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Clinical Thyroidology® for the Public

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

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Editor's Comments

Welcome to another issue of *Clinical Thyroidology for the Public*! In this journal, we will bring to you the most up-to-date, cutting edge thyroid research. We also provide even faster updates of late-breaking thyroid news through X (previously known as Twitter) at @thyroidfriends and on Facebook. Our goal is to provide patients with the tools to be the most informed thyroid patient in the waiting room. Also check out our friends in the **Alliance for Thyroid Patient Education**. The **Alliance** member groups consist of: the *American Thyroid Association®, Bite Me Cancer, the Graves' Disease and Thyroid Foundation, the Light of Life Foundation, MCT8 – AHDS Foundation, ThyCa: Thyroid Cancer Survivors' Association,* and *Thyroid Federation International.*

We invite all of you to join our **Friends of the ATA** community. It is for you that the American Thyroid Association® (ATA®) is dedicated to carrying out our mission of providing reliable thyroid information and resources, clinical practice guidelines for thyroid detection and treatments, resources for connecting you with other patients affected by thyroid conditions, and cutting edge thyroid research as we search for better diagnoses and treatment outcomes for thyroid disease and thyroid cancer. We thank all of the *Friends of the ATA* who support our mission and work throughout the year to support us. We invite you to help keep the ATA® mission strong by choosing to make a donation that suits you — it takes just one moment to give online at: www.thyroid.org/donate and all donations are put to good work. The ATA® is a 501(c)3 nonprofit organization and your gift is tax deductible.

October is Thyroid Nodule Awareness Month.

In this issue, the studies ask the following questions:

- Does my RET mutation put me at higher risk for medullary thyroid cancer?
- What is the right surgery for medullary thyroid cancer?
- Do the newer calcitonin assays result in a change in surgical decision-making in medullary thyroid carcinoma?
- Who really needs radioactive iodine therapy for thyroid cancer?
- How effective is microwave ablation for treating small, low-risk thyroid cancers?
- What are the risk factors associated with postoperative hypoparathyroidism?

We welcome your feedback and suggestions. Let us know what you want to see in this publication. I hope you find these summaries interesting and informative.

— Alan P. Farwell, MD

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MEDULLARY THYROID CANCER

Does my *RET* mutation put me at higher risk for medullary thyroid cancer?

BACKGROUND

Medullary thyroid cancer is a relatively rare type of thyroid cancer that often runs in families. Multiple endocrine neoplasia, type 2A (MEN 2A) is a hereditary syndrome that runs in families in which MTC is often seen in association with other endocrine tumors such as pheochromocytoma (a tumor of the adrenal glands) and hyperparathyroidism (elevated parathyroid hormone levels usually caused by tumors of the parathyroid glands). MEN 2A is associated with mutations in the *RET* cancer-associated gene, which is classically known to increase risk of MTC. MTC that does not run in families (know as sporadic MTC) is not associated with *RET* mutations.

With the increased availability of genetic testing, more patients without clinical indications are obtaining genetic analyses to determine their risk of developing cancer. Some of these individuals are found to have *RET* mutations. By contrast, there are patients who have clinical indications for genetic testing for other disorders such as type 1 diabetes or breast cancer which can help with diagnosis and/or prognosis. When data from symptomatic patients having a clinical indication to get genetic testing is applied to patients who do not have this indication, the risk of getting cancer might be overestimated.

The aim of the study is to compare the risk of developing and dying from MTC in patients who had clinical indications for the *RET* positive testing to the risk in patients when the *RET* mutation was found without a clinical indication on general screening.

THE FULL ARTICLE TITLE

West CE, et al. Medullary thyroid cancer risk and mortality in carriers of incidentally identified MEN2A RET variants. JAMA Netw Open 2025;8(6):e251793.

SUMMARY OF THE STUDY

The following three databases were used to study patients: UK Biobank, Geisinger My Code, and Exeter. The patients in these databases were analyzed to see if they have a *RET* mutation and MTC for 13.8 years until October 2022 for the UK Biobank and for 5 years until June 2023 for the Geisinger patients. The study was limited due to its reliance on the hospitals' electronic medical record system to detect MTC cases and to the inclusion of only adult patients, excluding pediatric patients.

In the UK Biobank database, 1 out of 2,500 patients had a *RET* mutation, yet 1.88% of the patients had MTC. The UK Biobank patients were estimated to have a risk of developing thyroid cancer of 2.2% by the age 75. Even though 166 out of the 169 *RET* mutation patient from the UK Biobank did not undergo a total thyroidectomy, the death risk by age 75 was only 6.1%, similar to 5.7% of non-*RET* mutated patients.

In the Geisinger group, 77 out of 122,640 patients had a *RET* mutation and 13% had MTC. The Geisinger patients' estimated risk of having thyroid cancer by age 75 was 19%. The higher incidence of thyroid cancer of the Geisinger group might be attributed to hospitalized patients being sicker than clinic patients and presenting with MEN2 syndrome. Even though none of the Geisinger patients underwent a total thyroidectomy, by age 75, the patients with the *RET* mutation had a risk of death of 11.6% compared to 13.6% of the patients without the mutation. By age 75, 95.7% of the Exeter patients with *RET* mutations found with clinical indications had developed MTC compared to 1.3% and 15.9% of the patients in the UK Biobank and Geisinger groups, respectively.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Among the approximate total of 500,000 patients studied, 1 out of the 2,000 patients were found to have a moderate risk *RET* mutations without an initial indication for the testing. The risk of these patients with the mutation having MTC is lower than that of patients with suspected

MEDULLARY THYROID CANCER, continued

MEN2 syndrome. Of the patients who had the mutation found without clinical indication, only 1.9-2.2% of them develop MTC by the age of 75.

Patients with the *RET* mutations found without a clinical indication should receive genetic counseling indicating that they do not have a higher risk of death, even without treatment compared to patients without the mutations. When providing genetic counseling, providers might choose to do surveillance of the thyroid gland instead of recommending a thyroid surgery to remove the gland completely in patients who were found to have a *RET* mutation without symptoms.

— Pinar Smith, MD

ATA THYROID BROCHURE LINKS

Thyroid Cancer (Medullary): https://www.thyroid.org/medullary-thyroid-cancer/

ABBREVIATIONS & DEFINITIONS

Medullary thyroid cancer: a relatively rare type of thyroid cancer that often runs in families. Medullary cancer arises from the C-cells in the thyroid.

Cancer-associated genes: these are genes that are normally expressed in cells. Cancer cells frequently have mutations in these genes. It is unclear whether mutations in these genes cause the cancer or are just associated with the cancer cells. The cancer-associated genes important in thyroid cancer are BRAF, RET/PTC, TERT and RAS.

***RET* mutations:** the *RET* gene is a cancer-associated gene. Mutations in the *RET* gene are associated with genetic syndromes, including MEN 2A and familial medullary thyroid cancer

Multiple endocrine neoplasia, type 2A (MEN 2A): A hereditary syndrome in which medullary thyroid cancer is often seen in association with other endocrine tumors such as pheochromocytoma (a tumor of the adrenal glands) and hyperparathyroidism (elevated parathyroid hormone levels usually caused by tumors of the parathyroid glands).

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THYROID CANCER

Choosing the right surgery for medullary thyroid cancer

BACKGROUND

Medullary thyroid cancer (MTC) is a rare form of cancer that can develop in the thyroid gland, a butterfly-shaped organ located in the front of the neck that regulates how the body uses energy (metabolism). Like all cancers, MTC can spread out of the thyroid gland to other parts of the body, a process called metastasis. When MTC does this, the first place it spreads to are the lymph nodes in the neck next to thyroid gland. If enough time passes without treatment, MTC may spread further, reaching more distant sites, such as the lungs or the liver. In general, the further a cancer spreads, the more dangerous it is.

Surgery is the most effective treatment for MTC, usually involving surgery to remove the thyroid (called a total thyroidectomy), and often the neighboring neck lymph nodes (called a neck dissection). There are two types of neck dissection: central neck dissection, which removes the lymph nodes in the front of the neck, immediately next to the thyroid gland, and lateral neck dissection, which removes the lymph nodes in the side of the neck, farther away from the thyroid gland. The possible risks associated with central and, in particular, lateral, neck dissections are greater than those associated with total thyroidectomy alone. These include risk of injury to nerves controlling muscles of the mouth and tongue, the vocal cords, the shoulder/neck and the diaphragm (a muscle involved in normal breathing). Because of these increased risks, knowing if a person diagnosed with MTC could avoid a neck dissection would be very useful in making the risk of surgery as low as possible.

The authors of this study were interested in knowing if blood testing before surgery and/or doing a thyroid biopsy during total thyroidectomy in people diagnosed with MTC might predict which of these patients need a neck dissection and which of them do not. This information would be very helpful, as this would allow a thyroid surgeon to avoid performing a neck dissection, and thus avoid the risks that come with neck dissection, in people who do not need lymph node removal during total thyroidectomy for MTC.

THE FULL ARTICLE TITLE

Niederle MB, et al. Tailored surgery for medullary thyroid cancer (MTC) based on pretherapeutic basal calcitonin and intraoperative diagnosis of desmoplastic stroma reaction: A proposal for a new surgical concept. Ann Surg Oncol 2025;32:4742–4753.

SUMMARY OF THE STUDY

For this study, the authors looked at the medical records of more than 300 people who had surgery for MTC. In particular, they collected two pieces of information in each case. First, before surgery, they evaluated the blood level of a hormone called calcitonin, which is made by MTC cells (the higher this level is, the higher the chances are that cancer cells have spread out of the thyroid). Second, the authors looked for evidence that the MTC removed in each case showed a particular pattern when evaluated by a pathologist using a microscope (a pattern called desmoplastic stroma reaction). The researchers wanted to see if these two factors were linked to whether the cancer had spread out of the thyroid to neighboring lymph nodes and also to how likely it was that the cancer would come back after surgery.

The authors found that people diagnosed with MTC for whom the blood calcitonin level was low prior to surgery were unlikely to have cancer spread to their neck lymph nodes and had excellent cure rates after surgery (98.2% were free of cancer following surgery). In addition, if the desmoplastic stroma reaction was not present, cancer was never found in the surrounding neck lymph nodes and 100% of these patients appeared to be cured after surgery. On the other hand, when the desmoplastic stroma reaction was present, about half of patients had cancer in their neck lymph nodes (51.1%). Moreover, high blood calcitonin levels were present for all people in whom cancer had spread to the neck lymph nodes in the sides of the neck.

THYROID CANCER, continued

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

These findings suggest that neck dissection at the time of total thyroidectomy for treatment of MTC may be avoided if the pre-surgery blood calcitonin levels are low and if the desmoplastic stroma reaction is not present. This approach would allow many patients diagnosed with MTC to avoid larger, riskier surgeries while still effectively treating their thyroid cancer.

— Gaby Cordero, MD, and Jason D. Prescott, MD PhD

ATA THYROID BROCHURE LINKS

Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/

Thyroid Cancer (Medullary): https://www.thyroid.org/medullary-thyroid-cancer/

ABBREVIATIONS & DEFINITIONS

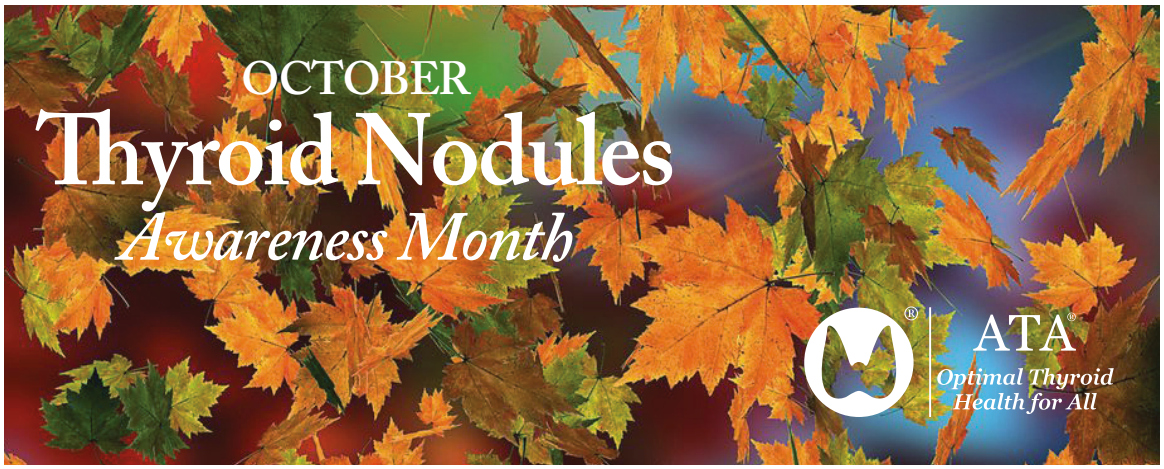
Medullary thyroid cancer (MTC): a relatively rare type of thyroid cancer that often runs in families. Medullary cancer arises from the C-cells in the thyroid.

Cancer metastasis: spread of cancer from the initial organ where it developed to other organs, such as the lungs and bone.

Lymph node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

Cancer recurrence: this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.

Calcitonin: a hormone that is secreted by cells in the thyroid (C-cells) that has a minor effect on blood calcium levels. Calcitonin levels are increased in patients with MTC.



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THYROID CANCER

Calcitonin assay variability and surgical decision-making in medullary thyroid carcinoma

BACKGROUND

Medullary thyroid cancer (MTC) is a rare type of thyroid cancer arising from C-cells in the thyroid, which produce and release into the bloodstream a hormone named calcitonin (CT). In MTC, blood CT levels correlate closely with the cancer size and spread outside the thyroid in the neck lymph nodes and other distant organs. Therefore, it can be used to guide the extent of the initial surgery. The 2015 American Thyroid Association (ATA) guidelines make recommendations that the extent of the initial thyroid surgery should be based on blood CT levels, as an indication of neck lymph node involvement. However, older CT assays, such as the immunoradiometric assay were in use at that time. At present, more sensitive assays, such as chemiluminescence or electrochemiluminescence immunoassays, are the standard for blood CT measurement.

The goal of this study is to update the blood CT cutoff values for predicting the extent of spread of the cancer to the neck lymph node using the newer CT assays and to help determine the best operation for patients with MTC.

THE FULL ARTICLE TITLE

Du Y, et al. Updated thresholds of basal calcitonin level and extent of lymph node metastasis in initially treated medullary thyroid cancer. JAMA Otolaryngol Head Neck Surg 2025;151(8):761-767; doi: 10.1001/jamaoto.2025.0542. PMID: 40569620.

SUMMARY OF THE STUDY

This multicenter study included 509 patients with newly diagnosed MTC without spread of the cancer outside of the neck who underwent initial surgical treatment at 13 Chinese hospitals between 2011 and 2024. All patients had a preoperative baseline blood CT test measured by the newer CT assays. The patients were categorized into 4 groups based on the extent of spread to the neck lymph nodes (lymph node metastasis, LNM): no LNM, LNM in the central neck, LMN in the lateral neck and LMN in the upper chest. All patients underwent central neck lymph node removal. LNM outside of the central neck was done only if abnormal nodes were noted before surgery. The main study outcome was recurrence-free survival, defined as the duration from initial surgery to the first recurrence of the cancer. The 509 study patients were randomly assigned to either the training group (used to establish the serum CT levels predictive of spread of the MTC outside of the neck, 339 patients) or the validation group (testing the new CT levels for surgery, 170 patients) groups.

Out of the 509 study patients, 55% were females. The average patient age was 50 years, and the average follow-up was 52 months. There was a positive correlation between blood CT levels and the extent of neck LNM, with average CT values of 212 pg/ml in the no spread group, 468 pg/ml in the LNM in the central neck group, 1748 pg/ml in the LNM in the lateral neck, and 4558 pg/ml in the LNM in the upper chest group. Using the training group, the CT thresholds to predict the extent of neck LNM were calculated as being 242 pg/ml for LNM in the central neck, 694 pg/ml for LNM in the lateral neck on 1 side, 2379 pg/ml for LNM in the lateral neck on both sides, and 2782 pg/ml for LNM in the upper chest. These new blood CT thresholds were superior compared to the thresholds used in the 2015 ATA guidelines to predict the extent of LNM in both the training and validation groups. The new CT thresholds were also superior in indicating the patients' prognosis measured as recurrence-free survival in the 4 LNM groups. The 5-year recurrence-free survival was 95% in the no LNM, 93% in the LNM in the lateral neck on one side, 84% in the LNM in the lateral neck on both sides, and 73% in the LMN in the upper chest.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The study provides updated calcitonin thresholds using modern assays to predict neck LNM extent and recurrence

THYROID CANCER, continued

risk in MTC. These thresholds can help decide the extent of initial surgery in MTC, and especially whether lateral neck dissection would be indicated. The results need to be validated in prospective studies in different populations.

— Alina Gavrila, MD, MMSC

ATA THYROID BROCHURE LINKS

Thyroid Cancer (Medullary): https://www.thyroid.org/medullary-thyroid-cancer/

ABBREVIATIONS & DEFINITIONS

Medullary thyroid cancer: a relatively rare type of thyroid cancer that often runs in families. Medullary cancer arises from the C-cells (parafollicular cells) in the thyroid.

Calcitonin: a hormone secreted by cells in the thyroid (C-cells) that has a minor effect on blood calcium levels. Calcitonin levels are increased in patients with medullary thyroid cancer.

Central neck compartment: the central portion of the neck between the hyoid bone above, and the sternum and collar bones below and laterally limited by the carotid arteries.

Lateral neck compartment: the lateral portion of the neck lying outside the carotid arteries. Ipsilateral: on the same side of the neck where the thyroid cancer grows. Contralateral: on the opposite side of the neck compared to the thyroid cancer location. Bilateral: on both sides of the neck.

Lymph node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

Cancer metastasis: spread of cancer from the initial organ where it developed to other organs, such as the lungs and bone.

Cancer recurrence: this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.

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THYROID CANCER

Who really needs radioactive iodine therapy for thyroid cancer? Insights from the IoN trial

BACKGROUND

Thyroid cancer is common and usually has an excellent prognosis. This is because we have very effective therapies, beginning with surgery. Radioactive iodine therapy is one of the treatment options available for the management of thyroid cancer following total thyroidectomy. Radioactive iodine works as a "magic bullet" as it is taken up and stored only by thyroid cells, both normal and cancerous, and destroys them. While in the past most patients were treated with radioactive iodine therapy, the more recent practice is to be selective when considering who would benefit from this treatment. This allows avoiding unnecessary exposure of patients to the side effects of radioactive iodine therapy, including radiation exposure and damage to the salivary glands leading to dry mouth. Prior studies have demonstrated that patients with thyroid cancer with a low risk of recurrence do not require routine treatment with radioactive iodine therapy. It is unclear, however, if patients with a slightly higher risk of recurrence (intermediate risk) should be routinely offered radioactive iodine therapy.

The IoN trial was designed to assess whether observation (i.e., not administering radioactive iodine therapy) provided similar outcomes compared to administering radioactive iodine therapy in patients with thyroid cancer with a low-to-intermediate risk of recurrence.

THE FULL ARTICLE TITLE

Mallick U, et al. Thyroidectomy with or without postoperative radioiodine for patients with low-risk differentiated thyroid cancer in the UK (IoN): a randomised, multicentre, non-inferiority trial. Lancet 2025;406(10498):52-62.doi: 10.1016/S0140-6736(25)00629-4. PMID: 40543520.

SUMMARY OF THE STUDY

The study was performed in 33 centers in the United Kingdom. Patients who had a diagnosis of papillary thyroid cancer (any size) or patients with minimally invasive follicular thyroid cancer (up to 4 cm) without extensive vascular invasion were recruited to participate. Patients had either no evidence of cancer spreading to the lymph nodes in the neck or spread limited to the lymph nodes in the central part of the neck around the thyroid gland. Patients were not included in the study if there was significant extrathyroidal extension (extension of the cancer beyond the margins of the thyroid gland), aggressive features on pathology, if surgery could not removal all visible cancer in the neck or if there was evidence of distant metastasis (spread of cancer to other parts of the body beyond the neck). Patients were randomly assigned to be treated with radioactive iodine therapy ("ablation group", most receiving ~30 mCi of I-131) or not be treated ("no ablation group") and were monitored with periodic blood tests (TSH, thyroglobulin) and neck ultrasound imaging.

A total of 251 patients were included in the no-ablation group (out of which 2 patients ended up getting radioactive iodine therapy) and 253 patients in the ablation group (out of which 22 patients decided not to have ablation) with an average follow up period of 6.7 years. There were no cancer-related deaths in either group. The 5-year recurrence free survival rates (no evidence of cancer coming back) were similar in both groups, 97.9% in the no ablation group versus 96.3% in the ablation group. Overall 8 patients had recurrences in the no ablation group and 9 in the ablation group.

In the total study population, having thyroglobulin levels above a threshold after surgery, cancers greater than 4 cm or the presence of metastatic nodes in the center of the neck were associated with a higher risk for recurrence. However, the study was not large enough to determine whether radioactive iodine therapy would be beneficial over no treatment in these sub-groups.

THYROID CANCER, continued

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In select patients with thyroid cancer with low-to-intermediate risk of recurrence, radioactive iodine therapy does not provide additional benefit over not treating. This study suggests that in patients with cancer that are less than 4 cm without any other high-risk features, radioactive iodine therapy does not have to be part of the routine therapy.

However, further research is required to assess certain low-intermediate risk subgroups such as cancers that are larger than 4 cm and when metastatic central neck nodes are present. In addition, factors that were not evaluated in the study, such as the molecular profile of the cancer, will need to be investigated further.

— Poorani Goundan, MD

ATA THYROID BROCHURE LINKS

Radioactive Iodine Therapy: https://www.thyroid.org/radioactive-iodine/

Thyroid Cancer (Papillary and Follicular): https://www.thyroid.org/thyroid-cancer/

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer: the most common type of thyroid cancer. There are different variants of papillary thyroid cancer.

Follicular thyroid cancer: the second most common type of thyroid cancer.

Total thyroidectomy: surgery to remove the entire thyroid gland.

Radioactive iodine (RAI): this plays a valuable role in diagnosing and treating thyroid problems since it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of thyroid cancer and with an overactive thyroid. I-123 is the non-destructive form that does not damage the thyroid and is used in scans to take pictures of the thyroid (*Thyroid Scan*) or to take pictures of the whole body to look for thyroid cancer (*Whole Body Scan*).

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THYROID CANCER

Microwave ablation versus surgery for low-risk papillary thyroid cancer: comparable long-term outcomes

BACKGROUND

Papillary thyroid cancer is the most common type of thyroid cancer. Overall, papillary thyroid cancer has an excellent prognosis, mainly due to very effective treatments. Initial treatment of small papillary thyroid cancers is usually surgery, which is often curative. Data from many studies have been used to separate papillary thyroid cancer into low, intermediate or high risk of cancer recurrence. These risk levels help guide treatment options. Small, low risk papillary thyroid cancer is common and usually follows a very slow-growing course with a low risk of spreading of the cancer outside of the thyroid gland. As such, these low-risk cancers are treated with surgery alone or active surveillance (following the cancer with ultrasound and deferring surgery until the cancer grows significantly).

The use of thermal ablation techniques has become an option for treating small benign thyroid nodules. These techniques use using heat delivered by a needle to destroy the thyroid nodule. There are 3 types of thermal ablation: radiowave-based heat (radiofrequency ablation, RFA), microwave-based heat (microwave ablation, MVA) and laser-based heat. Recently, studies reported the use of these thermal ablation techniques to treat small thyroid cancers. Long term comparison data with surgery has been limited.

In this study, the authors compared the long-term cancer outcomes and complications of MWA versus surgical resection (total thyroidectomy or lobectomy) in patients with small, low risk thyroid cancers.

THE FULL ARTICLE TITLE

Fei YL et al. Propensity-matched comparison of microwave ablation and surgical resection for pre-operative T1N0M0 papillary thyroid carcinoma: 5-year follow-up. Eur Radiol. Epub 2025 Aug 6.

SUMMARY OF THE STUDY

This single-center study followed patients with low risk papillary thyroid cancer treated with MWA or surgery between 2016 and 2019, with follow-up through August 2024. Patients with high-risk features, insufficient follow-up, and incomplete data were excluded. MWA was performed under ultrasound guidance, targeting the cancer and a surrounding safety margin. Surgical resection included lobectomy or total thyroidectomy according to cancer characteristics and patient preference. Primary end points were disease progression–free survival (DFS), defined as the time from treatment initiation to disease progression or death; thyroid recurrence–free survival (TRFS), defined as the time to local cancer progression, new cancer or death; and lymph node recurrence–free survival (LRFS), defined as the time to spread to the neck lymph nodes or death, and complication rates. Statistical analysis was used for subgroup comparisons of MWA versus total thyroidectomy (TT) or lobectomy (LT).

The outcomes of 464 patients (175 MWA patients versus 289 surgery patients) were compared after an average follow-up of 69 months. There was no significant difference in 5-year DFS (93.7% vs. 97.2%) or LRFS (98.3% vs. 98.6%) between the MWA and surgery groups. TRFS was slightly lower in the MWA group than in the TT group, but not significantly different from lobectomy. In the MWA group, complete cancer disappearance was observed on ultrasonography in 162 patients (92.6%) and was significantly lower in patients with multiple cancers rather than single cancers (69.6% vs. 96.1%). Local cancer recurrences were managed with repeat MWA, initial or repeat surgery, radioactive iodine, or active surveillance. No cases of distant metastasis were observed in either group during follow-up.

THYROID CANCER, continued

Procedural metrics significantly favored MWA: average operative time was shorter (32 vs. 90 minutes), incisions were smaller (0.2 vs. 7 cm), and average hospital stay was reduced (2 vs. 6 days). The surgery group had significantly more complications than the MWA group (26.6% vs. 6.9%), with a significantly higher rate of permanent hoarseness (2.8% vs. 0%).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that MWA achieved long-term cancer control comparable to that for surgery in low-risk papillary thyroid cancer, with fewer complications and faster recovery, supporting its role as a potential alternative in selected patients. This is an important treatment option for patients with low-risk papillary thyroid cancer to go along with the options of surgery and active surveillance.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Thyroid Cancer (Papillary and Follicular): https://www.thyroid.org/thyroid-cancer/

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer: the most common type of thyroid cancer. There are 4 variants of papillary thyroid cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).

Papillary microcarcinoma: a papillary thyroid cancer smaller than 1 cm in diameter.

Thermal ablation: using heat delivered by a needle to destroy abnormal tissue or lymph nodes containing cancer. There are 3 types of thermal ablation: radiowave-based heat (radiofrequency ablation, RFA), microwave-based heat (microwave ablation, MVA) and laser-based heat.

Microwave ablation (MWA): using microwave-based heat delivered by a needle to destroy abnormal tissue or lymph nodes containing cancer.

Thyroidectomy: surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a *total thyroidectomy*. When less is removed, such as in removal of a lobe, it is termed a *partial thyroidectomy*.

Lobectomy: surgery to remove one lobe of the thyroid.

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HYPOPARATHYROIDISM

Emergency room visits for hypoparathyroidism: learning from California's long-term data

BACKGROUND

The parathyroid glands are usually 4 glands that are located next to the thyroid, 2 on each side. The parathyroid glands regulate calcium levels in the blood by secreting parathyroid hormone (PTH). When calcium levels are low, PTH levels are high and pull calcium out of the bones and prevent calcium from going out in the urine. If the parathyroid glands do not work correctly (hypoparathyroidism), calcium levels are low and can lead to serious problems such as calcium muscle twitching or cramping, seizures and/or heart problems. Hypoparathyroidism can be caused by damage to the parathyroid glands during thyroid surgery, almost always associated with a total thyroidectomy (surgery to remove the entire thyroid gland).

Postoperative hypoparathyroidism can result from removal of the glands when removing the thyroid (as in thyroid cancer) or by affecting the blood flow to the glands or bruising the glands during surgery. Short-term hypoparathyroidism after surgery due to bruising of the glands is relatively common and usually resolves in 1-2 weeks after surgery. Permanent hypoparathyroidism is rare, associated with 1-2% of total thyroidectomies performed by experienced, high volume thyroid surgeons.

Most studies on postoperative hypoparathyroidism focused on short-term data, meaning less than 30 days after surgery. In this study, the authors analyzed the data of Emergency Department (ED) visits for postoperative hypoparathyroidism up to 2 years after surgery in California's large population-based cancer and hospital databases, with the goal to comprehend demographic, clinical, and surgical factors associated with these visits.

THE FULL ARTICLE TITLE

Woods AL, et al. Hypoparathyroidism After Total Thyroidectomy: A Population-Based Analysis of California Databases. J Surg Res 2025;310:268-274; doi: 10.1016/j.jss.2025.03.061. PMID: 40327904.

SUMMARY OF THE STUDY

Based on the data from the California Cancer Registry and Health Care Access and Information databases, the authors identified 41,502 patients who had total or near-total thyroid removal surgery for thyroid cancer between 2005 and 2016, with ED visits until 2018. This included patients who visited the ED with the diagnosis of hypoparathyroidism or hypocalcemia within two years of their thyroid surgery.

A total of 588 patients presented to the ED for hypoparathyroidism, with the average time from surgery of 4 days, and with 2/3 of the visits occurring in the first month after surgery. Significant differences were noted based on sex, age, race/ethnicity, socioeconomic status, and the number of lymph nodes removed. The patients with increased risk for ED visits were female sex, Hispanic ethnicity, and having more than 4 lymph nodes removed. In contrast, those in the highest levels of socioeconomic status had a lower incidence of ED visits. Surgeries done in a hospital not accredited by the American College of Surgeons Committee on Cancer had a higher incidence of ED visits for hypocalcemia, though the difference was not statistically significant. Younger patients, between ages 18 and 40, and those in the lowest socioeconomic levels had the highest risk for ED visits.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

ED visits for hypoparathyroidism post-thyroid surgery for thyroid cancer are not common, but they tend to occur mostly in the first month post-surgery. These data suggest that patients with risk factors (female, age 18-40, having >4 lymph nodes removed) or vulnerable groups (Hispanic, lower socioeconomic status) identified in the study should be monitored closely and managed earlier to avoid ED visits. Recognizing the symptoms early can potentially avoid ED visits with management as an outpatient visit, especially for those at risk for complications.

— Joanna Miragaya, MD

HYPOPARATHYROIDISM, continued

ATA THYROID BROCHURE LINKS

Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/

ABBREVIATIONS & DEFINITIONS

Parathyroid glands: usually four small glands located around the thyroid that secrete parathyroid hormone (PTH) which regulates the body's calcium levels.

Parathyroid hormone (PTH): the hormone that regulates the body's calcium levels. High levels of PTH cause hypercalcemia, or too much calcium in the blood. Low levels of PTH cause hypocalcemia, or too little calcium in the blood.

Hypoparathyroidism: low calcium levels due to decreased secretion of parathyroid hormone (PTH) from the parathyroid glands next to the thyroid. This can occur as a result of damage to the glands during thyroid surgery and usually resolves. This may also occur as a result of autoimmune destruction of the glands, in which case it is usually permanent.

Hypocalcemia: low calcium levels in the blood, a complication from thyroid surgery that is usually short-term and relatively easily treated with calcium pills. If left untreated, low calcium may be associated with muscle twitching or cramping and, if severe, can cause seizures and/or heart problems.

Thyroidectomy: surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a *total thyroidectomy*. When less is removed, such as in removal of a lobe, it is termed a *partial thyroidectomy*.

Total thyroidectomy: surgery to remove the entire thyroid gland.

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

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Clinical Thyroidology® for the Public

ATA® Alliance for Thyroid Patient Education

GOAL The goal of our organizations is to provide accurate and reliable information for patients about the diagnosis, evaluation and treatment of thyroid diseases. We look forward to future collaborations and continuing to work together toward the improvement of thyroid education and resources for patients.

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GRAVES' DISEASE & THYROID FOUNDATION

ThyCa: Thyroid Cancer Survivors' Association, Inc.
www.thyca.org

Light of Life Foundation
checkyourneck.com

MCT8 - AHDS Foundation

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Thyroid Federation International

American Thyroid Association®
www.thyroid.org
ATA® Patient Resources:
www.thyroid.org/thyroid-information/
Find a Thyroid Specialist: www.thyroid.org
(Toll-free): 1-800-THYROID
thyroid@thyroid.org

Bite Me Cancer
www.bitemecancer.org
info@bitemecancer.org

Graves' Disease and Thyroid Foundation
www.gdatf.org
(Toll-free): 877-643-3123
info@ngdf.org

Light of Life Foundation
www.checkyourneck.com
info@checkyourneck.com

MCT8 – AHDS Foundation
mct8.info
Contact@mct8.info

Thyca: Thyroid Cancer Survivors' Association, Inc.
www.thyca.org
(Toll-free): 877-588-7904
thyca@thyca.org

Thyroid Federation International
www.thyroid-federation.org
tfi@thyroid-federation.org

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