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Glomus Tumor of the Neck Detected With ^{99m}Tc EDDA HYNIC-TOC

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Abstract: A 54-year-old woman was referred to thyroid evaluation because of a lump on the left side of the neck. Ultrasound exam did not show any thyroid abnormality, but highly perfused nodule at the left common carotid artery bifurcation was found. Because of the specific location, somatostatin receptor scintigraphy with ^{99m}Tc EDDA HYNIC-TOC was performed, starting with perfusion images and followed with SPECT/CT imaging at 2 and 4 hours. Well-perfused nodule with intensive accumulation and no other visible pathology in the body raised suspicion of a glomus tumor, consistent with MR exam performed later. Subsequent surgical removal confirmed carotid paraganglioma.

Key Words: neuroendocrine tumor, carotid paraganglioma, ^{99m}Tc EDDA HYNIC-TOC

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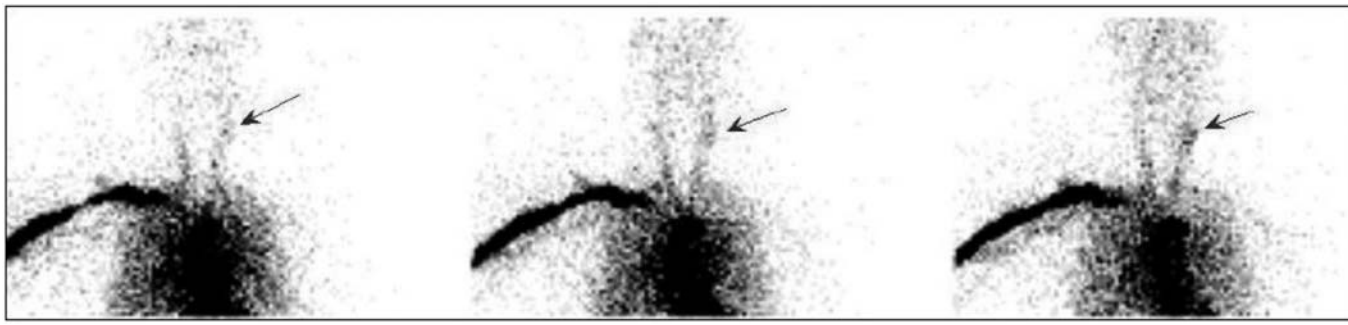

FIGURE 1. Dynamic images (1s/frame) of the neck and upper thoracic region in anterior projection obtained immediately after intravenous administration of 700 MBq ^{99m}Tc EDDA HYNIC-TOC show blood vessels and higher blood flow to the left side of the neck with emerging focal uptake (black arrow).

FIGURE 2. The focus was better defined on the blood pool image (anterior projection, 240s).

FIGURE 3. SPECT/CT scan at 4 hours showing 2 cm nodule at the left common carotid artery bifurcation with intensive ^{99m}Tc EDDA HYNIC-TOC accumulation which was more intense than on the images at 2 hours. "Low-dose" CT showed the exact location of the nodule which was slightly hypodense. SPECT of the neck/thorax/abdomen region was performed at 2 and 4 hours and fused with "low-dose" CT images of the same regions performed with second SPECT images. Specific location of well-perfused solitary neck nodule with intensive ^{99m}Tc EDDA HYNIC-TOC accumulation and no other visible pathology in the body raised high suspicion of a glomus tumor.

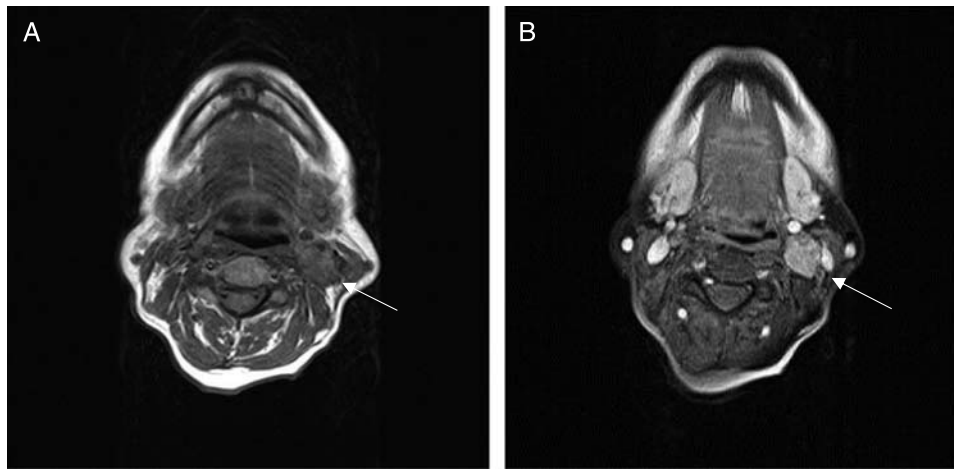

FIGURE 4. MRI axial sections in T1-weighted (**A**) and T1-weighted images after administration of gadolinium (**B**) at the level of the supraglottic larynx: lesion sitting (arrow) at the carotid bifurcation with intermediate signal on T1 sequences with intense and homogenous enhancement after the intravenous administration of gadolinium.

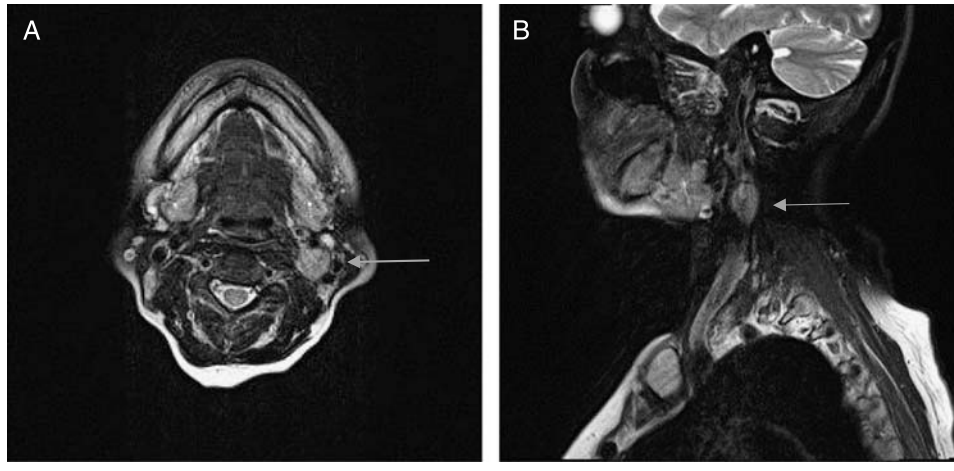

FIGURE 5. MRI T2-weighted axial section showing carotid body tumor (**A**) located between the internal and external carotid artery displacing internal carotid artery anteriorly. On sagital T2-weighted images, the tumor shows characteristic "salt and pepper" appearance (**B**) which represents "signal voids" due to high-velocity flow and resultant signal loss. Finally, surgery was performed, and histology confirmed carotid body paraganglioma. Carotid body tumors are the most frequent paragangliomas of the head and neck regions.[1–3] Complete surgical resection represents the only curative treatment option,[1] although inoperable and recurrent tumors can be treated with somatostatin analogues.[4] Diagnostics of cervical paraganglioma includes Doppler sonography, MRI combined with contrast-enhanced MR angiography, in specific cases, computed tomography and digital subtraction angiography. Nuclear medicine diagnostics includes ^{123}I or ^{131}I MIBG (metaiodobenzylguanidine) scintigraphy and ^{18}F-DOPA PET/CT; however, because of the SR content, these tumors can be visualized with somatostatin analogues, ^{111}In-octreotide, and recently, ^{99m}Tc EDDA HYNIC–TOC.[5–8] In our case, SRS was successfully included in the early phase of patient workup because of the added value of perfusion images and SPECT/CT hybrid imaging, which revealed high vascularity and specific location of the lesion, obviating the need for further diagnostic clarification.