

DIAGNOSTIC ACCURACY OF PREOPERATIVE SPECT/CT AND PLANAR PARATHYROID SCINTIGRAPHY IN PATIENTS WITH SINGLE GLAND PRIMARY HYPERPARATHYROIDISM

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Aim: Primary hyperparathyroidism (PHP) is a disease characterized by excessive secretion of parathyroid hormone. The majority of cases are caused by a solitary parathyroid adenoma. Preoperative scintigraphy has made minimally invasive surgery possible. Single photon emission computed tomography/computed tomography (SPECT/CT) replaced planar imaging in 2005 as the standard preoperative evaluation of patients with PHP at our department. We compared the diagnostic accuracy of preoperative SPECT/CT and planar scintigraphy in patients with single gland PHP.

Material and methods: Preoperative scintigraphy of consecutive patients treated surgically for PHP between 2002 and 2006 were retrospectively reviewed by one of the authors (TL), blinded to surgical findings. Of the patients, 141 had single adenomas and are the subjects of this study. In 81 patients, planar imaging was performed after 15 min and 3 hours. In 60 patients, planar imaging and SPECT/CT were performed after 15 min and 3 hours respectively. All patients were injected intravenously with 900 MBq of ^{99m}Tc-sestamibi. Imaging results were compared with the operative findings.

Results: Of 81 patients examined with early planar/delayed planar scintigraphy, the adenoma was identified on the ipsilateral side as the focal uptake in 70 patients (86%). The adenoma was found on the contralateral side in six patients, and five had negative scintigraphy. Of 60 patients examined with early planar and delayed SPECT/CT, correct localization of the parathyroid adenoma was achieved in 55 patients (92%). The adenoma was found on the contralateral side in the remaining five patients.

Conclusion: Our preliminary results show a high diagnostic accuracy of ^{99m}Tc-sestamibi for localizing single gland parathyroid adenoma. SPECT/CT was more sensitive than planar imaging.