Interesting images

Frontal meningioma on $^{99m}$Tc-MIBI scan for postoperative evaluation of differentiated thyroid cancer

Meningioma frontal en un estudio con $^{99m}$Tc-MIBI para la evaluación del carcinoma diferenciado de tiroides

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Figure 1. Anterior (A) and posterior (B) whole-body $^{99m}$Tc-MIBI scan showed uptake in thyroid remnant (arrow) and abnormal focal uptake at the right side of the head (arrow heads).

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Figure 2. Axial (A), sagittal (B), and coronal (C) brain $^{99m}$Tc-MIBI SPECT revealed an increased uptake in the right frontal region.

Figure 3. Selected coronal cerebral gadolinium-enhanced MRI revealed an extra-axial right frontal mass and vasogenic edema. There was also a linear dural enhancement extending from the edge of the mass related to an increase thickness of the duramater.

A 60-year-old woman underwent total thyroidectomy for Hurthle cell thyroid carcinoma. Five years earlier she had undergone left nephrectomy for renal cell carcinoma. Six weeks after total thyroidectomy $^{131}$I radioiodine treatment was requested. Serum free T4 and TSH levels were 0.33 ng/dl (normal range: 0.85-1.76 ng/dl) and 107 mIU/L (normal range: 0.35-5.50 mIU/L), respectively. Serum Tg level was 2.7 ng/ml (normal range: 2.17-43.5 ng/ml). According to our study protocol, $^{99m}$Tc-MIBI scan was performed immediately before radioiodine administration (fig. 1). Whole-body images revealed focal uptake in a thyroid remnant. Also, an unexpected focal abnormal uptake was detected at the right side of the head.

A brain $^{99m}$Tc-MIBI SPECT was acquired for the better location of this uptake (fig. 2). Images revealed a well-defined rounded area of increased uptake in the right frontal region. A diagnosis of primary or metastatic tumour was considered due to the previous history of renal carcinoma. In this clinical setting radioiodine was not administered and levo-thyroxine therapy was started. The patient was free of symptoms and neurological examination was normal. A cerebral gadolinium-enhanced MRI revealed an extra-axial right frontal mass, vasogenic edema in the adjacent cerebral parenchyma and an increase thickness of the duramater (fig. 3). A meningoepithelial meningioma was removed.

In the postsurgical evaluation of patients with differentiated thyroid cancer, $^{99m}$Tc-MIBI scan has been used to search for thyroid remnant and possible metastatic disease. Extracardiac $^{99m}$Tc-MIBI uptake has been reported for a large variety of clinical situations including head primary and metastatic tumours. In our case, the intensity of $^{99m}$Tc-MIBI uptake was greater than normal uptake in the choroid plexus and in the skull, as has been mentioned for meningioma. To our knowledge the clinical impact of $^{99m}$Tc-MIBI finding was definitive: all clinical efforts were focused to reach a diagnosis of the head lesion, radioiodine therapy was delayed, and an unsuspected, asymptomatic intracranial tumor was resected. Thus, the nature of abnormal cerebral uptake on $^{99m}$Tc-MIBI scan should be always investigated.

References