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TL-201 UPTAKE RATIO IN NODULAR GOITER. K.Tsutsui\*, K.Sato\* and S.Watanabe\*\*. \*Cancer Center Niigata Hospital and \*\*Senami Hospital. Niigata.

Thyroid early scanning with Tl-201 chloride was investigated to analyse the relationship between histological types of nodular goiter and uptake ratio. Cases used in this series were 26 cases of malignant thyroid tumor and 24 cases of benign thyroid tumor which were confirmed histologically. Uptake ratio between thyroid resion and another part of thyroid gland were compared by computed image.

Tl-201 uptake ratio were observed  $3.08 \pm 0.96$  (n=6) in trabecular tubular adenoma,  $1.09 \pm 0.28$  (n=7) in colloid adenoma,  $0.32 \pm 0.19$  (n=10) in benign cyst,  $2.62 \pm 1.33$  (n=13) in papillary adenocarcinoma,  $3.52 \pm 1.68$  (n=7) follicular adenocarcinoma,  $2.04 \pm 1.68$  (n=4) in anaplastic carcinoma, 0.24 in squamous cell carcinoma and 0.73 in reticular cell sarcoma.

In benign thyroid tumor, high uptake ratio were observed in trabecular, tubular adenoma. Contrary, in malignant thyroid tumor, uptake ratio was highly observed in differentiated carcinoma. ( $2.93 \pm 1.68$ )

Especially differentiated carcinoma without atypical cells, showed high uptake ratio. ( $4.14 \pm 1.91$ )

In conclusion, high Tl-201 uptake ratio were observed in cases with trabecular tubular adenoma and relatively high differentiated carcinoma.

Even with this findings, we can not differentiate malignant thyroid tumor from benign goiter just with Tl-201 early scanning.

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QUANTITATIVE EVALUATION OF THALLIUM-201 CHLORIDE THYROID SCINTIGRAPHY ON BENIGN AND/OR MALIGNANT NODULES -USEFULNESS OF THE DELAYED SCAN- H.Sawa, S.Tanaka, S.Hata, H.Nakajima, S.Taniguchi, T.Fukuda, H.Ikeda, K.Hamada, Y.Inoue, H.Ochi, Y.Onoyama, H.Okita, S.Sugano. Osaka City University School of Medicine, Osaka.

We studied 50 cases of histologically verified thyroid tumors. Tl-201 thyroid scan was performed 5 min. (early scan) and 3 hours (delayed scan) after intravenous administration of 2.0 mCi of Tl-201. At the same time, we counted the RI activity on thyroid nodule and background for 10 min. Nodule/background ratio on delayed scan was  $1.00 \pm 0.13$  in 15 adenomas,  $1.01 \pm 0.05$  in 3 adenomatous goiters,  $1.33 \pm 0.35$  in 21 papillary ca.,  $1.62 \pm 0.79$  in 10 follicular ca. and 1.84 in an anaplastic ca.. Twenty five of 32 carcinomas (78%) were positive, and 16 of 18 benign tumors (89%) were negative on delayed scan when evaluated at the ratio of 1.10.

Next, we evaluated the ratio of delayed/early scan activity in positive cases at early scan. They were  $0.01 \pm 0.11$  in 10 adenomas,  $0.02 \pm 0.06$  in 2 adenomatous goiters,  $0.31 \pm 0.15$  in 18 papillary ca.,  $0.23 \pm 0.18$  in 9 follicular ca. and 0.93 in an anaplastic ca.. When evaluated at the ratio of 0.15 of delayed/early scan activity, 25 of 28 carcinomas (89%) and 11 of 12 benign tumors (92%) were diagnosed correctly.

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CLINICAL USEFULNESS OF DELAYED SCINTIGRAPHY WITH TlCl-201 ON DIAGNOSIS OF THYROID NODULES—COMPARED WITH OPERATIVE SPACIMENS—. S.Sugimoto\*, K.Kawakami\*, N.Shinozaki\*\*, T.Kodama\*\*, N.Katsuyama\*\*\*, K.Tada\*\*\*\*, \*Dep. Rad, \*\*Dep.Surg, Jikei Uni.Sch.of Med. Tokyo, \*\*\*Dep.Rad, Ryukyu Uni. Naha, \*\*\*\*Dep.Rad, Aoyama Metropolitan Hosp. Tokyo.

As for 51 cases with thyroid nodules confirmed by operation, accumulation of TlCl-201 were observed on solid tumors and cystic tumors, and clinical usefulness of delayed scintigraphy with TlCl-201 was investigated. Cystic tumors did not accumulated TlCl-201 neither on early scintigraphy nor on delayed scintigraphy. Many cases of solid tumors accumulated TlCl-201, but a few cases of solid tumors did not accumulated even on delayed scintigraphy. On thyroid carcinoma, sensitivity of delayed scintigraphy of TlCl-201 were 60%, but specificity were 86%. This result suggests that delayed scintigraphy of TlCl-201 were useful to diagnosis the malignant tumors, especially on solid malignant tumors without cystic degeneration.

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THE ROLE OF Tl-201 CHLORIDE AND GA-67 CITRATE IN THE DIAGNOSIS OF MALIGNANT LYMPHOMA OF THE THYROID. O. Senga, M. Kobayashi, T. Yokozawa, H. Shirota, A. Sugeno, M. Miyakawa, and F. Iida. 2nd Department of Surgery, Shinshu University. Matsumoto

Among 16 patients with malignant lymphoma of the thyroid, eight patients were scintigraphed with Ga-67 citrate. All cases showed a focal area of decreased activity with I-123, I-131 or pertechnetate (Tc-99m), and each had a histological diagnosis after surgery or excisional biopsy. All cases of malignant lymphoma of the thyroid showed a positive figure with Tl-201. An obvious accumulation of Ga-67 was revealed in six of the eight cases. Almost all of the case which showed positive figure with Ga-67 were poor prognosis after operation or irradiation. However, in three cases which revealed negative figure with Ga-67 had a good clinical course. On the other hand, in four cases of anaplastic carcinoma, two small-cell carcinoma gave negative scans with Tl-201, and two cases with pleomorphic cell carcinoma gave a positive Tl-201 scans. With Ga-67 they all gave strongly positive scans. Of the chronic thyroiditis all cases showed positive scans with Tl-201. Every case of the chronic thyroiditis, however, gave a negative scan with Ga-67. It was concluded that diagnostic value is enhanced by using Tl-201 chloride and Ga-67 citrate scintigraphy jointly in identifying the histological type of thyroid tumor.