

Endovascular Management of Cervical Carotid and Vertebral Artery Dissection: Indications, Techniques, and Outcomes from a 20-Year Experience

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Learning Objectives

- 1) Discuss specific endovascular techniques in the management of cervical dissection.
- 2) Discuss the different etiologies of cervical dissection and how they differ in their presentation.
- 3) Discuss clinical outcomes after treatment of cervical dissection.
- 4) Discuss the differences in presentation between CAD and VAD.

Introduction

Endovascular intervention for cervical carotid artery and vertebral artery dissections (CAD and VAD) may be indicated in specific circumstances.

Methods

We reviewed a prospectively-maintained database from January 1996 to January 2016 of extracranial dissections undergoing endovascular intervention.

Results

There were 116 patients, including 93 in the CAD cohort and 23 in the VAD cohort, with a mean age of 44.9 years (range 5-76) and mean post-procedure follow-up of 41.6 months (range 1-146). Interventions included stent placement (n=104), coil occlusion of parent artery (n=11), or stenting with contralateral vessel coil occlusion (n=1). The two cohorts were well matched in age, gender, dissection etiology, and admission/follow-up mRS (p=.362, .371, .175, .355, .835, respectively). The CAD cohort was significantly more likely to undergo stent placement or have failed medical therapy (p<.001, p=.004). The CAD cohort was also significantly more likely to undergo intervention for enlarging pseudoaneurysm or thromboembolic events (p=.001, .004), whereas the VAD cohort was significantly more likely to undergo intervention for traumatic occlusions with recanalization (p<.001). Etiologies of dissection included spontaneous (n=67), traumatic (n=38), and iatrogenic (n=14), with traumatic dissections being associated with a poor admission mRS (mRS>3) in the CAD cohort (p=.014). Six (9.0%) patients of spontaneous etiology also reported recent chiropractic manipulation. The permanent morbidity/mortality rate was 3.4%, including 2 deaths, with a stroke rate of only 0.9% over 4,825 patient-years. At last follow-up, 31/93(33.3%) CAD patients and 10/23(43.5%) VAD patients disabled prior to intervention were non-disabled at last follow-up; no patients in either cohort were worsened.

Conclusions

In a long-term experience, endovascular management of CAD and VAD is highly effective in specific indications, with an acceptable complication profile. CAD requiring intervention is more likely than VAD to have failed medical therapy, present with thromboembolic events and pseudoaneurysms, and undergo primary stent placement, whereas VAD is more likely to undergo treatment for traumatic occlusions with recanalization.