

# Carotid Body Tumor; A Pandoras Box for Vascular Surgeons

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**Abstract:** Carotid Body Tumors, though rare, remain one of the most challenging vascular neoplasms to manage due to their location, vascularity, and potential for neurological complications. In my view, this study offers a valuable real-world account from a tertiary care setting, detailing the surgical excision of such tumors without preoperative embolization. Ten patients, primarily from low-altitude regions, underwent meticulous surgical management over an 18-month period, with tumor classification guided by the Shamblin system. It is evident that most cases were advanced (Type III), demanding longer operative times and, in some instances, complex arterial reconstructions. The outcomes—minimal blood loss in most cases, low transfusion rates, and transient neurological deficits that resolved with rehabilitation—suggest that, with careful planning and multidisciplinary collaboration, the omission of preoperative embolization is not only feasible but can yield acceptable safety profiles. That said, the unpredictable nature of CBT, exemplified by one case mimicking a nerve sheath tumor, reinforces the need for thorough diagnostic evaluation. This raises another point: the importance of individualized patient assessment over a one-size-fits-all protocol. Taken together, the findings reflect both the surgical dexterity and the adaptive decision-making required to address what the authors aptly describe as a “Pandora’s Box” of head and neck surgery.

**Keywords:** Carotid Body Tumor, Shamblin classification, vascular surgery, multidisciplinary approach, surgical outcomes

## 1. Introduction

Carotid Body Tumors (CBT) are rare hypervascular Neuroendocrine Paraganglionic tumors found at bifurcation of Carotids which act as an arterial chemoreceptor.<sup>1</sup> Chronic Hypoxic stimulus such as high altitude induces hyperplasia in the Carotid Body.<sup>2</sup> Its evaluation and treatment requires a multidisciplinary approach. Early detection and meticulous dissections are necessities for successful management as there is a high rate of neurovascular complications.<sup>3</sup>

### Objectives

To share the experience of a Tertiary care Hospital in managing patients diagnosed with Carotid Body Tumor without preoperative embolization.

### Design Method

A cross sectional study done over 10 patients (from low altitude areas) that underwent excision of Carotid Body Tumor from January 2023 to June 2024. Data were collected from Hospital records. The tumors were classified according to Shamblin Classification. Patient were followed up for six months.

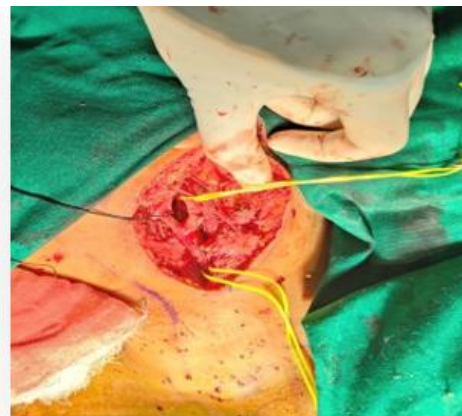
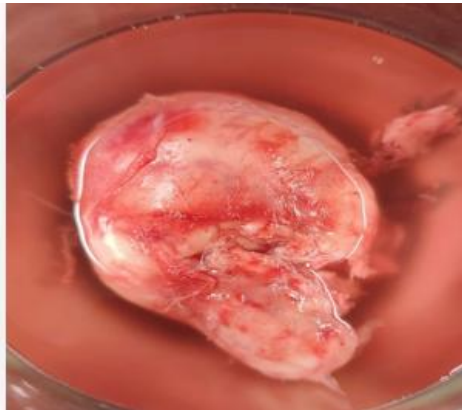
## 2. Results

Gender	Male	Female	
n=10	3 (30%)	7 (70%)	
Unilateral	Right	Left	Bilateral
	6 (60%)	4 (40%)	0
Clinical Presentation	Neck Mass	Positive History	
	8 (80%)	2 (20%)	
SHAMBLIN	Type I	Type II	Type III
	1 (10%)	2 (20%)	7 (70%)

- One male patient was in Pediatric age group.
- Age- 13 years to 54 years.
- Tumor diameter - 3-7 cm (Avg- 4.2 cm)
- Preoperative CT Angiography was mandatory for all patients.
- Average operating time - 200 minutes (60 to 300 minutes).
- Blood transfusion was required in 2 cases (one from Type III and One from Type II) and none from Type I (p value = 0.01). Average blood loss was 120 ml.
- Arterial reconstruction of ICA was done by interposition Great Saphenous Vein (GSV) in one patient of Type III tumor. Post operative course included 1 episode of seizure. Further investigation showed multiple acute non hemorrhagic infarcts.
- Temporary neurological deficit was found in 2 patients: 1 from Type II and 1 from Type III which recovered with Steroids and Physiotherapy.
- Lymph node was excised in 6 patients which were benign.
- SDH testing was not done in any patients.
- Tumor in one patient mimicked CBT but histopathology report turned out to be Nerve Sheath Tumor.

## 3. Conclusion

- Carotid Body Tumors are rare neoplasms but are the most common head and neck paraganglioma.<sup>5,6</sup>
- Excision of Carotid Body Tumour without preoperative embolization is feasible with acceptable outcome.
- However comprehensive workups and multidisciplinary approaches are required for optimally managing this Pandora’s Box.<sup>8,9</sup>



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