



Case Report

Spontaneous Recanalization of Internal Carotid Artery Stenosis

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Abstract

Spontaneous recanalization is a rare phenomenon especially in relation to cerebral arteries. In this case report we describe a 54 year old male who is a diabetic and a hypertensive with an underlying seizure disorder presented with weakness of the right arm and instability while walking. Imaging of the patient revealed right ICA stenosis (70- 80 %). The stenosis resolved completely after dual antiplatelet therapy with clopidogrel (75 mg) and aspirin (75mg) and statins (40 mg) for about 6 weeks.

Introduction

The spontaneous recanalization of atherosclerotic lesions is a rare phenomenon especially in relation to the intra cranial cerebral arteries. Though there have been case reports since 1958¹, the phenomenon is not clearly understood. Here we report a case of complete resolution of right internal carotid artery stenosis (70 – 80 percent), who presented with mild left hand weakness and instability of gait. Serial imaging of the patient showed complete resolution of the stenosis.

Case Report

A 54 year old male who is a diabetic, hypertensive and seizure disorder on regular medication presented with history of transient episodes of left hand weakness and difficulty in walking for 5 days. The hand weakness was episodic and lasted for few minutes. He was otherwise able to use the left hand normally. He had difficulty in walking which was persistent and it was associated with

swaying to the left side. On examination the vitals were stable, neurological examination revealed minimal swaying to the left side while the patient was walking, with other components of the neurological examination being normal, cardiovascular system examination did not reveal any murmurs or carotid bruits. The other systemic examination was unremarkable. The initial labs of complete blood counts, renal function tests, liver function tests, prothrombin time with INR, electrocardiogram and echocardiogram revealed no abnormality. An MRI of the brain was ordered suspecting an ischemic stroke in view of the multiple comorbidities. The imaging revealed chronic gliosis, small vessel ischemic changes, with M2 segment of Middle cerebral artery showing stenosis, there were not acute infarcts or hemorrhage. In view of the above changes a CT coronary angiogram was done which revealed a 70 – 80 percent stenosis at the supraclinoid segment of the right internal carotid artery (figure

1). The patient was advised to undergo digital subtraction angiography (DSA) and carotid artery stenting. The patient requested time for undergoing DSA. The patient was started on dual antiplatelets comprising of Clopilet 75 mg and Aspirin 75 mg and Atorvatstatin 40 mg along with his previous medications for diabetes, hypertension, seizure disorder. The patient underwent DSA after 6 weeks which revealed complete recanalization of the carotid artery stenosis in its right supraclinoid segment (figure 2). Hence the patient did not need stenting. He is currently doing well with no further episodes of neurological deficits.

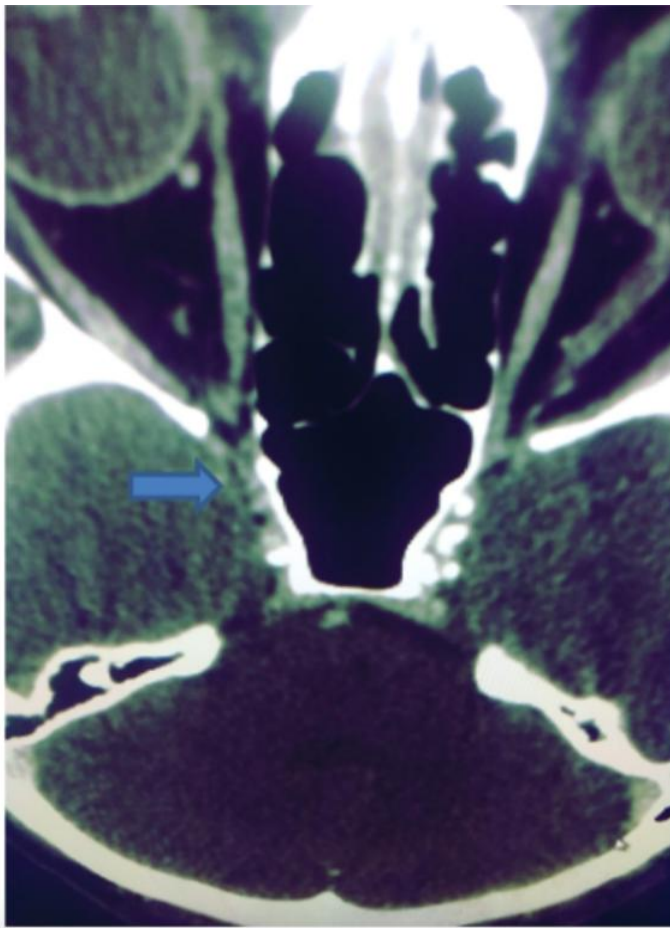


Figure 1: CT angiogram of the cerebral arteries; The blue arrow mark is the region depicting the stenosis of the right internal carotid artery in the supraclinoid segment

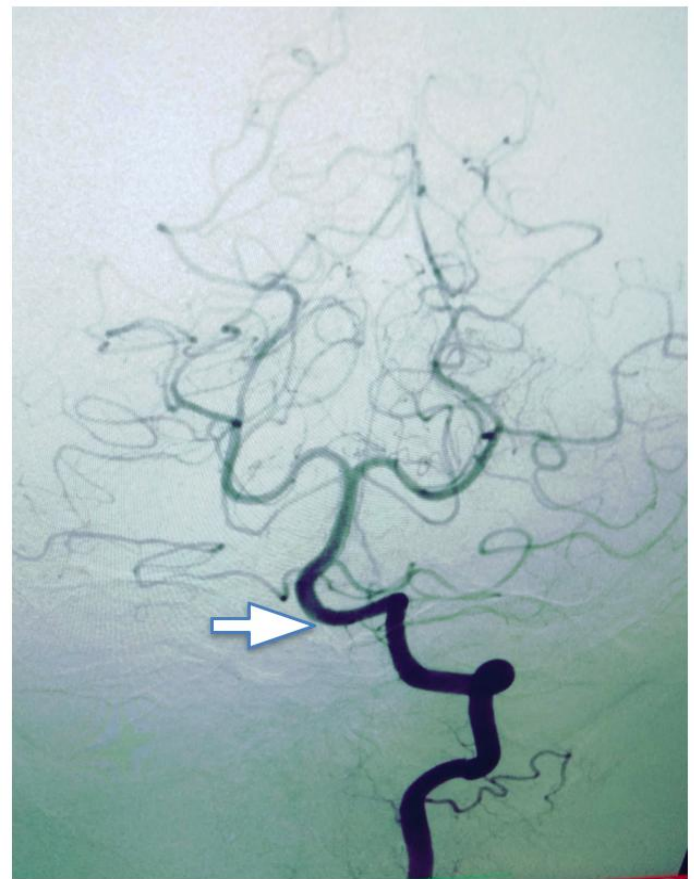


Figure 2: Digital subtraction angiography image done after 6 weeks.

The white arrow is showing the recanalized portion of the right internal carotid artery on digital subtraction angiography

Discussion

Spontaneous recanalization of total internal carotid artery occlusions has been described since 1958¹. It is however infrequent and underreported. The factors affecting the recanalization are 1) Site of occlusion in the arterial tree .2) Collateral blood supply.3) Clot size, composition and source. Larger clots are generally more resistant to recanalization. This explains why extracranial occlusions are much less likely to recanalize in comparison to smaller intracranial vessels. Proximal (extracranial) clots are bigger. Atherothrombotic clots are more resistant to recanalization in comparison to fibrin rich embolic occlusions. Older thromboembolic material are more resistant. A high hematocrit is theoretically associated with reduced recanalization and reperfusion².

According to studies, when spontaneous recanalization of the ICA occurs it is a rather early event, that most commonly happens between 6 hours and 2 weeks³. Meves et al.⁴ observed spontaneous recanalization of 33% in up to 7 days in 18 patients with the ICA occlusion. In our case spontaneous recanalization of internal carotid artery occurred within 6 weeks after the initial diagnosis of occlusion, clearly represents a later recanalization. In our case the patient should ideally be followed up at intervals of every 12 months for brain imaging to look for any stenosis. Little is known and much is hypothesized about the underlying mechanism of the spontaneous ICA recanalization. An explanation proposed by Calleja et al⁵ suggests that an acute intraplaque hemorrhage occurs causing a temporary occlusion at the location of the plaque. With regress of endothelial edema, the vessel recanalizes spontaneously.

References

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