

## **MEDICAL BREAKTHROUGHS** **RESEARCH SUMMARY**

TOPIC: RETEVMO FOR THYROID CANCER SAVES TANNER'S LIFE!

REPORT: **MB #4785**

**MEDULLARY THYROID CANCER:** Thyroid cancer is relatively uncommon compared to other cancers. In 2013, the last year for which statistics are available, over 630,000 patients were living with thyroid cancer in the U.S. Medullary Thyroid Cancer (MTC) accounts for 1% to 2% of thyroid cancers in the United States. It is different from other types of thyroid cancers because it originates from the parafollicular C cells of the thyroid gland. These cells do not make thyroid hormone but instead make a different hormone called calcitonin. MTC frequently spreads to lymph nodes and can also spread to other organs. It is likely to be inherited in 25% of diagnoses, and can be associated with other endocrine tumors, including Multiple Endocrine Neoplasia 2A and MEN 2B. Patients with an inherited form of MTC usually have a mutation in a gene called the RET proto-oncogene. This mutation is present in all the cells in their body and these mutations cause the development of MTC. However, in 75% of patients a germline mutation is not found which indicates that MTC is not an inherited condition. In these cases, MTC is called sporadic.

(Source: <https://www.thyroid.org/medullary-thyroid-cancer/>)

**DIAGNOSIS AND TRADITIONAL TREATMENT:** A diagnosis of thyroid cancer is usually made by a fine needle aspiration biopsy of a thyroid nodule, or after the nodule is surgically removed. Patients with the results of an FNA biopsy indicative of MTC should be further evaluated with measurement of the proteins calcitonin and carcinoembryonic antigen in the blood, which are typically elevated in patients with MTC. In inherited forms of medullary thyroid cancer, the growing C cells may form a bump or nodule in a portion of the thyroid gland. Patients may not be diagnosed with this form of cancer unless it has spread to the lymph nodes of the neck and there is a lump in the neck. Patients with sporadic medullary thyroid cancer, may form a bump or nodule in the thyroid that often sticks out of the side or front of the thyroid gland. Therefore, most medullary thyroid cancers are diagnosed after a doctor feels the neck of a patient, by ultrasound or x-ray of the thyroid gland. The primary treatment for medullary thyroid carcinoma is extensive surgical resection. In cases of metastasis, the approach depends on the severity and rate of progression of disease. Metastatic MTC can be treated with limited surgical resection, EBRT, or medical management with tyrosine kinase inhibitors (TKI) or other agents.

(Sources: <https://reference.medscape.com/article/282084-treatment>,  
<https://www.thyroid.org/medullary-thyroid-cancer/>,  
<https://www.endocrineweb.com/conditions/thyroid-cancer/thyroid-cancer-medullary-cancer>)

**NEW TREATMENT:** RETEVMO or selpercatinib, a RET specific TKI, received accelerated approval by the FDA in May 2020 for adults and children aged 12 years or older for advanced or metastatic RET MTC and who require systemic therapy. It is *the first approval of a therapy for cancer patients with the RET gene alterations*. Selpercatinib is a kinase inhibitor which helps prevent cancer cells from growing. Prior to beginning treatment, an RET gene mutation must be determined using laboratory testing. Doctor Peter Anderson, Pediatric Hematologist-Oncologist at the Cleveland Clinic said "This new drug is called RETEVMO or selpercatinib. Before that we had very non-specific treatments that would for example inhibit growth factors for new blood vessels. They were approved for other uses and had a lot of toxicity. So, it was a kind of a hard sell. But once this extremely specific RET inhibitor drug came out, we not only saw responses but with less toxicity too."

(Sources: <https://reference.medscape.com/article/282084-treatment>,  
<https://www.ajmc.com/view/fda-approves-selpercatinib-for-certain-nonsmall-cell-lung-thyroid-cancers> [https://www.retevmo.com/?gclid=Cj0KCQjws536BRDTARIsANeUZ58yGzvcAleCslkZ0LI\\_\\_1OcbV8J0FB2wTq7OmaFkNF3vFyN5APbHf4aAopzEALw\\_wcB](https://www.retevmo.com/?gclid=Cj0KCQjws536BRDTARIsANeUZ58yGzvcAleCslkZ0LI__1OcbV8J0FB2wTq7OmaFkNF3vFyN5APbHf4aAopzEALw_wcB))

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**If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at [mthomas@ivanhoe.com](mailto:mthomas@ivanhoe.com)**