
The Inaugural Annual Meeting of the
North American Society for Interventional
Thyroidology



Omni Royal New Orleans Hotel
New Orleans, Louisiana
Saturday, March 11, 2023

Program Chair: Richard Harding, MD
Local Program Chair: Emad Kandil, MD

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Schedule-at-a-Glance

TIME	SESSION	ROOM
6:30AM	Registration	Foyer
7:30AM	Welcome	West Salon
7:45AM	Introduction to Radiofrequency Ablation Speakers: James Lim, MD Vinny Dhillon, MD Erivelto Volpi, MD	West Salon
8:15AM	Key Note Address “The Role of Molecular Profiling in Thermal Ablation of Thyroid Nodules” Speaker: Yuri Nikiforov, MD	West Salon
8:55AM	Pro & Con Debate: Thermal Ablation of Indeterminate Nodules Moderators: Steve Hodak, MD & Julia Noel MD Speakers: Emad Kandil, MD Jonathon O. Russell, MD	
9:25AM	Coffee Break	Foyer
9:30AM	Follow-up & Complications Moderators: Maria Papaleontiou, MD & Rich Harding, MD Speakers: Marius Stan, MD Gilles Russ, MD Chelsey Baldwin, MD Catherine Sinclair, MD	West Salon
10:30AM	Scientific Session Moderators: Sophie Dream, MD & Alan Reeves, MD	West Salon

Schedule-at-a-Glance

11:20AM	President's Address: Speaker: Jennifer H. Kuo, MD MS	West Salon
12:00PM	Lunch & Tech Expo Exhibitions: Taewoong RGS Healthcare Sonic Healthcare Eco Medical Ablavision	Center & East Salon
2:00PM	Interesting Cases Moderators: Gilles Russ, MD & Claire Graves, MD	West Salon
3:00PM	Coffee Break	Foyer
3:05PM	Evolving Indications for Thermal Ablation Moderators: Erivelto Volpi, MD & Chelsey Baldwin, MD Speakers: Leo Rangel, MD Mingbo Zhang, MD Michael Douek, MD Ralph Tufano, MD	West Salon
4:05PM	Practice Foundations Moderators: Yinin Hu, MD & Katie McManus, MD MS Speakers: Steven Hodak, MD Timothy Huber, MD Kepal Patel, MD	West Salon
5:15PM	NASIT Business Meeting	West Salon
7:00PM	Banquet Dinner Antoine's Restaurant 713 St. Louis Street New Orleans, Louisiana 701310	Antoine's

Sunday, March 12, 2023

Optional Hands-On RFA Course

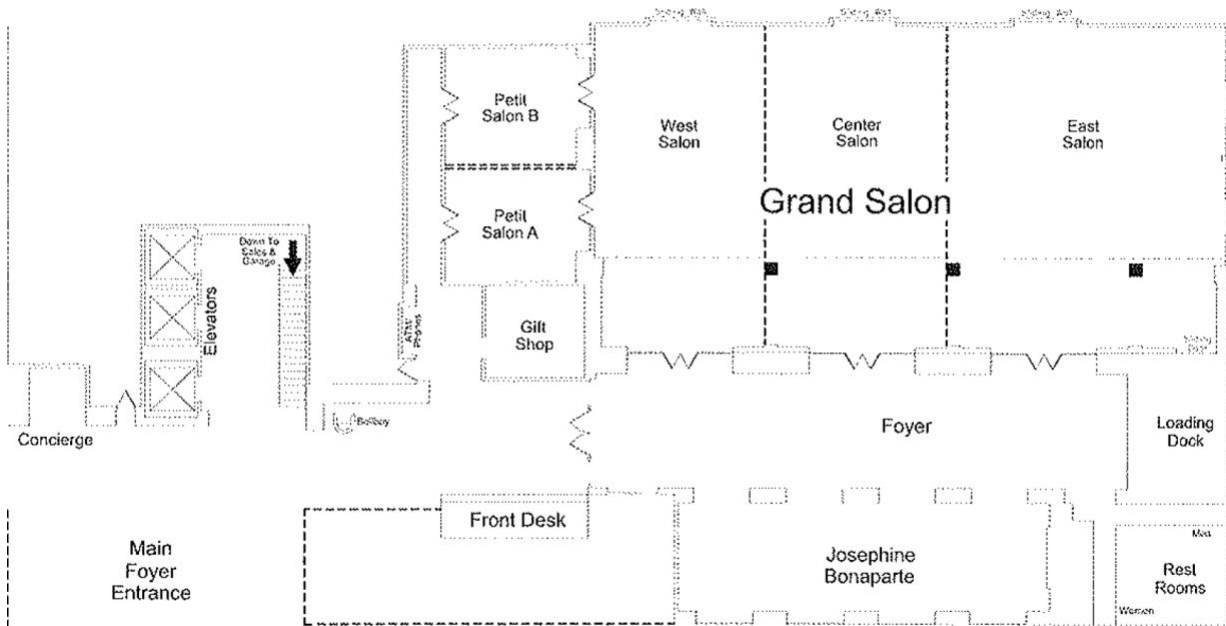
*Tulane
Medical Center*

7:00AM	Continental Breakfast	Foyer
8:00AM	Anatomical Considerations for RFA of thyroid nodules Speaker: Ralph Tufano, MD	Lecture Hall
8:20AM	Optimizing ultrasound images for RFA technology Speaker: Ralph Tufano, MD	Lecture Hall
8:45AM	Panel Discussion: Practice setup and How I do it Moderator: Emad Kandil, MD Panelists: Chelsey Baldwin, MD Claire E. Graves, MD Richard Harding, MD Kepal N. Patel, MD Jonathon O. Russell, MD	Lecture Hall
9:45AM	Coffee Break	Foyer
10:00AM	Hands-On Session Faculty: Chelsey Baldwin, MD Claire E. Graves, MD Richard Harding, MD Timothy Huber, MD Emad Kandil, MD Kepal N. Patel, MD Jonathon O. Russell, MD Ralph Tufano, MD	Tulane Hospital
12:00PM	End of Course	

Map – Omni Royal New Orleans Hotel



First Floor Grand Salon



Our Mission

The North American Society for Interventional Thyroidology (NASIT) was created to promote safe integration of ablative thyroid technologies into clinical practice and a collaborative environment that supports education and research efforts in interventional thyroidology.

NASIT is a multidisciplinary group of physicians interested in Interventional Thyroidology.

Our mission is two-fold:

1. To promote safe integration of ablative technologies into clinical practice
2. To promote a collaborative environment that supports education and research efforts in Interventional Thyroidology

Founding Members

Steven P. Hodak, MD

Timothy Huber, MD

Emad Kandil, MD

Jennifer H. Kuo, MD MS

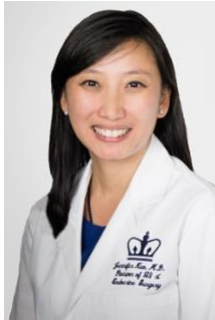
Kepal N. Patel, MD

Jonathon O. Russell, MD

Catherine F. Sinclair, MD

Ralph Tufano, MD

NASIT Officers & Executive Council



President

Jennifer H. Kuo, MD MS

Dr. Jennifer H. Kuo is a board-certified surgeon-scientist nationally recognized for her expertise in the surgical treatment of thyroid, parathyroid, and adrenal diseases. Dr. Kuo is an accomplished, high-volume surgeon in minimally invasive surgical techniques, including ultrasound-guided radiofrequency ablation, trans-oral thyroidectomy, and robotic adrenalectomy.



President-Elect

Steven P. Hodak, MD

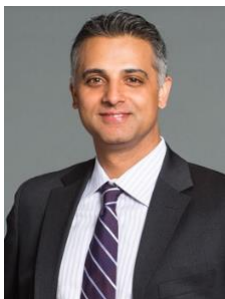
Dr. Steven P. Hodak, MD is an endocrinologist, interventional thyroid specialist, and Professor of Medicine and Endocrinology at NYU Langone Health in New York. He is an internationally recognized expert in thyroid molecular diagnostic testing as well as minimally invasive techniques like ethanol and radiofrequency ablation for treating thyroid cancer and thyroid nodules.



Secretary

Timothy Huber, MD

Dr. Timothy Huber is an Interventional Radiologist with Jefferson Radiology in Hartford, Connecticut. He specializes in interventional oncology and has worked extensively in the field of percutaneous ablation. He is a founding member of NASIT and has authored multiple papers and book chapters on thyroid RFA.



Treasurer

Kepal N. Patel, MD

Kepal N. Patel, M.D., is Vice Chair of the Department of Surgery and Chief of the Division of Endocrine Surgery at NYU Langone Health. He is the Director of the Thyroid Cancer Interdisciplinary Program and has particular expertise in the multidisciplinary treatment of Thyroid and Parathyroid disease along with other head and neck tumors.

NASIT Officers & Executive Council



Councilor

Jonathon O. Russell, MD

Dr. Jon Russell is an Associate Professor and the Director of the Division of Head and Neck Endocrine Surgery in the Johns Hopkins Department of Otolaryngology-Head and Neck Surgery. As such, he manages a broad range of thyroid and parathyroid surgical pathology and specializes in scarless transoral thyroidectomy, radiofrequency ablation of thyroid nodules, and parathyroidectomy



Councilor

Ralph Tufano, MD

After having served as the Charles W. Cummings MD Endowed Professor in the Department of Otolaryngology-Head and Neck Surgery at the Johns Hopkins University School of Medicine from 2012-2022, Dr. Tufano is now a Clinical Professor of Surgery at the Florida State University College of Medicine. He joined the Sarasota Memorial Health Care System in 2021 to direct the First Physicians Group Multidisciplinary Head and Neck Endocrine Center that consists of a dedicated Thyroid and Parathyroid Center and Head and Neck Cancer Center.



Councilor

Catherine F. Sinclair, MD

Dr. Catherine Sinclair is Associate Professor and has served as the Director of Division of Head and Neck Surgery, Mount Sinai West Hospital for the past decade. Dr. Sinclair is an internationally recognized expert in surgical management of neck endocrine diseases. She currently practices in Melbourne, Australia.

Committees

Education & Research Committee

2022:

Julia Noel MD, *Chair*

Yinin Hu MD, *Vice Chair*

2023:

Yinin Hu MD, *Chair*

IT Committee

2022:

Vaninder K Dhillon MD, *Chair*

Mary Beth Cunnane MD, *Vice Chair*

2023:

Vaninder K Dhillon MD, *Chair*

Mary Beth Cunnane MD, *Vice Chair*

Program Committee

2022:

Richard Harding MD, *Chair*

Emad Kandil MD, *Local Chair*

2023:

Richard Harding MD, *Chair*

Catherine McManus MD, *Vice Chair*

Ralph Tufano MD, *Local Chair*

Ethics Committee

2022:

Maria Papaleontiou MD, *Chair*

James Y. Lim MD, *Vice Chair*

2023:

Maria Papaleontiou MD, *Chair*

James Y. Lim MD, *Vice Chair*

Membership Committee

2022:

Chelsey Baldwin MD, *Chair*

Claire E. Graves MD, *Vice Chair*

2023:

Claire E. Graves MD, *Chair*

Key Note Speaker



Yuri Nikiforov, MD

Dr. Nikiforov is a Professor of Pathology and Director of the Division of Molecular Anatomic Pathology at the University of Pittsburgh School of Medicine. His clinical interests and expertise include the genetics and pathology of thyroid cancer. He has received international acclaim for his extensive research which includes the discovery of several novel types of chromosomal rearrangements and findings that have linked chromosomal rearrangements in thyroid cancer to exposure to ionizing radiation. These discoveries have been reported in journals including *Science*, *Journal of Clinical Investigations*, and *Proceedings of the National Academy of Sciences of the USA*.

Dr. Nikiforov's current research efforts focus on the identification of novel mutations in thyroid cancer using next-generation sequencing, and the application of current knowledge in molecular genetics of thyroid cancer to the clinical management of patients with thyroid nodules.

Dr. Nikiforov received his medical and doctoral degrees from the Minsk Medical Institute in Belarus. He completed his residency in anatomic pathology at the University of Cincinnati and postdoctoral fellowships in pathology and endocrinology at Brown University and Cedars-Sinai Medical Center.

He is an author of more than 120 peer-reviewed articles and more than 10 book chapters, and is a senior editor of the popular textbook "Diagnostic Pathology and Molecular Genetics of the Thyroid." He is an elected member of the American Society for Clinical Investigation and has received many honors, including the prestigious Van Meter Award from the American Thyroid Association.

Future Meetings

NASIT 2024

March 1-3

Sarasota, FL

Local Chair: Ralph Tufano, MD

NASIT 2025

March 7-9

Baltimore, MD

Local Chair: Jonathon Russell, MD

NASIT 2026

February

Melbourne, Australia

Local Chair: Catherine Sinclair, MD

2023 Program: Scientific Abstracts

Saturday, March 11 10:30-11:20am

Eliciting Health State Utilities for Papillary Thyroid Microcarcinoma Using Time Trade-Off: a Pilot Study **Kendyl Carlisle**, Justin Kim, Salome Ricci, Kashif Munif, Julia Slejko, C. Daniel Mullins, Yinin Hu

BACKGROUND: Papillary thyroid microcarcinomas (PTMC) are sub-centimeter differentiated thyroid cancers with excellent prognosis. Acceptable treatments include resection, active surveillance, and, more recently, radiofrequency ablation. Patient preferences and treatment value across these options are ill-defined. The objective of this study was to pilot a time trade off (TTO) instrument to elicit health utilities for PTMC treatment.

METHODS: Ten clinical vignettes summarizing four treatments and corresponding complications were created, representing: active surveillance (AS), radiofrequency ablation (RFA), thyroid lobectomy (TL) and total thyroidectomy (TT). An online TTO survey was created to estimate health state utilities. Participants included both thyroid cancer survivors (N=10) and healthy volunteers (N=8). Descriptive results are represented as median health state utility.

RESULTS: Average time to administer the TTO for 10 scenarios was 40 minutes among thyroid cancer survivors and 25 min among healthy volunteers. Treatment-related complications were consistently rated lower in utility than uncomplicated counterparts, signifying appropriate comprehension and validity. Median utilities of uncomplicated treatments were: RFA (0.99), TL (0.96), AS (0.96) and TT (0.95) among cancer survivors. Corresponding values among healthy volunteers were: RFA (0.99), TL (0.97), AS (0.98), TT (0.97). Due to pilot sample size, differences were not significant. The scenario with the lowest health state utility was total thyroidectomy with bilateral nerve injury (0.68 among cancer survivors, 0.85 among healthy volunteers).

CONCLUSION: Time trade-off can efficiently estimate health state utilities for PTMC via an online, proctored platform. Preliminary data suggests that radiofrequency ablation represents a promising patient-preferred alternative to surgical resection for PTMCs.

Post-Radiofrequency Ablation Thyroid Dysfunction and Novel Trends in Thyroid Function Tests

Madison C. Betcher, **Q. Lina Hu-Bianco**, Eric J. Kuo, Catherine McManus, Rachel Liou, James A. Lee, Jennifer H. Kuo

Objective

Thyroid nodules are common with an incidence of 50-60% in the general population, and the majority are benign. Although radiofrequency ablation (RFA) offers an effective and safe treatment for benign nodules, the incidence and course of post-operative thyroid dysfunction is not well known. This single institution

cross-sectional review analyzes post-RFA thyroid dysfunction.

Methods

An IRB-approved review of 150 patients with benign nodules who underwent RFA at New York Presbyterian Hospital from 2019-2022 was performed. Baseline thyroid function and antibody labs were assessed. Primary outcome was thyroid function tests, including thyroid antibodies, collected at 3-, 6-, and 12-months post-RFA. Patients with autonomously functioning thyroid nodules (AFTN) received 1-month post-operative labs.

Results

Post-RFA thyroid function was assessed in 124 patients with non-functioning thyroid nodules (NFTNs) and 26 patients with AFTNs. In patients with non-functioning nodules, TSH demonstrated transient elevation at 1-month post-RFA, then down-trended with normalization by 12-months. None of these patients had hypothyroid symptoms or required thyroid hormone. All patients with AFTNs were euthyroid at 1-month post-RFA, with continued gradual elevation in TSH up to 6-months. A small portion of patients developed post-RFA elevations in thyroid antibodies, 8% of patients with NFTNs and 7.7% of patients with AFTNs. In both cohorts, 50% of these patients had baseline thyroid abnormalities, including prior thyroid antibodies, and diagnosis or ultrasound evidence of Hashimoto's disease. Elevations in antibodies peak after TSH, but also largely return to baseline by 12-months.

Discussion/Conclusions

To our knowledge this represents the largest study in the United States evaluating thyroid dysfunction post-RFA. In our study, patients with NFTNs show an early rise in TSH at 1-month that slowly normalizes. In patients with AFTNs, normalization of TSH occurs within the first month and slowly increases until 6-months. Approximately 8% of all patients develop elevations in thyroid antibodies, 50% have known existing antibodies or diagnosis of Hashimoto's disease. Elevations in thyroid antibodies demonstrate a similar curve of resolution by 12-months. In summary, thyroid dysfunction is observed in patients post-RFA though it is largely subclinical. The long-term implications of this dysfunction are unknown and will need to be clarified by further studies.

Cell-specific ablation of porcine thyroid tissue using Nano-Pulse Stimulation technology: A feasibility study

Ralph Tufano, Jeffrey Litt, David Danitz, Kevin Moss, Holly Hartman, Mitchell Levinson, Richard J. Connolly, Gavin Setzen

Introduction: Non-surgical options like radiofrequency (RF) ablation have been used for the ablation of benign thyroid nodules but carry a risk of collateral damage to the recurrent laryngeal nerve, blood vessels and other critical structures. Nano-Pulse Stimulation™ (NPS™) technology is a non-thermal ablative modality which disrupts cellular organelles, inducing apoptotic-like regulated cell death (RCD), without causing collateral damage to noncellular collagen-rich tissues, nerves and vessels. This study for the first time demonstrates the effect of NPS on thyroid tissue as a proof of principle for the treatment of benign thyroid nodules.

Methods: NPS technology was utilized on the thyroid glands of four Yorkshire pigs using a microneedle electrode array inserted through a small incision in the neck and into one side of the thyroid lobe. Histological assessment of the treated tissue was performed at 0, 2, 8, and 30 days post treatment to determine the impact of NPS on the parenchymal and stromal portions of the gland.

Results: Intense Caspase-3 staining throughout the treatment zone at day 0 indicates NPS can initiate RCD in a spatially defined region. At 30 days, pronounced parenchymal loss is evident within the treatment zone with minimal inflammation, continued phagocytosis and collagen remodeling.

Discussion: This study provides proof of principle for the selective removal of thyroid parenchyma while sparing the surrounding stroma. NPS may be a useful, minimally invasive technique to treat benign thyroid nodules while sparing the surrounding normal thyroid tissue, and reducing risk of collateral damage to nerves and vessels.

Preliminary Brazilian experience in the treatment of Micro Papillary Thyroid Cancer with Radiofrequency Ablation

Volpi E, Rangel L, Steck H, Volpi L, Rahal Jr., A

The authors present their initial experience managing patients with Micropapillary Thyroid Cancer in Brazil. From January 2020 to December 2022, fourteen patients with Micropapillary Thyroid Cancer underwent Radiofrequency Ablation due to refusal or high-risk surgery. Nine patients were females, and five were male; the age varies from 18 to 38 y.o. The size of nodules ranges from 4 to 12 mm, and two patients had multifocal disease (2 foci). The most frequent complication was transient vocal fold palsy; all patients have their thyroid function preserved.

Radiofrequency Ablation for patients with recurrent papillary thyroid cancer in neck lymph nodes. Initial experience of three cases.

Erivelto Volpi, Rodrigo Gobbo Garcia, Leonardo Volpi, Antonio Rahal Jr.

The authors show their experience in treating patients with recurrence of papillary thyroid cancer in neck lymph nodes. From January to November 2021, three patients underwent radiofrequency ablation as an alternative to surgery to treat neck recurrence of papillary thyroid cancer. Two patients (female) have solitary lateral lymph node metastasis, and one patient (male) presented with two metastatic lymph nodes in the central compartment. All patients have at least one previous surgery, two refused new surgery, and one was a high-risk surgery patient. The authors discuss the pros and cons of the procedures.

2023 Program: Interesting Cases

Saturday, March 11 2:00-3:00 pm

Killian Jamieson Diverticulum mimicking a suspicious thyroid nodule.

Lorna Ogden, Ronald Fisher, Cristina Boccalandro

Background: Killian-Jamieson Diverticulum (KJD) is a rare disease of the cervical esophagus, often misidentified as thyroid nodules on ultrasonography (1-3) and encountered much less commonly than the better known Zenker's diverticulum (ZD).

Description of Case: A 62 yo female patient presented with an incidental thyroid nodule. The patient denied dysphagia, halitosis, or food regurgitation. Ultrasound identified a profoundly hypoechoic nodule with microcalcifications and hyperechoic halo measuring: 0.85 x 0.98 x 1.28 cm, volume: 0.51 mL, located on the left lobe and adjacent to the esophagus. Confused with a nodule, an FNA was performed with 27 and 23 G needles, yielding a mixture of benign mature squamous cells, rare follicular groups, and sheets of thyroid follicular cells, scant colloid, granular debris, bacilliform bacterial clusters, degenerated striated muscle and vegetable matter. Given the unexpected results, a second biopsy was done with identical results, without complications. CT of the neck with contrast confirmed a 1.3 x 1.3 x 2 cm structure connected to the left of the proximal esophagus extending anteriorly to the left thyroid lobe, at C7 level, filled with debris and air.

Discussion. Most cases of KJD are left-sided. When the opening is visible, it can be identified by ultrasound. Cytological results with squamous cells, granular or amorphous debris, bacterial and/or fungal colonies, inflammation, and food particles are characteristic (5). KJD can easily be mistaken for a thyroid nodule with worrisome features since they appear to have microcalcifications (4-6).

Recognizing this entity, could prevent iatrogenic esophageal perforation during invasive procedures. Sonographers should be aware of the potential for KJD before performing invasive procedures such as needle biopsy or Transesophageal procedures. When needed, surgery can be done with traditional techniques or minimally invasive approaches.

Ethanol Ablation of a Parathyroid Cyst

Q Lina Hu-Bianco, Eric J. Kuo, Catherine M. McManus, James A. Lee, Jennifer H. Kuo

Background:

The patient is a 41-year-old woman who was found to have a large 3.7 x 2.1 x 1.5 cm parathyroid cyst inferior to the right thyroid lobe. Her calcium and PTH levels were within normal limits, at 8.9 and 38.2, respectively.

Description of Case:

A superficial field cervical block was performed with infiltration of 5 mL of a 1:1 mixture of 1% lidocaine and 0.25% bupivacaine. The neck and upper chest were prepped and draped. Under ultrasound

guidance, an 18-gauge needle was inserted into the cyst crossing through the isthmus. Approximately 10 mL of crystal clear fluid was aspirated and sent to cytopathology for analysis. The cyst was thoroughly irrigated repeatedly with cold sterile saline and then irrigated with 100% ethanol twice until the fluid became cloudy. The cyst contents were aspirated completely, leaving 2 mL around the tip of the needle. The patient tolerated the procedure without any complications. She was seen at 3-month and 6-month for follow up and ultrasound at both intervals demonstrated complete sonographic disappearance of the parathyroid cyst. Her calcium and PTH levels were 9.5 and 27, respectively, at 6

months following the ablation.

Discussion:

Parathyroid cysts are rare and may be either functional or non-functional. Non-functional cyst may be treated with simple aspiration, ethanol ablation, or surgical excision. Here, we present a case of ethanol ablation of a non-functional parathyroid cyst with durable resolution.

Treatment of a giant intrathyroidal parathyroid with radiofrequency ablation (RFA) in a poor surgical Candidate

Dina Winograd, Ronald Fisher, Cristina Boccalandro

Introduction: Intrathyroidal parathyroid adenomas are uncommon (1-3) , but RFA for is effective and avoids lobectomy (4-8) Specially for intrathyroidal adenomas.

Case Report A 47 year old male was referred for hypercalcemia for over two years. He had fatigue and “brain fog”. His condition worsened when he had a ruptured brain aneurysm requiring surgery. total calcium was 12.6 mg/dl (8.6-10.3 mg/dL) and intact parathyroid hormone (iPTH) 149-190 pg/dl, (15-65 pg/mL). Cinacalcet was ineffective. Ultrasound showed: 1.92 x 1.30 x 2.29cm vol: 2.86 mL intrathyroidal left parathyroid. CT reported a 2.4 cm “left thyroid nodule”. PTH washout: 3161 pg/ml. Sestamibi scan was confirmatory . Given his recent surgery and deconditioning, he was a poor surgical candidate, so we proceeded to RFA

Technique: RFA was performed. Lidocaine 2% was used, and hydrodissection to protect surrounding tissue. Used an 18-gauge internally cooled electrode (RF medical) 7cm long/0.7-cm active tip, Mygen M-3004 generator (RF medical) and 30-40 W of power was performed. Moving shot technique was feasible for 16 mins, 9 secs. The area showed hyperechogenicity and blood flow was almost absent.

Results: Post ablation, symptoms improved. iPTH decreased to 80, and calcium from 13.3 to 10.6. The size of the parathyroid decreased by 43.2% from 2.86 mL to 1.62 mL, but by eight months, iPTH slowly increased to 140 but calcium remained and symptoms remained well controlled.

Conclusion: In this case of a giant adenoma (2.86 mL) treated with RFA, successfully achieved calcium and PTH control but over 8 months, PTH increased slowly, but the calcium remained in good control. We alleviated an urgent situation on a symptomatic patient who was otherwise a poor surgical candidate and would otherwise have undergone thyroid lobectomy**Thyroid Artery Embolization (TAE):**

Thyroid nodule rupture: A rare but important complication after RFA.

Michael Douek, Jho Anuran-Torres, Gary Tse, David Lu

Background: Nodule rupture after radiofrequency ablation (RFA) is an uncommon, but potentially severe complication. We present a case of nodule rupture after RFA of a thyroid nodule, eventually resulting in thyroid-cutaneous fistula and the need for surgical management.

Description of Case: A 46-year-old man with a history of a large, biopsy-proven benign (x 3), thyroid nodule presented for consideration of thyroid ablation. He had previously consulted multiple surgeons who had recommended thyroidectomy, but self-referred for consideration of RFA. Symptoms (score = 8/10) included large visible neck bulge, shortness of breath, an intermittent “strangling” sensation, dysphagia, and intermittent shoulder, neck, and ear pain. By ultrasound, the nodule was isoechoic and solid, with an estimated volume of 112 mL. A single RFA session was performed (18 gauge, 10 mm active tip electrode, with wattage up to 40W). The patient initially recovered well, but approximately two weeks post-ablation began experiencing pain and tenderness at the ablation site as well as neck

stiffness, fevers and chills. Ultrasound and CT examination demonstrated anterior focal herniation of thyroid parenchyma. Aspiration and culture yielded no evidence of infection. The patient was treated with antibiotics and steroids with initial improvement, but with subsequent eventual development of thyroid-cutaneous fistula, ultimately requiring surgical debridement with SCM flap reconstruction.

Discussion:

Nodule rupture has been reported to occur in 0.19 to 0.25% of cases and is the second most common major complication reported after thyroid RFA (second to injury of the recurrent laryngeal nerve). This complication is thought to occur as a result of delayed, post-procedural, intralesional hemorrhage, combined with ablation-related loss of capsular integrity. Patients typically present with sudden neck swelling, erythema, and pain, typically weeks or months (average 68.6 days) after ablation. Imaging features of new peri-thyroidal mass or fluid collection, in communication with the thyroid gland, have been reported. While many cases can be managed conservatively, other cases require interventions, such as aspiration, drainage, debridement, or lobectomy.

Unique Technical Considerations in Thyroid RFA Following Total Laryngectomy

Alexis L. Woods, Sima Naderi, Claire E. Graves

Background:

Radiofrequency ablation (RFA) is an emerging nonsurgical treatment for benign thyroid nodules, traditionally performed through a trans-isthmus approach to avoid the recurrent laryngeal nerve (RLN). We present a case with unique technical considerations to thyroid RFA.

Description of Case: A 77-year-old man with history of right supraglottic laryngeal squamous cell carcinoma status post radiation therapy and total laryngectomy in 2001, followed by cervical spinal osteomyelitis requiring anterior cervical discectomy and fusion (2008) presents with enlarging left thyroid nodules causing tracheal deviation, making insertion of his Lary tube difficult. He phonates via tracheoesophageal voice prosthesis (TEP), which has been complicated by per-fistular granulation tissue thought secondary to thyroid compression. Serial ultrasound and CT imaging demonstrate multiple enlarging left-sided mixed solid and cystic nodules, the largest 5.5 x 3.7 x 4.8cm, extending into the superior mediastinum with mass effect on the left internal jugular vein and deviation and narrowing of trachea and pharynx. Initial FNA biopsy (2018) demonstrated a small focus of atypical cells, but follow-up core biopsy (2018) and repeat FNA (2022) confirmed benign thyroid tissue. The patient is scheduled for RFA of his left thyroid nodules on 12/22/22.

Discussion:

There are unique technical considerations to performing RFA in a patient following total laryngectomy. Lack of a larynx eliminates risk of recurrent laryngeal nerve injury or need to avoid the “danger triangle,” though tracheal injury remains a concern. The standard trans-isthmus approach is made challenging due to stoma location. Additionally, the patient requires access to the stoma during the procedure for phonation. To address these challenges, we plan to prep the stoma in the field with betadine and employ a more oblique superior-to-inferior approach. The patient’s right hand will be sterilely gloved to allow intraprocedural access to his stoma.

An alternative to surgery and radiofrequency ablation for the treatment of large thyroid nodules?

Ravi Srinivasa, **Gary Tse**, Michael Douek

Background: A 70-year-old woman, clinically and biochemically euthyroid, with a history of symptomatic, biopsy-proven benign (x2), multinodular goiter, presented for consultation for nonsurgical

options for her condition. Owing to the large, bilateral, and multinodular nature of her goiter, thyroid artery embolization (TAE) was offered as an alternative to radiofrequency ablation (RFA).

Description of case: After pre-procedural workup, including neck CT angiography (CTA) with arterial vascular mapping, bilateral inferior thyroid arteries were embolized using 300-500 micron Embospheres without complication. Two weeks following the procedure the patient experienced significant size and symptom improvement.

Discussion: TAE was first described in the treatment of patients with hyperthyroidism. Investigators found not only improvements in hyperthyroidism, but also significant size reductions in treated nodules. More recently TAE has been applied to the treatment of non-functioning nodular goiter. A recent single center experience of 56 consecutive patients demonstrated a mean thyroid volume reduction from 147 to 62 mL (volume reduction ratio of 58%). 86% of patients with Graves disease became euthyroid after the procedure.

Conclusion: In conclusion, thyroid artery embolization may be a viable alternative to thyroidectomy, RFA, and RAI for patients with larger goiters, particularly those with intrathoracic extension and/or retrosternal components.

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The advertisement features two STARmed THYROID RFA probes. The probe on the left is white with a blue electrode and the STARmed logo. The probe on the right is white with a yellow electrode and a scale from 05 to 30. A world map composed of orange dots is centered in the background.



Soft Tissue Radiofrequency Ablation



What are the advantages of radiofrequency ablation vs surgery?

- **Increased likelihood of preservation of thyroid function.**
- **The potential of fewer complications.**
- **Generally shorter recovery time with a quick return to normal activities.**

Radiofrequency ablation is highly effective for benign thyroid nodules. Depending on the type of nodules, it can shrink anywhere between 60-90% after one year, with approximately 80% on average.

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North American Society for Interventional Thyroidology

North American Society for Interventional Thyroidology Annual Meeting

MARCH 11 - 12, 2023
NEW ORLEANS, UNITED STATES



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RF AND MW ABLATIONS
WITH THE
MOVING SHOT
TECHNIQUE

INTRODUCTION

Thyroid nodules are an extremely common occurrence. Until recently, international guidelines suggested either no treatment or surgery for patients with benign solid thyroid nodules, depending on their size, cytology, and symptoms.

Lately, several non-surgical, minimally invasive approaches for treating thyroid nodules have been developed and, nowadays, they provide a valid alternative to surgery for treating symptomatic benign thyroid nodules. These techniques include percutaneous ethanol injection therapy (PEIT), laser ablation therapy (LAT), and radiofrequency ablation (RFA) or microwave ablation (MWA).

Among these techniques, RFA seems to provide an optimal trade-off between several requirements, such as treatment efficacy, safety, adaptability to different clinical needs (e.g. recurrent cysts, mixed or solid benign thyroid nodules, hyperthyroidism), cosmetic compliance, intra-operative and post-operative pain management and cost-effectiveness.

However, the most recent technological advancements in MWA increased its safety to the same level of RFA treatments, but with a remarkably higher heating velocity, that proves beneficial when dealing with large, or hypervascularized, or cystic nodules.

INDICATIONS

- Presence of symptoms (neck pain, dysphagia, foreign body sensation, discomfort and cough)
- Cosmetic concerns
- AFTN (Autonomously Functioning Thyroid Nodules)
- Recurrent cancer (in pts. at high surgical risk or pts. who refuse repeated surgery)
- Therapeutic goal will be VOLUME Reduction

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