

Multi Detector 3D Computed Tomography in the Diagnosis of Paraganglioma: A Case Report

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Abstract

This report describes a case of 45-year-old female with carotid body paraganglioma. This study was conducted in May 2014. CT scanning was performed using high-resolution techniques. The 3D Volume-Rendering reconstructions provided a selective visualization of the anatomic relationships among carotid body tumors, vessels, and surrounding osseous structures with excellent details. Both tumors were suggested to be treated surgically with histological analysis.

Index terms—

1 Introduction

Carotid body tumors are rare vascular neoplasms deriving from the paraganglionic cells of the carotid bifurcation. Incidence was reported to be 3.33 per 100,000 patients [Sajid MS, Hamilton G, Baker DM 2007, Plukker JT et al, 2001]. Females appear to be predominate [Rodriguez-Cuevas S 1998, Luna-Ortiz K et al, 2005]. The neoplasm presents as asymptomatic neck mass [Lazar B Davidovic et al, 2005]. Total resection of the carotid body paragangliomas is the best and effective treatment although postoperative bleeding, stroke and injury to cranial nerves may accompany total resection [Young NM et al, 1988].

2 II.

3 Case Report

A 45 year old female was referred from Eastern Sudan to the CT department with mass in her neck with pain; difficulty in swallowing. Her past medical history reported previous medications of hypertension and no family history of Paraganglioma. Physical examination showed a palpable mass, and no nerve problems were detected. CT with contrast and reconstructed Images were obtained (figure1) and showed hyper vascular mass (45x43x35 mm) which was seen at the bifurcation of left common carotid artery which was displaced laterally in addition to internal and external carotid arteries. Another smaller hyper vascular lesion (28x24x19mm) was seen at bifurcation of right common carotid artery showing similar imaging characteristics. No evident encasement of ICA or ECA.

The lesion imaging features were consistent with bilateral carotid body tumors (paragangliomas) III.

4 Discussion

The paraganglia was the most appropriate nomenclature from an embryologic point of view [Myers EN, Johnson JT, 1993]. CT scanning was performed using a high resolution technique, slice thickness 0.5 mm. After acquisition, CT images were transferred to the workstation, oblique Maximum Intensity Projection (MIP) 12.50, WW/WL332/130 and Volume-Rendering images were generated (Vitrea 2, Vital Images). Multi-slice CT angiography demonstrated large and small masses within left carotid bifurcation. The 3D Volume-Rendering reconstructions provided a selective visualization of the anatomic relationships among carotid body tumors,

4 DISCUSSION

vessels, and surrounding osseous structures with excellent details. Both tumors were suggested to be treated surgically with histological analysis.

The carotid body was first described in 1743 [Milewski C, 1993]. Carotid body tumors are rare vascular neoplasms originating in the paraganglionic cells of the carotid bifurcation. Their incidence ranges between 0.06-3.33 per 100,000 patients [Sajid MS, Hamilton G, Baker DM, 2007 [Plukker JT et al, 2007]. The carotid body paraganglioma is more common in females [Maves MD, 1993] like the patient under study.

[Efraine JO et al, 1997, Devuyver D et al 1993]. Radio immune detection of carotid body paraganglioma was also depicted in the previous studies [Devuyver D, 1993].

The surgical removal is the treatment of choice for carotid body paragangliomas [Rush Bf Jr 1962].

Multislice CT angiography can demonstrate a large, carotid body tumor, as well as small, unsuspected mass within the carotid bifurcation. The 3D volumerendering reconstructions provide a selective visualization of the anatomic relationships among carotid body tumors, vessels, and surrounding osseous structures with excellent detail. The diagnosis of this case was derived from the above mentioned facts.



Figure 1: D

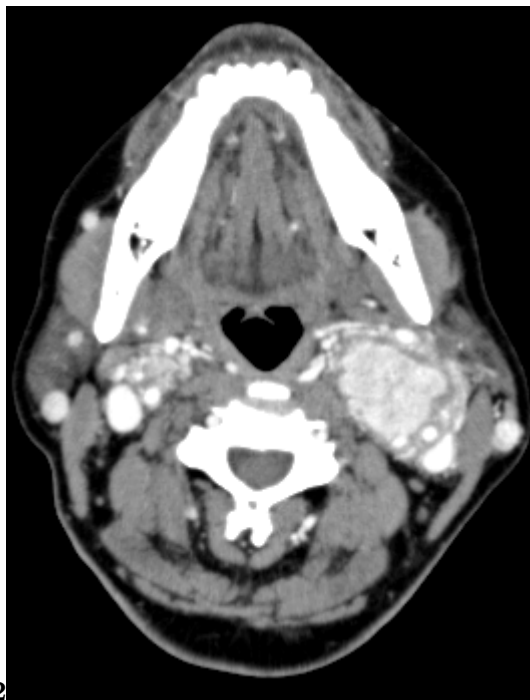


Figure 2: Figure 2 :

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