



THE DANGERS OF THE WEB, ISCHEMIC STROKE SECONDARY TO CAROTID WEB POST STENTING - A CASE REPORT

Neurology

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ABSTRACT

Carotid web, defined radiologically as shelf-like intraluminal filling defect. It is a rare cause of ischemic stroke. Recently with advancing of neuroimaging, it has been frequently recognized as an associated risk factor for recurrent ischemic strokes, optimal treatment is still a dilemma, early recognition and interventions is the cornerstone for decreasing stroke recurrence. In my report, I described a middle-aged male with no stroke risk factors defined previously, presented with acute ischemic stroke secondary to a carotid web, treated successfully by endovascular stenting with no stroke recurrence on 2 years follow-ups.

KEYWORDS

Carotid web cryptogenic stroke

INTRODUCTION:

Atypical fibromuscular dysplasia, atypical fibromuscular hyperplasia, carotid bulb diaphragm, carotid bulb septa, and pseudovalvular folds⁽⁶⁾, (because of rarity and unfamiliarity), all of these names have been described in various literature for the carotid web.

Carotid web, a non-atherosclerotic and non-inflammatory vascular disease. Defined radiologically as Intraluminal shelf-like filling defect from the posterior wall of carotid bifurcations^(1, 2-4). Recently with advancing of neuroimaging, it has been recognized with few cases presenting with recurrent ipsilateral ischemic events^(1, 3-5). Optimal treatment strategy remain a dilemma. Here, I report a case of carotid web presenting with Ipsilateral middle cerebral artery ischemic stroke, treated successfully by stenting, with no more ischemic events with regular follow-ups.

Case Description :

A 50-year-old right-handed male, not known to have any medical problems previously, Brought to ER with 1-hou history of sudden dysarthria and left side weakness. On Examination, Vital signs were stable, mild dysarthria, minor left upper motor neuron facial palsy, and left arm and legs weakness (NIHSS 8) As such, neurology team was consulted. Urgent CT brain and CT angiogram (CTA) revealed no evidence of hemorrhagic or ischemic events, thin shelf-like projections into the lumen of the origin of the right internal carotid artery (ICA), which is the typical appearance of a carotid web^(figure1). There is no vessel irregularity or calcification to suggest atheromatous disease. After exclusion of contraindications, IV Tissue plasminogen activator (tPA) was given within 2 hours of ischemic stroke. A complete stroke workup including Transthoracic echocardiogram, 48h holter monitor, lipid profile, HbA1c, Coagulopathy and vasculitis screen all came negative. Endovascular stenting done after 5 days of the events, continued on dual antiplatelet (aspirin 81 mg and clopidogrel 75 mg) for 1 month, then single antiplatelet (Aspirin 81 mg).

On Regular follow up, CTA reveled successful restoration of the lumen of the ICA with obliteration of the web, patient deficit improved significantly, continued to be functionally independent back to work, with no more events over 2 years regular follow ups.



Figure 1: CT angiogram of neck, shows the right carotid web (arrow).

DISCUSSION:

Carotid web is an extremely rare cause of ischemic strokes⁽¹⁻⁴⁾, because of its intraluminal projection create a turbulence and stagnation of blood flow which creates a nidus of thrombus. When this thrombus dislodged it causes an embolic arterial stroke⁽¹⁾, which could be recurrent in 71.4% of patients as described in one study⁽⁵⁾.

The first description of carotid web as a fibromuscular hyperplasia in 1965 by Connert and Lansche⁽⁵⁾, following various cases described by different synonyms of carotid web. However, recently referred as atypical fibromuscular dysplasia (FMD), with histological features of non-inflammatory intimal fibrosis and smooth muscle hyperplasia^(3,7-8). Limited data about carotid web epidemiology, generally it is common on the young female with recurrent cryptogenic strokes^(7, 8-9). On a recent study the prevalence was 1 – 1.2 % on patient underwent CTA with suspicion of stroke⁽¹⁾.

Early recognition and management are required, to minimize recurrence rate⁽¹⁰⁾. No optimal management's strategy defined yet. On various cases and papers the managements either medical with antiplatelet or anticoagulation, surgical by endarterectomy or endovascular stenting. One study compared afro-Caribbean patient with symptomatic (FMD) treated medically by antiplatelet with patient treated surgically, recurrence rate was 30% on medically treated patient compared to 0% surgically managed⁽¹⁰⁾. Until now no large study conducted to evaluate the best treatment of carotid web.

In my case, the carotid web was only the defined risk factor for his ischemic stroke, which was detected by CTA^(figure 1) and confirmed by digital subtraction angiography. Endovascular stenting of my case prevented further stroke recurrence with 2 years regular follow-ups

CONCLUSION:

Carotid web is a radiological description of shelf-like intraluminal projection, recently recognized with advances of neuroimaging as a rare cause of ischemic stroke. Increasing awareness of carotid web is needed, for early intervention to decrease stroke recurrence. Further large studies are demanded for better understanding the natural history of the disease and optimize the treatment of carotid web.

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