The role of adrenocortical scintigraphy in the evaluation of unilateral incidentally discovered adrenal and juxtaadrenal masses

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We reviewed the findings of adrenocortical scintigraphy with $^{131}$I-6-beta-iodomethyl-19-norcholesterol (NCL-6-$^{131}$I) of 39 patients to clarify its role in the evaluation of unilateral adrenal or juxtaadrenal masses incidentally discovered by CT, ultrasonography or plain radiography. Twenty-seven benign adrenal masses showed various scintigraphic findings (hot nodule: 12 silent adenomas, warm nodule: one solid mass, normal appearance: one cyst and 2 solid masses, diffuse decrease: each one; solid mass, myelolipoma, ganglioneuroma and calcified adrenal and partial or complete defect: each one; solid mass, myelolipoma and ganglioneuroma and 2 cysts and 2 pheochromocytomas); while a partial or complete defect was shown in a nonfunctioning carcinoma and 3 metastases and a complete defect or inhomogeneous uptake without opposite adrenal visualization was shown in 2 patients with cortisol-producing carcinoma. Therefore a hot nodule and an inhomogenous uptake or complete defect with nonvisualization of the opposite adrenal are specific to a benign tumor and a cortisol-producing carcinoma, respectively. The impaired tumor uptake of NCL-6-$^{131}$I is a nonspecific finding. The scintigraphic findings of juxtaadrenal masses were normal in 4 and deviated adrenals in 2. Thus adrenocortical scintigraphy can identify silent adenomas and cortisol-producing carcinomas among the adrenal masses and may help to differentiate juxtaadrenal from adrenal masses.

Key words: Adrenal gland, adrenocortical scintigraphy, incidentaloma, neoplasm, $^{131}$I labelled iodocholesterol.