Endovascular Treatment of Acute Stroke from Tandem Atherosclerotic Cervical Internal Carotid Artery Occlusion and Middle Cerebral Artery Embolic Occlusion with Carotid Angioplasty and Stent Followed by Solitaire Stent Retriever and Aspiration Catheter

Stanley H. Kim, M.D.
Yesenia De La Torre, B.A.
Kelsi-Alexis Hernandez, B.S.
Nathan Dhablania, B.S., M.S.
Disclosure

NONE
Introduction

Emergent endovascular treatment of acute stroke from tandem cervical internal carotid artery (ICA) and middle cerebral artery (MCA) is challenging and controversial. The authors present our experience of emergent carotid angioplasty and stent placement for tandem atherosclerotic cervical ICA near occlusion or occlusion first followed by thrombectomy of MCA with stent retriever and aspiration technique.
Methods

We performed a retrospective review of patients who underwent endovascular treatment for acute stroke from tandem atherosclerotic cervical ICA near occlusion or occlusion and MCA occlusion from 2017 to 2019. The clinical and radiological data are reviewed.
Results

A total of 3 patients (M=2, F=1, Age 58.5 +/- 8.8) presented with acute stroke due to tandem atherosclerotic near occlusion or occlusion of cervical ICA and ipsilateral MCA thrombotic occlusion based on Computer Tomographic Angiogram (CTA) of head and neck and a diagnostic cerebral angiogram. All patients underwent carotid angioplasty and stent placement with distal protection device first followed by thrombectomy of MCA with Solitaire stent retriever and aspiration catheter with Thrombolysis in Cerebral Infarction (TICI) score of 3 +/-0 with 1.3 +/-0.6 passes. The initial and 90 days mRS scores were 5+/- and 1.6 +/- 0.6, respectively. The initial and follow-up (13.3 +/- 14.7 months) NIHSS scores were 16.3 +/- 1.5 and 2.7 +/- 0.7, respectively. No post-operative intracerebral hemorrhage was observed.
Acute Stroke from Near Occlusion of Right Cervical ICA and Thrombus Occlusion of Right MCA

Figure 1A: AP view of right common carotid angiogram showing near occlusion of cervical ICA origin.

Figure 1B: AP view of right carotid angiogram showing occlusion of right middle cerebral artery origin.
Post Right Carotid Angioplasty and Stent Followed by Mechanical Thrombectomy of Right MCA

Figure 2A: AP view of right common carotid angiogram after angioplasty and stent with distal protection device.

Figure 2B: AP view of right cervical ICA angiogram showing recanalization of right MCA following mechanical thrombectomy.
Conclusion

Emergent endovascular treatment of symptomatic tandem atherosclerotic cervical ICA near occlusion or occlusion and MCA thrombotic occlusion first with carotid angioplasty and stent placement may facilitate intracranial access to perform MCA thrombectomy as the severe cervical ICA stenosis or occlusion may prevent passage of aspiration catheter into the intracranial ICA or MCA. Further research will provide the durability and safety of this technique.