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Case Reports & Case Series

Another cause of isolated aphasia – Illicit drug abuse

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ABSTRACT

It is because of the distribution of the MCA that isolated aphasia is uncommon. This case reminds us of the risk of stroke in illicit drug use while highlighting another cause of stroke with isolated aphasia.

We present a 50 year old male with no prior medical history, who presented because his wife noted he was unable to speak. When seen, his physical examination revealed expressive aphasia and agraphia without any other focal neurological deficits. A brain CT showed a large area of loss of gray-white differentiation to the left frontal lobe including the insular cortex with associated sulcal effacement. An MRA confirmed subacute ischemic injury involving the left MCA distribution with focal narrowing of an M2 branch within the sylvian fissure. Carotid artery doppler, echocardiogram, lipid profile, and thrombophilia workup were negative. His cause of stroke was therefore assumed to be secondary to illicit drug abuse.

Isolated aphasia is usually secondary an embolic event. As illicit drug related vasculopathy is an accepted proposed mechanism for ischemia, it should be highlighted that illicit drugs can also be a cause of this uncommon presentation of stroke.

1. Introduction

Due to the distribution of the middle cerebral artery (MCA), isolated aphasia as a presentation in cerebrovascular accident (CVA) is an uncommon occurrence [1]. Such a presentation can be assumed to be that of an embolic phenomenon [2]. However this case alludes to another cause, one that is under investigated as a cause of stroke [3,5]. This case reminds us of the link between illicit drug abuse and stroke while highlighting another cause of stroke with isolated aphasia.

1.1. Case report

We present a 50 year old male with no prior medical history, who presented because his wife noted he was unable to speak. According to his family, the patient was conversing normally until 8 h prior to presentation where his family noted that he was speaking in incomprehensible sentences. He subsequently was acting confused and then unable to talk at all. Focal weakness, seizures, facial drooling or unsteady gait was denied. He does not take any medications. He smoked cigars and marijuana of which wife was unable to quantify.

When seen, his blood pressure was 126/79, pulse 54 beats/min, other vitals were normal. Cardiovascular, respiratory and abdominal exam were normal. Carotid bruits were not appreciated. Aphasia and agraphia was noted. Motor exam showed normal tone, power and reflexes of all extremities, with equivocal Babinski. Gait was normal. Sensory exam was normal. Cranial nerves were intact and the patient was right handed.

EKG showed sinus bradycardia (rate 54) with no ST changes. CBC and CMP were unremarkable. Urine toxicology was positive for cannabinoids and cocaine. A brain CT showed a large area of loss of gray-white differentiation to the left frontal lobe including the insular cortex with associated sulcal effacement.

The patient was assessed as having an ischemic stroke. Since he was out of the window for emergent intervention, patient was managed conservatively with aspirin and statin and admitted.

MRI and MRA (Fig. 1) confirmed subacute ischemic injury involving the left MCA distribution with focal narrowing of an M2 branch within the sylvian fissure (Fig. 2). Carotid artery Doppler showed no significant stenosis. Echocardiogram was normal. Lipid profile, homocysteine and anti-cardiolipin antibodies were normal. Thrombophilia workup was negative. Full neurological assessment by neurologist and by speech therapy revealed expressive aphasia without dysarthria or any other focal neurological deficits – the cause was assumed to be secondary to cocaine abuse.

The patient was discharged for outpatient speech and occupational therapy.

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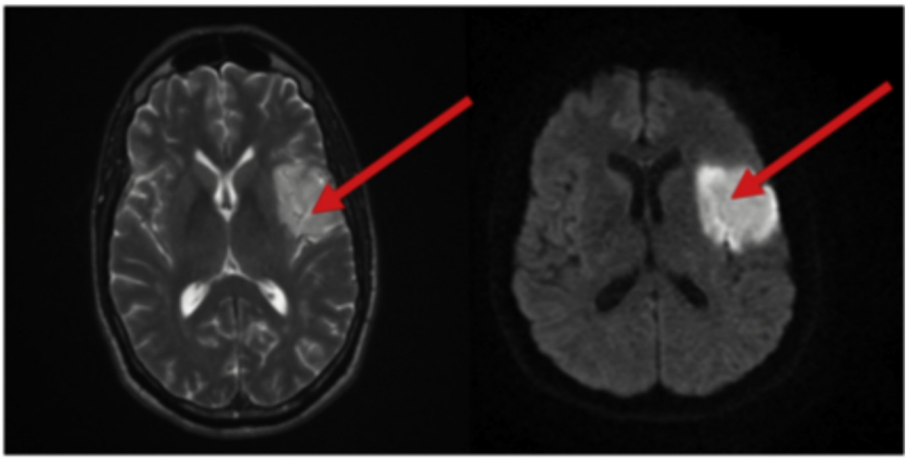

Fig. 1. T2 (Left Image) and Diffusion Weighted (Right Image) MRI Brain showing Subacute Infarct in Frontal Lobe (red arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

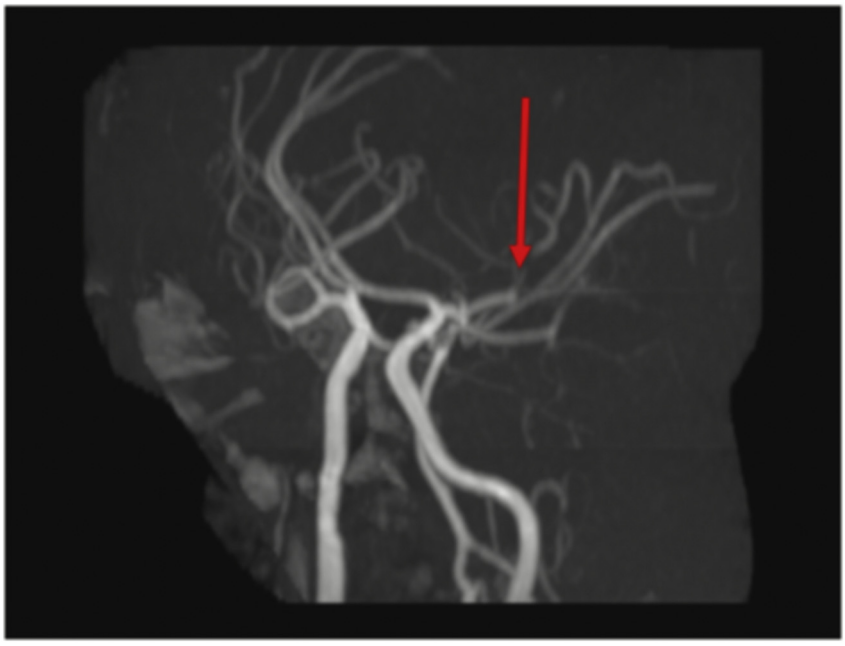

Fig. 2. MRA Brain showing Interruption of M2 distribution of Left Middle Cerebral Artery (red arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

2. Discussion

Isolated aphasia as a presentation in CVA is an uncommon occurrence [1]. One study estimated that of the 3% of stroke presentations that are of isolated aphasia, more than 80% are likely to be a stroke mimic [1]. It is because of the distribution of the MCA, aphasia is usually accompanied by focal weakness, sensory deficit or visual disturbances [1]. When it does present as an isolated event, it is usually secondary to an embolic event [2]. Evidence establishing other causes of isolated aphasia are lacking. This case brings to the discussion another possible cause of isolated aphasia – illicit drug use.

Illicit drug abuse as a cause of ischemic stroke is thought to be relatively uncommon. One population based study done in Texas showed that of those with ischemic stroke, 2.4% were attributed to cocaine abuse and only 1% attributed to marijuana abuse [3]. As only small correlational studies have been done, the incidence and absolute risk of stroke for these illicit drugs are unknown. The vasculopathy effects of cocaine are becoming an accepted cause of ischemic stroke [3,4]. Cannabis related ischemic stroke is less accepted [5], in which proposed mechanisms include that of resultant altered vascular tone [5], as well as reactive oxygen species. The relationship between marijuana and stroke was once thought to be correlational [5], however a growing number of case reports and studies are suggesting a more causal relationship between marijuana abuse and stroke risk [6,7]. With the current move towards legalization of marijuana, it should be emphasized that more robust studies should and can be done to understand more of its possible deleterious effects. As seen with this patient therefore, vasospasm related mechanisms due to illicit drug abuse can be another means in which isolated aphasia occurs in ischemic stroke, as there was no evidence of an embolic event.

Therefore, this case not only highlights a non-embolic cause of isolated aphasia, but emphasizes the need of further attention of the probable link between recreational drug use and stoke.

Author declaration

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant

financial support for this work that could have influenced its outcome. We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us. We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property. We understand that the Corresponding Author is the sole contact for the Editorial process (including Editorial Manager and direct communications with the office). He is responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs. We confirm that we have provided a current, correct email address which is accessible by the Corresponding Author and which has been configured to accept email from randol.kennedy@stvincentcharity.com/randolkennedy@gmail.com.

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References

[1] G. Casella, R.H. Llinas, E.B. Marsh, Isolated aphasia in the emergency department: The likelihood of ischemia is low, Clin. Neurol. Neurosurg. 163 (2017 Dec) 24–26, https://doi.org/10.1016/j.clineuro.2017.10.013 (Epub 2017 Oct 16).

[2] Th.F.M. Fennis, A. Compter, M.W.C. van den Broek, P.J. Koudstaal, A. Algra, P.J. Koehler, Is isolated aphasia a typical presentation of presumed cardioembolic transient ischemic attack or stroke? Cerebrovasc. Dis. 35 (4) (2013) 337–340, https://doi.org/10.1159/000348696 (Epub 2013 Apr 23).

[3] A. Westover, S. McBride, R. Haley, Stroke in young adults who abuse amphetamines or cocaine – a population-based study of hospitalized patients, Arch. Gen. Psychiatry 64 (4) (2007) 495–502, https://doi.org/10.1001/archpsyc64.4.495.

[4] B. Ovbiagele, K. Nguyen-Huynh, Stroke epidemiology: advancing our understanding of disease mechanism and therapy, Neurotherapeutics 8 (3) (2011 Jul) 319–329, https://doi.org/10.1007/s13311-011-0053-1.

[5] Katherine Esse, Marco Fossati-Bellani, Angela Traylor, Sheryl Martin-Schild, Epidemic of illicit drug use, mechanisms of action/addiction and stroke as a health hazard, Brain Behav. 1 (1) (2011 Sep) 44–54, https://doi.org/10.1002/brb3.7.

[6] D.G. Hackam, Cannabis and stroke; systematic appraisal of case reports, Stroke 46 (3) (2015 Mar) 852–856, https://doi.org/10.1161/STROKEAHA.115.008680.

[7] K. Rumalla, A.Y. Reddy, M.K. Mittal, Recreational marijuana use and acute stroke. A population-based analysis of hospitalized patients in the United States, J. Neurol. Sci. 364 (2016 May 15) 191–196, https://doi.org/10.1016/j.jns.2016.01.066 (Epub 2016 Feb 4).