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Teaching NeuroImage: Carotid Web: A Thrombogenic Nest Not to Miss

Author(s):

Vasileios Rafailidis, MD, PhD¹; Ioanna Koutroulou, MD, PhD²; Elizabeth Psoma, MD, PhD¹;
Konstantinos Kouskouras, MD, PhD¹; Maria Alexandratou, MD¹; Panagiotis Stoiloudis, MD²; Panos
Prassopoulos, MD, PhD¹; Nikolaos Grigoriadis, MD, PhD²; Theodoros Karapanayiotides, MD, PhD²

Corresponding Author:

Theodoros Karapanayiotides
tkarapanayiotides@yahoo.gr

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Affiliation Information for All Authors: 1. Department of Radiology, Aristotle University of Thessaloniki, School of Medicine, AHEPA University Hospital, Thessaloniki, Greece; 2. 2nd Department of Neurology, Aristotle University of Thessaloniki, School of Medicine, AHEPA University Hospital, Thessaloniki, Greece

Contributions:

Vasileios Rafailidis: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Analysis or interpretation of data

Ioanna Koutroulou: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Analysis or interpretation of data

Elizabeth Psoma: Major role in the acquisition of data; Analysis or interpretation of data

Konstantinos Kouskouras: Major role in the acquisition of data; Analysis or interpretation of data

Maria Alexandratou: Major role in the acquisition of data

Panagiotis Stoiloudis: Major role in the acquisition of data; Analysis or interpretation of data

Panos Prassopoulos: Drafting/revision of the manuscript for content, including medical writing for content; Analysis or interpretation of data

Nikolaos Grigoriadis: Drafting/revision of the manuscript for content, including medical writing for content

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A 61-year-old woman suffered a territorial infarction due to right middle cerebral artery occlusion. CT angiography and ultrasonography showed an ipsilateral carotid web with a small superimposed thrombus (Figures 1-2). After two weeks on enoxaparin and aspirin the thrombus resolved completely and the patient underwent uncomplicated carotid stenting, in the absence of other stroke causes. Carotid web, an intimal variant of fibromuscular dysplasia, is an underestimated cause of cryptogenic stroke, notorious for being missed or taken for atheroma by ultrasonography¹. It may have a high rate of stroke recurrence under antiplatelets owing to thrombus nesting along its blood-stagnation-causing downstream surface.²

[AZ 12.28.2021] 178088 Teaching Slides -- <http://links.lww.com/WNL/B755>

References

1. Coutinho JM, Derkatch S, Potvin ARJ, et al. Carotid artery web and ischemic stroke. *Neurology* 2017;88(1):65–69.
2. Kim SJ, Nogueira RG, Haussen DC. Current Understanding and Gaps in Research of Carotid Webs in Ischemic Strokes. *JAMA Neurol* 2019;76(3):355-361.

Figure 1. Right carotid CT angiography upon admission and after antithrombotic treatment.

Oblique sagittal thin-slice reformatted (A, D), volume-rendered (B, E) and intraluminal volume-rendered images (C, F) showing the diaphragm-like web attached to the posterior wall of the carotid bulb (arrows). A beak-like protuberance on the cephalad web surface corresponds to in situ thrombus (A-C, arrowheads), missing at follow-up (D-F) and confirming thrombus resorption.

Figure 2. Right carotid ultrasonography upon admission

Longitudinal B-mode (A) and Sonovue-enhanced image (B) showing the echogenic and irregular web protruding into the lumen (long arrows) along with the superimposed distal web-surface thrombus (short arrows). Compare to the “beak” in Figure 1, A-C. On power-Doppler flow imaging the web mimics the appearance of a non-stenosing isoechogenic atheroma (C, arrowheads).

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