

# CAROTID BODY TUMOR: THE IMPORTANCE OF PREOPERATIVE EMBOLIZATION

## ABSTRACT

Carotid body tumors (paragangliomas) are highly vascularized, sporadic, and generally benign neoplasms originating in the carotid body chemoreceptors. We present the clinical case of a 65-year-old female patient, referred for asymptomatic right cervical enlargement, with a preoperative study performed with cervical Doppler ultrasound and angiotomography, compatible with a carotid body tumor. It was resolved surgically after embolization of the tumor by complete resection with minimal bleeding and preservation of neighboring cranial nerves. Biopsy reported a carotid body paraganglioma.

**Keywords:** carotid body, tumor, embolization.

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## INTRODUCTION

Carotid body tumors are formed by cells that are part of the extra-adrenal paraganglionic system. They are also known as carotid body ganglioglioma or chemodectoma<sup>1</sup>. Until a few years ago, treatment was surgical without embolization in large series<sup>2</sup>. Nowadays, once the diagnosis is established, preoperative embolization is recommended to facilitate surgical dissection, reduce bleeding, and avoid injury to adjacent cranial nerves since they are highly vascularized<sup>3</sup>.

The aim of this presentation is to report a clinical case of this pathology treated by preoperative embolization.

## CLINICAL CASE

A 65-year-old female patient consulted for an asymptomatic right cervical mass. The Doppler

ultrasound study and angiotomography confirmed the diagnosis of a carotid body tumor located at the level of the carotid bifurcation, which separates both internal and external carotid arteries with anterior displacement (*Figure 1*). Given its great vascularization, it was decided to embolize it preoperatively (*Figures 2 to 4*).

The following day, the operation was performed by right lateral cervicotomy, where, thanks to the embolization, it was possible to remove the tumor without complications such as bleeding or injury to adjacent nerves, especially the greater hypoglossal nerve, which was located above the tumor (*Figure 5*).

The patient presented good evolution and was discharged early, without complications. The biopsy revealed a paraganglioma (*Figure 6*).



**FIGURE 1.** Angiotomography reveals an image compatible with a carotid body tumor.



**FIGURE 2.** Angiography with 3D reconstruction reveals a carotid body tumor fed by a hypertrophic pharyngeal branch.



FIGURE 3. First phase of tumor embolization.

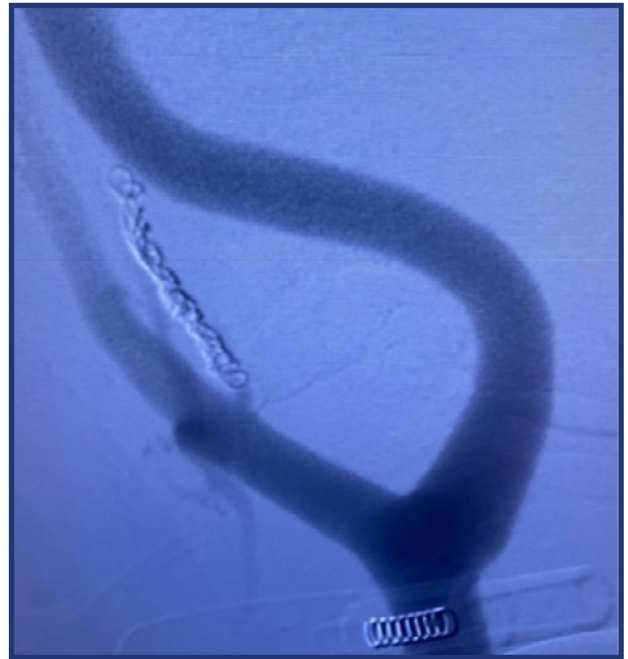


FIGURE 4. Tumor embolization ending.

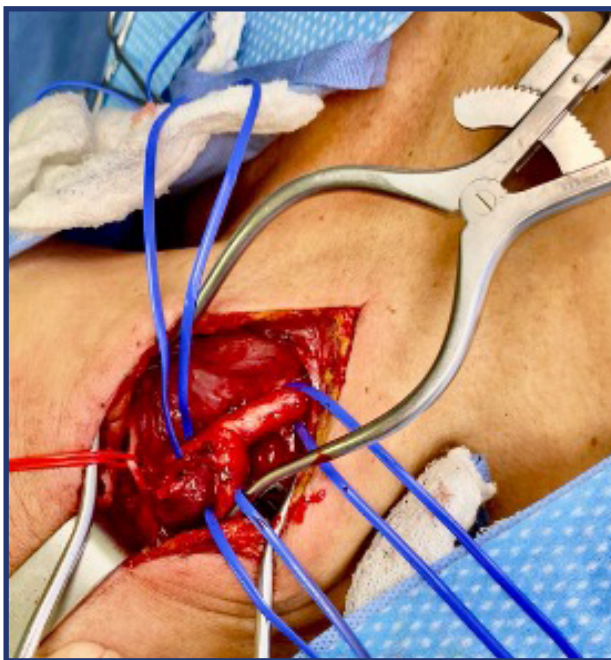


FIGURE 5. Tumor excision.



FIGURE 6. Surgical specimen of the tumor.

## DISCUSSION

Currently, preoperative embolization<sup>3</sup> is widely accepted to minimize the difficulties associated with carotid tumor resection, including bleeding and preservation of neighboring cranial nerves. However, the need to place covered stents to protect the carotid arteries has also been raised, and even when sacrifice of the internal carotid is unavoidable, bypass or replacement with internal saphenous artery has been performed<sup>4,5</sup>. In our case, the tumor did not compromise the vessel walls, and thanks to selective

embolization, it was possible to remove it in good condition and without complications.

In conclusion, it is essential to attempt embolization by expert personnel to avoid possible complications secondary to the embolization itself and then to remove the tumor.

## Declarations

The authors declare no conflict of interest.

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