## Imagens em NEUROLOGIA

## **Carotid Diaphragm: Clinical and Diagnostic Implications**

## Diafragma Carotídeo: Implicações Clínicas e Diagnósticas

Marília Sandri<sup>1</sup>, Luciana Estacia Ambros<sup>2</sup>



Figure. Radiographic appearances of carotid diaphragm. The characteristic intraluminal filling defect arising from the posterior wall of the left carotid bulb seen on CT angiography in oblique plane (A, arrow) and in three-dimensional reconstruction (B). Angiography image demonstrate a filling defect in the posterior wall of the same carotid bulb (C, arrow). The venous phase image shows continued contrast pooling in the distal part of the carotid diaphragm (D, arrow).

Carotid Diaphragm, also known as carotid web, is a rare and underrecognized high-risk factor for ischemic stroke of undetermined etiology<sup>1</sup>. This pathology is caused by a variant of intimal fibromuscular dysplasia, characterized by an endoluminal fibrous intimal flap projecting from the posterior wall of the internal carotid artery bulb into the arterial lumen that generates flow stagnation and, consequently, thromboembolic events<sup>2,3</sup>.

The most salient clinical manifestation of carotid diaphragm is ischemic stroke, particularly in younger patients without other vascular comorbidities<sup>2</sup>. Current management guidelines include either medical treatment as antiplatelet therapy or anticoagulation or interventional treatment<sup>4</sup>.

This case demonstrates a 62-year-old woman undergoing investigation for ischemic stroke. The angiotomographic study revealed a localized membrane-filling defect arising from the posterior wall of the left carotid bulb (Figure A and B). In addition, angiography

was performed, identifying the filling defect along the carotid artery wall. (Figure C). During the late venous phase, contrast agent retention was observed at the distal end of the carotid diaphragm (Figure D). Anticoagulation treatment was prescribed and the patient remains under outpatient follow-up.

## REFERENCES

- Liang S, Qin P, Xie L, et al. The carotid web: Current research status and imaging features. Front Neurosci. 2023 Feb 13;17:1104212. doi: 10.3389/fnins.2023.1104212.
- Chen H, Colasurdo M, Costa M, Nossek E, Kan P. Carotid webs: a review of pathophysiology, diagnostic findings, and treatment options. J Neurointerv Surg. 2024 Jan 30:jnis-2023-021243. doi: 10.1136/jnis-2023-021243.
- Madaelil TP, Grossberg JA, Nogueira RG, et al. Multimodality Imaging in Carotid Web. Front Neurol. 2019 Mar 12;10:220. doi: 10.3389/fneur. 2019.00220.
- Mac Grory B, Emmer BJ, Roosendaal SD, et al. Carotid web: an occult mechanism of embolic stroke. J Neurol Neurosurg Psychiatry. 2020 Dec;91(12):1283-1289. doi: 10.1136/jnnp-2020-323938.

**Corresponding author:** Marília Sandri **E-mail:** sandrimarilia@gmail.com

**Conflict to interest:** The authors declare no conflict of interest.

Funding: There was no funding for this study.

<sup>&</sup>lt;sup>1</sup>Radiology Resident at Hospital São Vicente de Paulo (HSVP).

<sup>2</sup> Radiologist, M.Sc, Professor at Universidade de Passo Fundo (UPF) and Departamento de Radiologia do Hospital São Vicente de Paulo (HSVP).