악성 흉선종에서 관찰된 Tc-99m MIBI와 Tl-201의 섭취

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Tc-99m MIBI and Tl-201 Uptake in a Thymic Carcinoma

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Abstract

Tc-99m methoxyisobutylisonitrile (MIBI) and Tl-201/technetium subtraction scintigraphy have been used for localization of abnormal parathyroid gland. The uptake mechanism of tracers has been postulated to be increased cellular density and vascularity, or dependent on the presence of mitochondria-rich cells. However, the uptake of these tracers was not specific for abnormal parathyroid gland. The author report a case of thymic carcinoma that would have been mistaken for carcinoma of parathyroid because of Tc-99m MIBI and Tl-201 uptake.

Key Words : Tc-99m MIBI, Tl-201/technetium subtraction, Parathyroid scintigraphy, Thymic carcinoma.

References

1. Paull DE, Graham J, Forgetta J, Turissini T, Saidman B. Detection of occult thymoma during exercise thallium-201, technetium-99m tetrofosmin imaging for coronary artery disease. Chest 2000;118 : 550-1.
2. Ohta H, Taniguchi T, Watanabe H, Komibuchi T, Nakate M, Khono K. Tl-201 and Tc-99m HMPAO SPECT in a patient with recurrent thymoma. Clin Nucl Med 1996;21 : 902-3.
3. Kageyama M, Seto H, Shimizu M, Nagayoshi T, Watanabe N, Kamei T et al. Thallium-201 single photon emission computed tomography in the evaluation of thymic carcinoma. Radiat Med 1994;12 : 237-9.
4. Tonami N, Yokoyama K, Nonomura A, Taki J, Ishii I, Hisada K, et al. Intense accumulation of Tl-201 in carcinoid tumor of the thymus. Clin Nucl Med 1994;19 : 408-12.
5. Lanka KP, Sarin B, Prasad V, Sen S, Mehta A, Rawat HS, et al. Benign cervical thymoma masquerading as a malignant thyroid nodule. Clin Nucl Med 2002;27 : 862-4.
6. Hashimoto T, Goto K, Hishinuma Y, Yachuda K, Sugioka Y, Arai K, et al. Uptake of 99mTc-tetrofosmin, ^{99m}Tc-MIBI and ^{201}Tl in malignant thymoma. Ann Nucl Med 2000;14 : 293-8.
7. Kim SJ, Kim IJ, Kim YK. Tc-99m MIBI, Tc-99m tetrofosmin, and Tc-99m (V) DMSA accumulation in recurrent malignant thymoma. Clin Nucl Med 2002;27 : 30-3.

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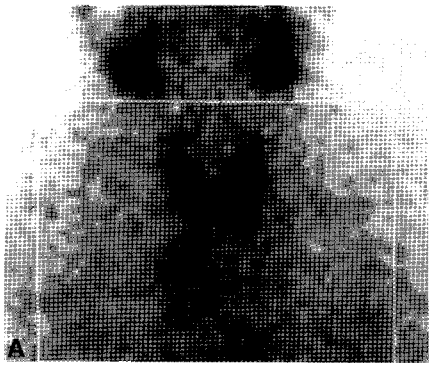
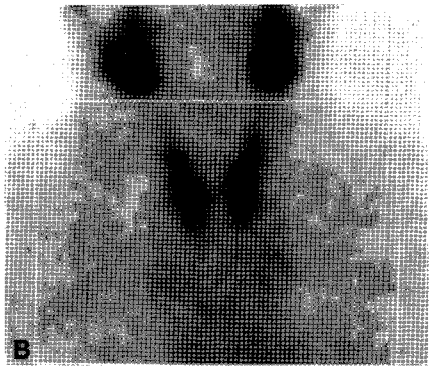
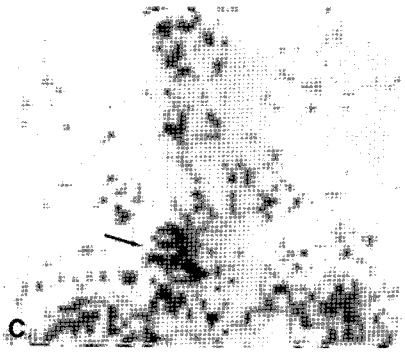


(A) The Tl-201 scintigraphy showed increased radioactivity in the inferior portion of right thyroid lobe.[1-4]



(B) Tc-99m pertechnate scintigraphy showed normal thyroid uptake.



(C) Subtraction of technetium from Tl-201 images showed increased radioactivity in same site (arrow) as shown on Tl-201 image.

Fig. 1. A 43-year-old woman was examined for palpable neck mass of 11 months' duration. Neck CT showed thyroid mass in the inferior portion of right thyroid lobe and two cervical lymph nodes. Neck exploration was done for the diagnosis of thyroid cancer with cervical lymphadenopathy. However, above mass was separated with thyroid. Biopsy of mass and lymph node showed metastatic carcinoma. Thymus or parathyroid was suggested as a primary origin of metastatic carcinoma. Tl-201/technetium subtraction scintigraphy and Tc-99m MIBI parathyroid scan were performed to determine the origin of metastatic carcinoma.

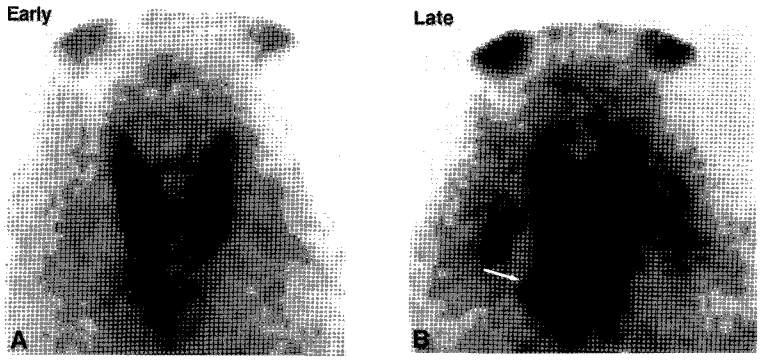


Fig 2. Tc-99m MIBI parathyroid scintigraphy was obtained 10 minutes and 2 hours after injection. (A) Early image shows normal thyroid and increased radioactivity in the inferior portion of right thyroid lobe. (B) Delay image shows persistent Tc-99m MIBI uptake in the same site (arrow) as shown on early image.[5-7] Thymic carcinoma was the final diagnosis.