

Limited value of delayed radiothallium image in the diagnosis of nodular goiter

Takashi MISAKI,* Kanji YAGI,* Shigeharu DOKOH,*
Toshikiyo KOH** and Shin-ichiro SHIMBO**

*Departments of *Radiology and **Internal Medicine, Kyoto City Hospital, Kyoto*

To test whether delayed thallium image can improve the diagnostic accuracy of thyroid tumor, we have reviewed 35 patients with cold nodules of proven histopathology. Early and delayed images were taken 10-20 min and 3-4 hr postinjection, respectively. In this study, a thyroid nodule was interpreted as malignant if it had normal or increased uptake on early scan and more residual radioactivity than paranodular tissue on delayed scan. In the eighteen patients who had carcinoma, a disappointing 44% false negative rate was observed. No significant difference was seen between retention-positive and negative cases in tumor size or histological type of cancer. Nor could any demographic bias explain the low sensitivity. Of the six false negatives, macroscopic cystic degeneration was seen in two cases, but tumors in the other four were grossly solid. Considering the histological heterogeneity often seen within a thyroid tumor, the portion with increased retention of radiothallium may be too small to be detected in the false negative cases. Furthermore, 3 false positive readings were obtained in 17 patients with benign conditions. We conclude that the contribution of the delayed thallium image was quite limited in predicting or ruling out malignancy in nodular goiters.

Key words: thallium-201, tumor scintigraphy, thyroid cancer, thyroid adenoma, delayed image