

Current role of ^{111}In -DTPA-octreotide scintigraphy in diagnosis of thymic masses

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ABSTRACT

Aims and background. Thymic tumors (thymomas and thymic carcinomas) represent 50% of all mediastinal tumors. Thymomas usually express high levels of somatostatin receptors, which enable *in vivo* imaging with ^{111}In -DTPA-octreotide (OctreoScan[®]). The aim of this study was to further investigate the role of radionuclide techniques in the diagnosis, staging and follow-up of these tumors.

Methods. Eight patients (5 women, 3 men, age range 35-79 years; mean \pm SD 56.1 \pm 15.8 years) entered the study. In 4 patients, myasthenia gravis was the presenting symptom. ^{111}In -DTPA-octreotide scan was performed within 3 weeks after contrast enhanced CT and/or MRI. Planar and tomographic images were acquired within 24 hours of the injection of 111 MBq OctreoScan. The scintigraphic results were defined in correlation with the histological findings.

Results. Histology revealed thymoma in 3 patients, thymic carcinoma in 1, insular carcinoma of presumably thymic origin in 1, thymic carcinoid in 1, and thymic hyperplasia in 2 patients. Two thymomas were at stage I, 1 thymoma and 1 thymic carcinoma at stage II, 1 insular carcinoma of presumably thymic origin at stage IV, and 1 thymic carcinoid at stage IV. OctreoScan consistently accumulated in primary and/or metastatic sites of thymic tumors while no radiotracer uptake was detected in the 2 patients with benign thymic hyperplasia. In 1 patient with a very large mediastinal mass (13 cm in largest diameter) and multiple metastatic deposits in the lungs, OctreoScan scintigraphy showed a large area of pathological uptake in the anterior mediastinum and a small area of focal uptake in the cervical-dorsal region of the right lung corresponding to a lymph node expressing somatostatin receptors.

Conclusions. OctreoScan is avidly taken up by thymic tumors, enabling the diagnosis of these tumors and a better evaluation of their extension. It does not accumulate in thymic hyperplasia, thus allowing the differential diagnosis between these 2 pathological conditions. In patients affected by myasthenia gravis, OctreoScan scintigraphy can play an important role in characterizing thymic masses.

Key words: thymoma, ^{111}In -DTPA-octreotide scintigraphy, somatostatin receptors.

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Received June 7, 2010;
accepted September 6, 2010.