by disappearance rate of Tl-201 chloride from thyroid gland. (5) Before surgery, Tl-201 chloride detected a supraclavicular metastasis from a mixed follicular and papillary adenocarcinoma of the thyroid.

Thyroid Scintigraphy with $^{201}$Tl Chloride

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Thyroid scintigraphy with $^{201}$Tl chloride was performed in 25 patients who were scheduled to be operated on. $^{201}$Tl chloride scintigraphy and histological findings of operated thyroid gland were investigated in this paper.

Thyroid diseases which were discussed in this series were 9 cases of papillary adenocarcinoma, one case of anaplastic carcinoma, one case of reticulosarcoma, 5 cases of follicular adenoma, 7 cases of benign cyst, one case of adenomatous goiter and 2 cases of Hashimoto's thyroiditis.

Comparison study of uptake ratio of $^{201}$Tl chloride into the thyroid gland analysed by computed image between normal thyroid gland and thyroidal resion was investigated.

All cases of malignant goiter showed positive uptake ratio over than 1.2 even though diameter of the resion was less than 1 cm.

Two cases of papillary adenocarcinoma in which tumor was more than 3 cm in its diameter and one case of anaplastic carcinoma, more than 7 cm in its diameter were revealed high uptake ratio. On the other hand, low uptake ratio was observed in one case with huge reticulosarcoma of the thyroid gland.

In all 3 cases with bone and lymph node metastasis, positive uptake of $^{201}$Tl chloride was observed in the metastatic area.

In 3 out of 5 cases of follicular adenoma, $^{201}$Tl uptake was positive, but its ratio was less than 1.6.

In all cases with benign cyst, filling defects were observed in $^{201}$Tl chloride scintigraphy.

Diffuse and marked positive accumulation of $^{201}$Tl was observed in 2 cases with Hashimoto's thyroiditis in subacute stage. This finding was quite different from that of nodular goiter.

Non-Gaussian Distribution of Free Thyroxine Index (Effective Thyroxine Ratio) and Serum Thyroxine Level in Euthyroid Subjects

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Simultaneous determinations of Effective T₄ Ratio (ETR) and of T₄ concentrations in serum were made in 6613 sera, using Res-O-Mat ETR test. The averages of 5080 euthyroid ETR and T₄ values were 0.98±0.07 (SD) and 8.1±2.6 μg/100 ml., respectively. Distinct elevations of ETR and T₄ values were found in 988 hyperthroid sera (Mean±SD=1.24±0.13 in ETR and 17.4±4.2 μg/100ml. in T₄), while these values were markedly diminished in 454 hypothyroid sera (Mean±SD=0.83±0.06 in ETR and 2.5±1.7 μg/100ml. in T₄).

In order to use both ETR and T₄ values as routine screening test for evaluation of thyroid function, it was necessary to define the euthyroid ranges of ETR and T₄ values. The frequency distribution of ETR and T₄ values for 5080 euthyroid sera was analyzed for normality by determining their skewness. The significant skewness was found in both ETR and T₄ values (+0.47 in ETR and +0.68 in T₄). Therefore, the mean±2 SD range did not define 95% of the euthyroid population.