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Contemporary Treatment of Intracranial Dural Arteriovenous Fistulas (DAVFS): Toward Zero Mortality and Morbidity?

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Introduction

Different treatment modalities (endovascular embolization, stereotactic radiosurgery, surgery, and medical treatment) can be utilized alone or in combination to treat intracranial DAVFs. An "individualized" approach, tailored to the clinical characteristics of each patient may lead to effective treatment of DAVFs with very low morbidity.

Methods

We performed a retrospective analysis of prospective collected data on 103 consecutive patients (52 males and 51 females, mean age 61.7 years) with 108 intracranial DAVFs evaluated and/or treated by the senior author (GL) at the Mayo Clinic in Rochester, MN between January 2008 and April 2015.

Results

The more common DAVFs locations were the transverse/sigmoid sinus (38.9%), tentorial (27.8%) and the cavernous sinus region (14.8%). According to the Cognard classification, Type I (24.1%), Type III (23.1%) and Type II a (14.8%) were the most common types. Twelve percent of patients presented with hemorrhage. Thirteen patients were managed conservatively and of those undergoing invasive treatment, 63.3% underwent a single therapeutic modality and 36.7% were treated with multimodality therapy. There was no mortality and no major permanent neurological morbidity. Mild periprocedural neurological complications (self-assessed mRS 0-1) occurred in 3 patients (3.3%). One patient was lost to follow-up. After a mean follow-up of 44.3 months, there were no hemorrhages related to the DAVF and every patient experienced improvement or at least stabilization of symptoms.

Conclusions

With judicious utilization of various therapeutic modalities available, intracranial DAVFs can be successfully treated with very low morbidity.

Learning Objectives

Contemporary treatment options and their appropriate utilization allow the optimal complex management of patients with intracranial DAVFs with negligible treatment complication rates. It is crucial to assess the risk-benefit ratio of all available treatment modalities compared with possible risks of conservative management. We strongly suggest that the decision-making process should be individualized based on lesion's angiographic architecture and risks of treatment.

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