



Acute Thyroid Cancer

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Follicular thyroid cancer accounts for 15% of thyroid cancer and occurs more commonly in women over 50 years of age. Thyroglobulin (Tg) can be used as a tumor marker for well-differentiated follicular thyroid cancer. Thyroid follicular cells are the thyroid cells responsible for the production and secretion of thyroid hormones.

Approximately one-half of follicular thyroid carcinomas have mutations in the Ras subfamily of oncogenes, most notably HRAS, NRAS, and KRAS. Mutations in MINPP1 have likewise been observed, as well as germline PTEN gene mutations responsible for Cowden syndrome of which follicular thyroid cancer is a feature. Also, a chromosomal translocation specific for follicular thyroid carcinomas is one between paired box gene 8 (PAX-8), a gene important in thyroid development, and the gene encoding peroxisome proliferator-activated receptor γ 1 (PPAR γ 1), a nuclear hormone receptor contributing to terminal differentiation of cells.

Tumors tend carry either a RAS mutation or a PAX8-PPAR γ 1 fusion, and only rarely are both genetic abnormalities present in the same case. Thus, follicular thyroid carcinomas seem to arise by two distinct and virtually nonoverlapping molecular pathways. Hurthle cell thyroid cancer is often considered a variant of follicular cell carcinoma. Hurthle cell forms are more likely than follicular carcinomas to be bilateral and

multifocal and to metastasize to lymph nodes. Like follicular carcinoma, unilateral hemithyroidectomy is performed for non-invasive disease and total thyroidectomy for invasive disease.

It is impossible to distinguish between follicular adenoma and carcinoma on cytological grounds. If fine needle aspiration cytology (FNAC) suggests follicular neoplasm, thyroid lobectomy should be performed to establish the histopathological diagnosis. Some studies have shown that thyroglobulin (Tg) testing combined with neck ultrasound is more productive in finding disease recurrence than full- or whole-body scans (WBS) using radioactive iodine. However, current protocol (in the USA) suggests a small number of clean annual WBS are required before relying on Tg testing plus neck ultrasound.

whole body scans consist of withdrawal from thyroxine medication and/or injection of recombinant human Thyroid stimulating hormone (TSH). In both cases, a low iodine diet regimen must also be followed to optimize the takeup of the radioactive iodine dose. Low dose radioiodine of a few millicuries is administered. Full body nuclear medicine scan follows using a gamma camera. Scan doses of radioactive iodine may be I131 or I123.

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