation (brainstem). We did not observe delayed neurological deterioration as seen in spinal DAVF. In all cases, closure of the draining vein at the arteriovenous junction was sufficient. We saw no post-occlusion hemorrhage. Ultrasound, micro-Doppler, ICG angiography evolved as useful intraoperative tools.

### Conclusions

As surgery is highly effective and low risk, it is recommended upon diagnosis of epicerebrally draining cDAVF.



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