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DIAGNOSIS OF MALIGNANT AND BENIGN THYROID TUMORS BY SP-ECT WITH I-123. T.Miyamoto, M.Nakamura, A.Okamoto, H.Komaki, K.Sato, Y.Takahashi, and S.Hamada. Tenri Hospital, Radioisotope Division, 200 Mishima, Tenri City 632

SP-ECT with I-123 was applied for 18 patients with malignant and benign thyroid tumors. At 3 hours after administration of 200-500 $\mu$ Ci, weight of both lobes was determined, and a weight ratio of the tumor and normal lobes (TL/NL) and a radioactivity ratio accumulated per g of tumor and surrounding normal tissues (T/N ratio) were calculated using the Maxi Star procedure reported previously.

The T/N ratios, which were obtained from either transaxial, sagittal or coronal image, were more than 0.20 for benign adenomas but less than 0.20 for malignant tumors.

The TL/NL ratios estimated were higher in benign adenomas than in malignant tumors.

It appears therefore that SP-ECT is useful in diagnosis of malignant and benign thyroid tumors.

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CLINICAL VALUE OF QUANTITATIVE ANALYSIS OF TL-201 SCINTIGRAPHY IN THYROID NODULES. T.Yokozawa, M.Miyagawa, O.Senga, F.Iida, K.Yano, and K.Hirano. Shinshu University School of Medicine, Matsumoto

Quantitative analysis of Tl-201 Scintigraphy in thyroid nodules was studied.

There were 50 nodules, cancer 15 (metastatic lymph node 7), benign nodules 35 (adenomatous goiter 7). The usefulness of the quantitative analysis was as follows.

1. RI image of early phase and delayed phase could be evaluated subconjunctively, and we could easily draw DIGITAL MAP of the thyroid nodules.

2. Preoperatively, multiple nodules could be expected that these nodules were classified as different histological types.

3. Preoperatively, metastatic lymph node, especially in the mediastinum, could be expected, and we found the temporal change of the count ratio of the metastatic lymph node was very characteristic against the primary lesion's one.

4. Preoperatively, adenomatous goiter could be classified into two types in the site of nuclear medicine.

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EVALUATION OF  $^{201}\text{Tl}$ -SCINTIGRAPHY (DELAYED SCAN), ULTRASONOGRAPHY, AND COMPUTED TOMOGRAPHY ON THYROID NODULES. H.Sawa, A.Sazaki, T.Okamura, K.Hamada, H.Ochi, Y.Onoyama. Osaka City Medical School, Osaka.

We have reported that  $^{201}\text{Tl}$  scintigraphy, especially delayed scan is useful to differentiate malignant thyroid nodules from benign ones. We compared with ultrasonography (USG), X-ray Computed Tomography (CT), and  $^{201}\text{Tl}$  delayed scan, and studied the accuracy rate of each examinations. Histologically verified 245 cases of thyroid tumors were examined by  $^{201}\text{Tl}$  delayed scan, 129 cases among them by  $^{201}\text{Tl}$  delayed scan and USG, and 32 cases by three examinations.  $^{201}\text{Tl}$  delayed scan yielded a sensitivity of 82.6%, a specificity of 90.7%, and an accuracy rate of 86.1%. USG yielded a sensitivity of 74.3%, a specificity of 80.0% and an accuracy rate of 76.7%. Both  $^{201}\text{Tl}$  delayed scan and USG yielded a sensitivity of 94.6%, a specificity of 72.7%, and an accuracy rate of 85.3%. Thus  $^{201}\text{Tl}$  delayed scan and USG were useful to detect thyroid carcinomas. It was difficult to differentiate thyroid carcinomas from benign tumors by CT findings alone, but CT was useful to evaluate the extension of thyroid malignancy.

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DETECTION OF THE METASTASIS OF DIFFERENTIATED THYROID CARCINOMA. USEFULNESS OF MEASUREMENT OF THYROGLOBULIN, THALLIUM-201 IMAGES AND RADIOIODINE IMAGES. K.Kusakabe, S.Kawasaki, Y.Inoue, T.Nishioka, M.Maki, S.Nara, M.Hiroe, T.Yamasaki, S.Kurihara, H.Demura and Y.Fujimoto. Tokyo Womens Medical College.

To evaluate the usefulness and accuracy of serum thyroglobulin levels (Tg) and Tl-201 images in diagnosis of thyroid carcinoma, retrospective review was made on records of 49 patients in whom total thyroidectomy was performed. Post-treatment tumor status was assessed by clinical findings, X-ray examinations and radioiodine images. The Tg in the 15 cases of no metastasis were  $7.8 \pm 10.2$  (mean  $\pm$  SD) ng/ml at the euthyroid status. Of the 49 patients, Tg in the 5 cases of lymph nodes metastasis were  $57.0 \pm 52.6$  ng/ml,  $611.1 \pm 560.3$  ng/ml in the 10 cases of lung metastasis,  $6326.8 \pm 14338.6$  ng/ml in the 8 cases of bone metastasis and  $7290.9 \pm 8452.5$  ng/ml in the 11 cases of bone and lung metastasis. Of the 42 patients, 30 had lymph nodes, lung and/or bone metastasis, with positive Tl-201 image in one or more lesions in 25 patients, including the 8 patients with false negative I-131 images. Sensitivity by images with Tl-201 was 83.3% and 63.3% with I-131. In this study, the measurements of serum thyroglobulin levels and Tl-201 images were useful in detecting metastasis from thyroid carcinoma, including the patients with false negative I-131 images.