Ischemic stroke due to cocaine-induced basilar artery dissection

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Background

Cocaine use has been associated with a range of vascular complications, including arterial dissection. Both cocaine-mediated hypertension and weakening of the vascular wall due to apoptosis of vascular endothelial and/or smooth muscle cells have been postulated as underlying mechanisms[1].

Case report

We present the case of a 21-year-old woman with a two-day history of head and neck pain, presenting at the emergency department with wake-up dysarthria and left hemiparesis. She admitted to sporadic cocaine use, most recently a few hours before onset of her headache.

Brain CT showed no intracranial hemorrhage while on CT angiography a short occlusion on the distal basilar artery was noted, with classical angiography revealing underlying dissection (Figure A) and collateral flow through the left posterior communicating artery (Figures B-C). Endovascular treatment with repositioning of the dissection flap was unsuccessful and neurological examination after the procedure was unchanged. Brain MRI one day after admission showed acute pontine and right lenticulostriate ischemic infarction (Figures D-F). She gradually recovered, but at her follow-up visit two months later she had residual mild left hemiparesis and mild dysarthria. MRI at that time with 3D-TOF MRA is shown in Figures G-J.

Conclusions

Cocaine-induced dissections of the aortic arch, coronary, renal, carotid and vertebral arteries have been previously described[2-4]. Although a few cases of ischemic stroke due to cocaine-induced basilar artery thrombosis have been reported[5], this is the first case with an underlying basilar artery dissection. In stroke patients with spontaneous arterial dissection, cocaine and other illicit drug use should be ruled out.

References

[1] Dabbouseh et al. (2011), [2] Kim et al. (2019), [3] Kocaeli et al. (2009), [4] Bernanian et al. (2005), [5] Siniscalchi et al. (2016)