Interesting image

A case of optic neuritis incidentally detected by somatostatin receptor scintigraphy

Un caso de neuritis óptica incidentalmente detectado con gammagrafía de receptores de somatostatina

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An 18-year-old female patient with increased serum chromogranin-A value (100 U/L; normal value <90 U/L) underwent somatostatin receptor scintigraphy (SRS) with 111In-pentetreotide searching for the presence of a neuroendocrine tumor.

SRS was performed after i.v. administration of 200 MBq of 111In-pentetreotide. Whole-body scans were obtained 4 h and 24 h after the radiopharmaceutical administration and completed by tomographic images (SPECT) of the head, neck, thorax, abdomen and pelvis, performed 24 h after the radiopharmaceutical injection.

Whole-body SRS at 4 h was normal. SPECT images performed at 24 h showed an area of linear and moderately increased radiopharmaceutical uptake corresponding to the left orbitary region (Fig. 1A). No other areas of increased radiopharmaceutical uptake were detected in the rest of the body.

Due to this SRS finding and the onset of reduced visual accuracy associated to eye pain, the patient underwent a magnetic resonance imaging (MRI) of the brain. MRI demonstrated the presence of an enlarged left optic nerve (Fig. 1B) corresponding to the SRS finding as demonstrated by fused SPECT/MRI images (Fig. 1C).

Based on imaging and clinical findings, the final diagnosis was optic neuritis and the patient was addressed to treatment with steroid medications. Vision returned normal four weeks after the start of the treatment.

Optic neuritis is an inflammation of the optic nerve typically affecting young adults ranging from 18 to 45 years of age, with a mean age of 30–35 years. There is a strong female predominance. The precise cause of optic neuritis is unknown, but it is thought to be a type of autoimmune disorder.1

Fig. 1. Tomographic SRS image (SPECT) of the head performed 24 h after radiopharmaceutical injection and displayed in axial projection (A) showing an area of moderate and linear radiopharmaceutical uptake corresponding to the left orbitary region (red arrow). The physiological uptake of the pituitary is also evident (blue T1-weighted MRI (B) in axial projection showing an enlarged and hyperintense left optic nerve corresponding to the SRS finding (red arrow), as demonstrated by fused SPECT/MRI image (C), and suggesting the presence of an optic neuritis, arrow).

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In the case described we demonstrated that SRS may incidentally detect optic neuritis. This is likely due to the overexpression of somatostatin receptors on the cell surface of activated inflammatory cells. In fact, inflammatory diseases may cause false positive findings at somatostatin receptor imaging in patients evaluated for suspicious neuroendocrine tumors.

Conflict of interest

The authors declare no conflict of interest.

References