Thyroid ‘hot’ carcinomas

G. De Rosa, A. Testa, V. Grieco, V. Fant, G.F. Fiore, A. De Rosa
Department of Internal Medicine, Sacred Heart Catholic University of Rome, Rome, Italy

Association of thyroid carcinoma and hyperthyroidism should be considered as a heterogeneous syndrome with three possible different combinations: (1) thyroid carcinoma coincides with a hypofunctioning area in a diffused or multinodular toxic goiter; (2) carcinoma coincides with independent hypofunctioning area, either adjacent or within an autonomous hyperfunctioning nodule; (3) carcinoma coincides with the hyperfunctioning nodule (hot carcinoma).

The present study suggests a cytological examination of long-standing solitary and recently increased hot nodules. Thyroid carcinoma typically appears as a hypofunctioning nodule, with a prevalence between 5% and 30% of all scintigraphically hypocaptant nodules. Malignant hyperfunctioning nodules are less common, representing 5% of isolated nodules.

Association between hyperthyroidism and thyroid carcinoma was considered exceptional in the past, being at the most reported the coexistence of little malignancies either in or adjacent to benign hyperfunctioning nodules. However, it has been reported that less than 1% of hot nodules may result in carcinomas. Somatic mutations in TSH-R gene have also been detected as the main cause of development of thyroid toxic adenoma.

As mentioned above, there are three possible different associations of thyroid carcinoma and hyperthyroidism. Basing on recent data from molecular biology, it can be supposed that when tumor coincides with the hyperfunctioning nodule (hot carcinoma), a series of progressive mutations—like in colon adenoma—might be able to turn thyroid toxic adenoma into carcinoma, most of all if the nodule has been present for a long time.

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Sentinel node map and biopsy in clinical staging of thyroid cancer

Istituto Oncologico Veneto (IOV), Padova, Italy

Background. – The clinical role of sentinel node biopsy (SNB) in thyroid cancer remains an open matter in literature. The main reason of this fact is that nodal disease is considered a non-relevant prognostic factor by some authors. Aim of this study was to investigate the efficacy of radiocolloid lymphoscintigraphy and the feasibility of hand held gamma probe procedure for SNB in patients (pts) with differentiated thyroid carcinoma (DTC).

Materials and patients. – Forty-one consecutive pts with a small thyroid nodule highly suspected for malignancy at FNAC and without clinical and ultrasonographic (US) evidence of lymph node involvement entered the study. All patients underwent lymphoscintigraphy 3 hours before intervention using a 99mTc-nanocolloid solution. One single intratumoral injection of 4–9 MBq in 0.1 ml normal saline was obtained under US guidance followed by a dynamic lymphoscintigraphy. After total thyroidectomy central and lateral compartments of the neck were scanned with an hand held gamma probe. The hottest node and any lymph node with a count rate of more than 10% of the hottest node were removed. SLNs were sent to immediate pathological analysis and a surgical enlargement of corresponding compartment was performed when at least one SLN was positive at histology.

Results. – Preoperative lymphoscintigraphy was able to identify one node in six cases, two nodes in five cases, three nodes in 14 cases, four or more nodes in 16 cases. A papillary carcinoma was diagnosed in 39 cases, a mixed papillary-medullary carcinoma in one case and a micro-follicular adenoma in one case. In 21/40 pts positive lymph nodes were found: in 16/21 pts one node only showed micrometastasis, in 5/21 pts more nodes were metastatic. In particular in 11 cases the first hottest node was involved (true SLN), in 10 cases a second or third hot lymph node was involved.

Conclusions. – In our preliminary experience lymphoscintigraphy with 99mTc-nanocolloid resulted highly sensitive: in fact at least one lymph node was visualized in all cases and the surgeon was able to detect by means of hand held probe during intervention at least one hot SLN in all cases. In 21/40 pts (more than 50% of cases) metastatic lymph nodes were found despite preoperative clinical and US examination negative for lymph node involvement. In prospective sentinel node technique can be proposed as a relevant tool in lymphadenectomy decision and then to avoid 131-I therapy in negative node patients with a small DTC tumor.

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