Case Report

A Rare Case of Incidental Finding of Cervical Spinal Cord Hemangioblastoma by ^{68}Ga-DOTATOC Positron Emission Tomography/Computed Tomography Scan

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Abstract

Hemangioblastomas are rare vascular tumors of the central nervous system usually related to other pathological conditions, such as Von Hippel Lindau Syndrome (VHLS) and polycythemia. We describe a case of a 65-year-old man with a neuroendocrine tumor of the ileum presenting with cervical pain who underwent a ^{68}Ga-DOTATOC positron emission tomography/computed tomography (PET/CT) scan that incidentally underlines the presence of hemangioblastoma of the cervical spinal cord. The patient does not have a family history of VHLS nor does he suffer from polycythemia and he is currently waiting for genetic testing. Despite being rare, hemangioblastomas could be possible findings of central nervous system incidentaloma at ^{68}Ga-DOTATOC PET/CT scan, especially in patients with anamnesis with possible related condition.

Keywords: *^{68}Ga-DOTATOC positron emission tomography/computed tomography, hemangioblastoma, positron emission tomography/computed tomography*

Introduction

The ^{68}Ga-DOTATOC positron emission tomography/computed tomography (PET/CT) is an examination usually performed in malignant tumor expressing Type II and V somatostatine receptors, such as low-grade gastroenteropancreatic neuroendocrine tumors (GEP-NET), pheochromocytomas, and paragangliomas. However, also other rarer neoplastic diseases or benign conditions may have increased ^{68}Ga-edotreotide uptake.[1,2]

We present a rare case of a patient with a symptomatic hemangioblastoma of the cervical spinal cord incidentally diagnosed in the same PET/CT scan performed for GEP-NET evaluation.

Case Report

A 65-year-old man with a diagnosis of NET of the ileum (Grading 1, Ki 67 <2%, mitotic index 0–1/10HPF) treated by surgery reported neck and right shoulder pain not responding to therapy with nonsteroidal anti-inflammatory drugs and therefore performed a ^{68}Ga-DOTATOC PET/CT to complete the staging of disease. During imaging evaluation an unexpected uptake of tracer on a 33 mm × 21 mm mass inside the spinal canal near C1–C2, explaining the cervical pain, was found [Figure 1]. No other uptakes suspicious for NET localization were present. Considering the grading of the tumor, the site of the uptake, and disease status in ^{68}Ga-DOTATOC PET/CT, the incidental findings appeared unrelated to the primary NET and the lesion did not present characteristics of meningioma.

A subsequent magnetic resonance imaging (MRI) scan excluded the diagnosis of meningioma, but it did not resolve the diagnostic doubt about the spinal mass nature [Figure 2]. Finally, the patient underwent neuro-surgical excision of the lesion and after histological examination, a final diagnosis of hemangioblastoma was formulated. No pancreatic cysts or blood count alterations were found during diagnostic iter and anamnesis did not show the familiar history of hemangioblastoma or Von Hippel Lindau Syndrome (VHLS). The patient is actually in follow-up and waiting for genetic test for the research of 3p25.3 mutation.

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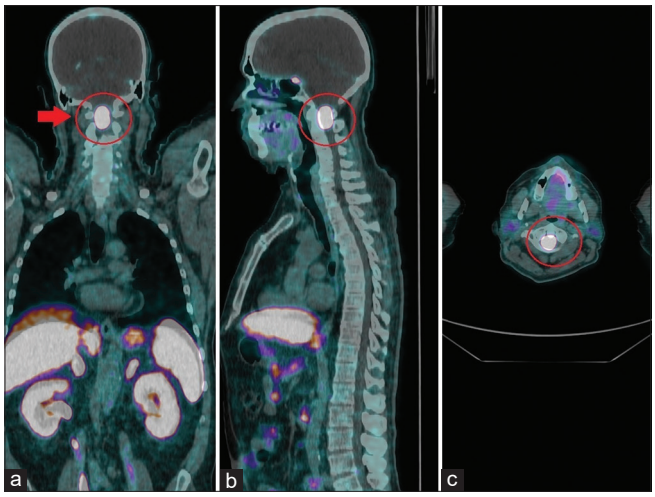

Figure 1: ^{68}Ga-DOTATOC positron emission tomography/computed tomography coronal (a), sagittal (b) and transaxial (c) fused images show an intense uptake corresponding to a mass inside the cervical spinal canal. After surgical excision and histological examination the diagnosis of hemangioblastoma was formulated

Discussion

Hemangioblastoma is a tumors of the central nervous system (CNS) originating from vascular cells, usually associated with VHLS[3] or other pathological conditions like polycythemia and pancreatic cysts. The most common sites of disease localization are the cerebellum and brain stem, but the spinal cord could be involved too.

Diagnosis of hemangioblastoma is usually performed by imaging examinations, such as CT or MRI, but the histological characterization is mandatory. The treatment is based on surgical excision or radiosurgery.

When quite frequent pathological conditions such as meningioma were excluded, despite the very low incidence, it is important to consider hemangioblastoma as a possible alternative diagnosis of incidental uptake involving the CNS in ^{68}Ga-DOTATOC PET/CT,[4] especially in patients with anamnesis of VHLS,[5] renal cysts or polycythemia.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

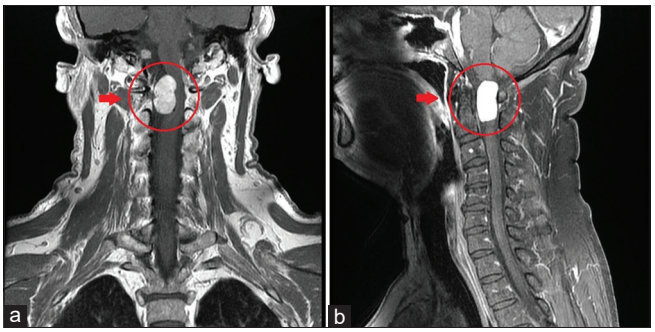

Figure 2: Magnetic resonance imaging coronal (a) and sagittal (b) T1 FSE with contrast agent images of the cervical spinal cord mass show an intense uptake of contrast agent

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Conflicts of interest

There are no conflicts of interest.

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