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CLINICAL AND RADIOLOGICAL FINDINGS IN CAROTID BODY TUMOURS

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ABSTRACT

Carotid body tumor, also known as a chemodectoma is a highly vascular glomus tumor that arises from the paraganglion cells of the carotid body. It is located at the carotid bifurcation with characteristic splaying of the ICA and ECA. These tumors are diagnosed in the 4th to 5th decades, and have a female predilection. They are the most common type of paraganglioma of the head and neck (account for 60-70%). In approximately 10% of cases, they are bilateral. Patients usually present with slow growing rounded neck mass located anterior to the sternocleidomastoid near the angle of the mandible at the level of the hyoid bone. These tumor may synthesize and secrete catecholamines, although this is less common. Histopathological examination confirms the diagnosis of carotid body tumor. We are presenting here a brief literature about carotid body tumors in terms of its clinical and imaging presentation, evaluation, and management.

KEYWORDS

INTRODUCTION

The incidence of CBTs is 1–2 per 100,000 and it accounts for 0.6% of the head and neck tumors in humans. These tumors are asymptomatic uaually and initially noticedon inspection and palpation of neck. The most observed symptoms are a pain, dysphagia, and autonomic dysfunction. Most commonly involved are hypoglossal nerve, glossopharyngeal nerve, vagus nerve and sympathetic chain. Ultrasound, Computed tomography (CT) and Magnetic resonance imaging (MRI) are useful radiological tools in diagnosis. Angiography is essential to study about the vascular anatomy. Early surgical excision is considered a primer curative treatment option for the treatment of CBTs in order to prevent local invasion and metastasis. Small numberof CBT's are familial (7-10%), and can be associated with MEN type I & II, phakomatoses and carneys triad.

MATERIAL AND METHOD

A retrospective study in 5 patients was done. The age range of the 5 patients was 20.0–47.0 years, with a mean of 27.5 years. Three were male and 2 were female. None of the cases were familial tumors. Surgery was done in all patients. Diagnosis was made on imaging and was confirmed on histopathological examination after surgical resection.

RESULTS

CT neck and MRI neck was done in all 5 patients. Contrast-enhanced CT evaluation revealed a well-defined, ovoid, homogeneously enhancing soft tissue density mass in all patients. The lesion caused splaying of internal and external carotid artery . These tumours were further classified on the basis of shambling group system. Three out of five patients were in type II group system with 180-270 degree encasement and 2 were in type III group system with > 270 degree encasement of ICA.

On MRI T2-weighted fat-suppressed sequences depicted all of the tumors as hyperintense elliptical masses splaying the CCA bifurcation and with punctuate flow voids. Four of the tumors splayed the arteries in an anteroposterior direction, whereas 1 tumors splayed the vessels medially and laterally. Postcontrast fat-suppressed T1-weighted images showed intense enhancement in all of the tumors. None of the tumors displayed intracranial extension. No patient had any evidence of nodal metastases.

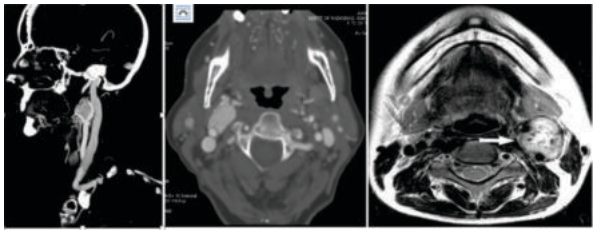

Fig a,b CT angio neck of 35 year old male with intensely enhancing mass in neck causing splaying of ICA and ECA with encasement
Fig c T2 WI of 27 year old female showing heterogeneously hypeintense lesion on left side of neck at bifurcation of CCA.

DISCUSSION

DSA has been the golden diagnostic standard. However, with the advent of high resolution angiographic Computed Tomography (CTA) and Magnetic Resonance Imaging (MRI) DSA has been replaced as the imaging modalities of choice for detection of the carotid body tumors. Preoperative angiography provides useful information about the vascular anatomy and its collateral circulation. This allows for careful planning if sacrifice of a major blood vessel is deemed necessary during surgery[1]. Pre-operative tumor embolization has been used to shrink the tumor size and disconnect the tumor from its feeding vessels, decreasing complications . Displacement of the Internal (ICA) and External Carotid Arteries (ECA) is an important clue and should prompt further image evaluation[2]. Both CTA and MRA appearances are diagnostic. On CT, after intravenous contrast administration, carotid body tumors present as a solid homogenous intensely enhancing mass, located within the carotid bifurcation . Seldomly heterogeneous pattern of enhancement can be seen due thrombi or hemorrhage in larger tumors. As a result of their hyper-vascularity, contrast enhancement is rapid and contrary to the gradual enhancement of nerve sheath tumors [3]. Larger CBT will displace the internal and external carotid arteries with splaying of the vessels, the so-called lyre sign[4] . While CT has a better special resolution, MRI better depicts the soft tissue components. On T1-weighted images (T1WI) CBT are hypo- to isointense compared to muscle and hyperintense on T2-weighted sequences . A characteristic finding is the so called “salt and pepper” appearance in larger lesions (>2 cm) on T1-weighted images. The “salt” phenomenon, although uncommon, is due to multiple punctuating hemorrhages inside the lesion[5]. These subacute hemorrhages present as high signal intensity spots. The low signal intensity “pepper” component is a result of multiple flow voids from intratumoral blood vessels[6]. Similar to CT, there is vivid enhancement after contrast administration

CONCLUSION

A carotid body tumor is a rare neuroendocrine tumor located at the carotid bifurcation and are usually benign. Genetic testing is advised in every patient presenting with a CBT. Malignancy cannot be confirmed by histopathological investigation, but can only be proven by metastasis into other tissue organs.

REFERENCES

1. Hu K, Persky MS. Multidisciplinary management of paragangliomas of the head and neck, Part 1. Oncology. 2003;17(7):983-93.
2. Rao AB, Koeller KK, Adair CF. From the Archives of the AFIP. Paragangliomas of the head and neck: radiologic-pathologic correlation. Armed Forces Institute of Pathology.

Radiographics. 1999;19(6):1605-32.
3. Sajid MS, Hamilton G, Baker DM. A multicenter review of carotid body tumour management. Eur J Vasc Endovasc Surg. 2007;34(2):127- 30.
4. Thelen J, Bhatt AA. Multimodality imaging of paragangliomas of the head and neck. Insights Imaging. 2019;10(1):29.
5. Lee KY, Oh YW, Noh HJ, Lee YJ, Yong HS, Kang EY, et al. Extraadrenal paragangliomas of the body: imaging features. Am J Roentgenol. 2006;187(2):492-504.
6. Shamblin WR, Remine WH, Sheps S, Harrison EG. Carotid Body Tumor (Chemodectoma). Clinicopathologic analysis of ninety cases. Am J Surg. 1971;122(6):732-9.