Interesting image

Added value of fused somatostatin receptor imaging/magnetic resonance imaging in a rare case of paraganglioma of the urinary bladder

Valor añadido de la fusión de las imágenes de gammagrafía de receptores de somatostatina con imágenes de resonancia magnética en un caso inusual de paraganglioma de la vejiga

G. Treglia\textsuperscript{a,E}, L. Ceriani\textsuperscript{a}, E. Merlo\textsuperscript{b}, T. Ruberto\textsuperscript{a}, G. Paone\textsuperscript{a}, L. Giovanella\textsuperscript{a}

\textsuperscript{a} Department of Nuclear Medicine and PET/CT Centre, Oncology Institute of Southern Switzerland, Bellinzona, Switzerland
\textsuperscript{b} Institute of Pathology, Locarno, Switzerland

A 67-year-old female patient with increased serum chromogranin A value (150 \textmu U/L) underwent somatostatin receptor scintigraphy (SRS) with \textsuperscript{111}In-pentetreotide searching for the presence of a neuroendocrine tumor.

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

Whole-body SRS at 4 h was normal whereas delayed SRS at 24 h showed an area of increased radiopharmaceutical uptake corresponding to the urinary bladder (Fig. 1).

Due to this SRS finding, the patient underwent a magnetic resonance imaging (MRI) of the pelvis and, in order to better localize the area of increased radiopharmaceutical uptake, fused SPECT/MRI images were performed. MRI demonstrated the presence of a 1.5 cm lesion in the inferior wall of the urinary bladder corresponding

\begin{figure}
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\includegraphics[width=\textwidth]{image1.png}
\caption{Whole-body SRS in anterior (A1) and posterior (A2) view 4 h after \textsuperscript{111}In-pentetreotide injection showing no areas of abnormal radiopharmaceutical uptake. Maximum intensity projection SRS image 24 h after radiopharmaceutical injection (B) showing an area of increased uptake corresponding to the urinary bladder (arrow).}
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\textsuperscript{E} Corresponding author.
\textit{E-mail address:} giorgiomednuc@libero.it (G. Treglia).

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Fig. 2. T1-weighted MRI (A1-3) and fused SPECT/MRI (B1-3) in axial (A1,B1), coronal (A2,B2) and sagittal (A3,B3) projection showing an area of increased radiopharmaceutical uptake corresponding to a 1.5 cm lesion in the inferior wall of the urinary bladder (arrows).

to the SRS finding as demonstrated by fused SPECT/MRI images (Fig. 2).

Based on these SPECT/MRI findings, the patient underwent transurethral resection of the bladder lesion. Histological findings suggested the presence of a paraganglioma of the urinary bladder (Fig. 3).

Paraganglioma of the urinary bladder is a rare neuroendocrine tumor. Localized tumors have an extremely favorable prognosis and may be managed by less aggressive modalities, whereas patients with metastatic disease have a significant reduction in survival rates despite aggressive treatment.\textsuperscript{1} Due to their neuroendocrine origin, paragangliomas of the urinary bladder usually

Fig. 3. Hematoxylin and eosin staining [magnification 1.25 × (A), 10 × (B) and 20 × (C)] showing a tumoral mass with solid growth and well-defined borders, mucosal ulceration and infiltration of smooth muscle bundles. At low power the neoplastic cells showed medium-large size, round nuclei, occasional nucleoli, no significant pleomorphism and large eosinophilic cytoplasm with granular appearance. Neoplastic cells showed expression of chromogranin (D).
overexpress somatostatin receptors on their cell surface. This represents the rationale to use somatostatin receptor imaging to detect and stage these neoplasms. The fusion of SRS and computed tomography is clearly superior to SRS alone in neuroendocrine tumors, allowing precise localization of the lesions and reducing false-positive results.

In our case we demonstrated that SPECT/MRI fused images have been useful in the correct detection and localization of this rare neuroendocrine tumor.

Conflict of interest

The authors have no conflicts of interest to declare.