

# Carotid Body Chemodectoma: An Uncommon Clinical Entity

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**Abstract:** *The carotid body is a small collection of chemoreceptors and supporting cells located in bifurcation of the carotid artery in the neck. Carotid body tumors are rare neoplasms arising from the chemoreceptor cells of the carotid bulb. We present a case of carotid body tumor in a 49 year old female.*

**Keywords:** Carotid Body Tumor, non chromaffin paraganglioma, chemoreceptor cells

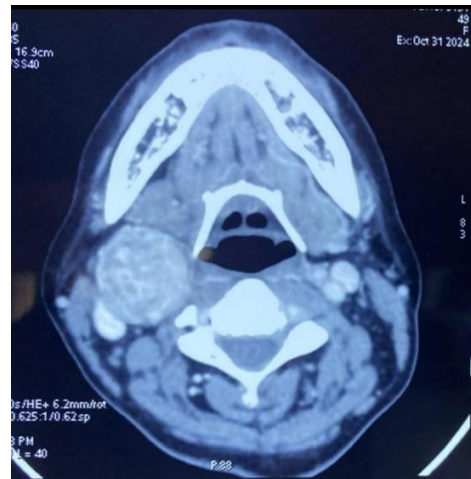
## 1. Case Report

A 49 year old female patient presented with a complaint of swelling over the right lateral aspect of neck since 3 years. She also gave a history of radiating pain, headache, nausea and weakness.

On physical examination a pulsating, firm mass of 3\*4 cm in size was found on the right side of her neck. There was no cervical lymphadenopathy. There were no pressure symptoms. General and systemic examination was negative. No relevant family history was noted.

Doppler ultrasonography showed a globular well defined heterogeneous predominantly hypoechoic solid lesion of size 3.4\*3.4 cm at the bifurcation of the right common carotid artery with splaying of ICA and ECA likely arising from the carotid body. The lesion showed increased vascularity on color Doppler.

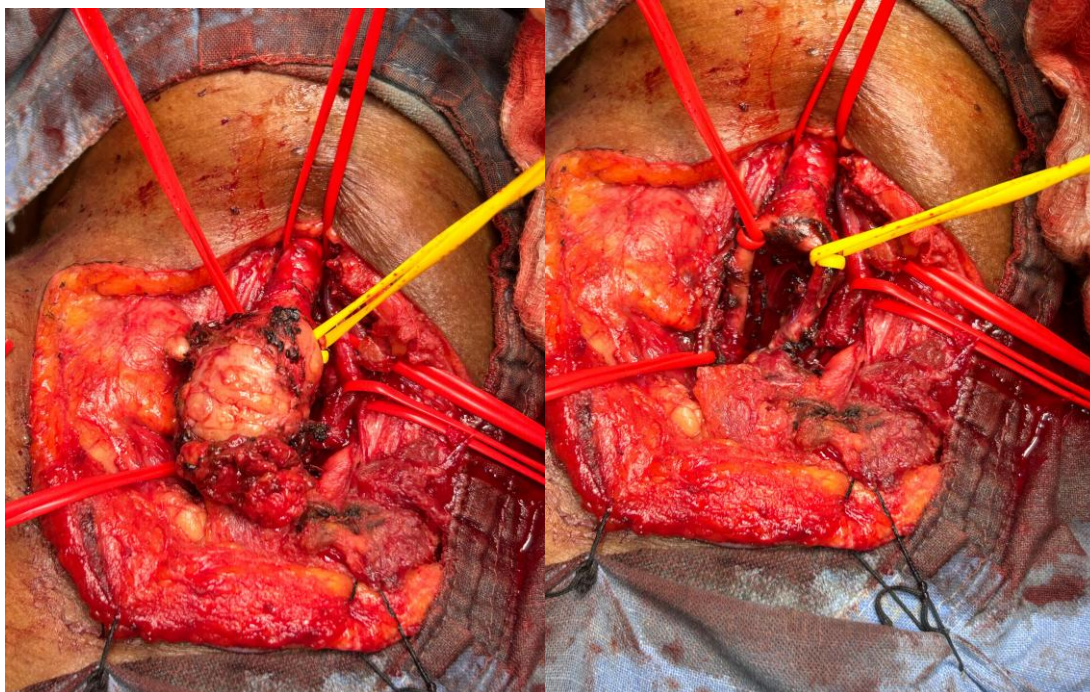
CT Angiogram Neck showed a large soft tissue mass at the right carotid bifurcation showing avid enhancement of contrast the same as adjacent arteries and splaying the internal and external carotid arteries (LYRE SIGN). The aortic arch was normal in contrast opacification and branching pattern. Hence a diagnosis of RIGHT CAROTID BODY TUMOR was made.



## 2. Operative Findings

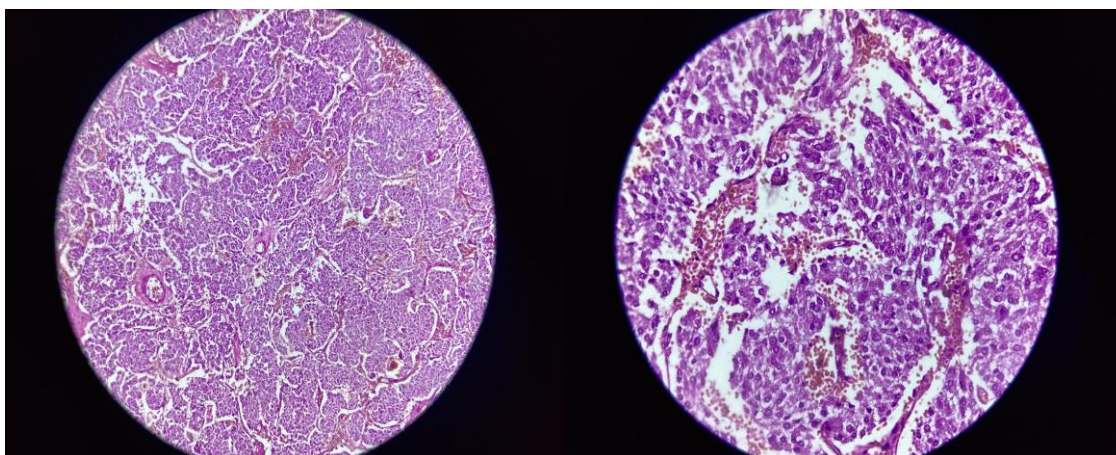
Cervical incision given around the right side of neck. Incision deepened and a homogenous tumor approximately of size 5\*5cm was identified at the carotid bifurcation.

Then the tumor part was excised from surrounding tissues. Identified as SHAMBLIN type 2 chemodectoma.

**Histopathology:**

Well circumscribed lesion composed of chief cells arranged in zellballen pattern separated by prominent fibro vascular stroma. Individual cells were oval to polygonal with

eosinophilic cytoplasm with granular chromatin exhibiting moderate nuclear pleomorphism with necrotic areas and chronic inflammatory infiltrates at the places.

**3. Discussion**

Carotid body tumor (CBT) also known as Potato tumor or chemodectoma or non chromaffin cell paraganglioma are rare neuroendocrine neoplasms which arise at the bifurcation of the carotid artery involving the carotid body. CBTs are rare chemo receptor tumors which account for 0.6% of the head and neck tumours in humans.

Clinical presentations include swelling of the neck due to the growing mass. Symptoms and signs like headache, neck pain, dysphagia, and horner syndrome are present due to pressure and local invasion of the surrounding tissue. Mostly involved are hypoglossal nerve, glossopharyngeal nerve, vagus nerve and sympathetic chain.

Carotid artery Doppler study, Angiogram, CT scan, MR angiography, MIBG Scan are the investigations which can be done for diagnosis and management. Thus, in order to prevent

local invasion and metastasis early surgical excision is considered as the best prime curative treatment.

In the year 1971, Shamblin introduced a classification system according to the relationship with the carotid arteries in order to determine the respectability of these tumors. Shamblin type 1 tumors are small lesions at the carotid bifurcation and can generally be removed without difficulty.

Shamblin type 2 tumors are larger and significantly splay the carotid bifurcation, but do not circumferentially encase the carotid arteries. Shamblin type 3 tumors are large, encase the vessels and thus the most difficult type to attempt resection. Type 3 tumors are associated with perioperative neurovascular complications and complex surgical procedures.

Predominantly unilateral, but bilateral presentation is observed in 10% of cases. Less than 10% have malignant

potential. Intraoperative evidence of local lymph node involvement or invasion into surrounding tissues can often indicate malignancy.

#### **4. Conclusion**

Although rare, carotid body tumors are considered to be one of the important differential diagnosis of neck swellings. The present day advances in diagnostic techniques now allow for accurate and precise identification and complete excision in most of the cases. A high level of scepticism for carotid body tumors should always be maintained when evaluating neck masses. Further more a solid understanding of the tumors malignant potential, lymph node metastasis and its association with other paragangliomas is crucial for managing such cases effectively. Increased awareness of these specific scenarios, and timely intervention ensures minimal perioperative morbidity and mortality.

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