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Endovascular management of free floating common carotid thrombi

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Introduction

- The incidence of symptomatic free-floating thrombi of the common carotid artery (CCA) is as low as 0.24-5% incidence in stroke victims. Patients are predisposed to a prothrombotic state
- Historical management options were limited to surgical and medical options both with individual attendant risk profiles
- Large thrombi can present with various degrees of clinical severity
- The endovascular approach is a viable tool to manage these patients

Background

- Free floating thrombi of the common carotid artery are uncommon causes of stroke syndromes
- Management of symptomatic patients is heterogeneous including medical, surgical and with the advent of new technology, endovascular approaches
- Endovascular treatment with satisfactory revascularization can be accomplished using combined approaches

Case 1

- 51 year old Hispanic female with a history of insulin dependent diabetes mellitus (IDDM), hypertension and hyperlipidemia presenting with waxing and waning right sided stroke symptoms.
- Initial cranial imaging demonstrated subacute infarction in the subcortical white matter of the left parietal lobe.
- Doppler ultrasound evaluation of the neck vasculature identified a 3.5cm free floating thrombus with >70% stenosis.
- CT angiogram of the neck confirmed the presence of the thrombus
- She was medically treated with therapeutic heparin, 81 mg daily aspirin, 40 mg Atorvastatin and hypertensive management.
- Due to the high risk of embolic large vessel stroke she received a mechanical thrombectomy with the Penumbra Max ACE 068 catheter
- Post procedurally, her symptoms rapidly abated and imaging demonstrated complete recanalization
- A postoperative computed tomography angiography was negative for occlusive disease.

Results

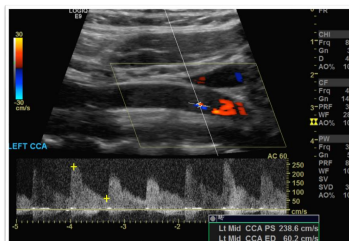


Figure 1. Carotid Doppler demonstrating free floating CCA thrombus and high grade occlusion.

Figure 2. A-B. Pre- and Post- treatment angiogram using a direct aspiration technique with the Penumbra Max ACE 068 catheter



Case 2

- 56 year old male with a history of insulin dependent diabetes and hypertension presenting with acute aphasia
- Imaging demonstrated an occlusive M1-MCA (middle carotid artery) thrombus as well as an unstable left common carotid artery thrombus
- A 6mm SpiderFx™ protection device was deployed in the petrous ICA (internal carotid artery)
- The proximal occlusion was treated first using a combined stent/aspiration technique with the Penumbra Max Ace 068 catheter and a 6x25mm Trevo Stent
- After partial recanalization, serial balloon angioplasty was accomplished using a 6x40mm and 9x40mm angioplasty balloon resulting in satisfactory revascularization
- The distal lesion was treated in standard fashion using a combined aspiration/stent technique with mTICI 2B revascularization of the MCA

Results

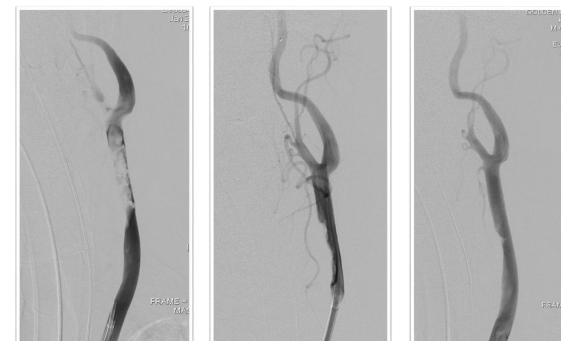


Figure 3. A-C. Satisfactory revascularization was obtained after a combined stent assisted aspiration approach followed by (C) salvage balloon angioplasty

Discussion

- These cases demonstrate concordant findings of a large occlusive CCA clot using various imaging modalities.
- Most importantly, rapid endovascular intervention was necessary complete recovery.
- It is unclear whether or not either patient had an occult medical process underlying the development of the thrombus.
- There was clear variability in techniques and devices used based on individual operator experience
- An embolic protection was selected in the second case due to pre-existing tandem lesions

References

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