
Radiofrequency Ablation (RFA) of the Thyroid Gland

The management of thyroid nodules has changed dramatically in the last twenty years worldwide. With the introduction of fine needle biopsy over 40 years ago, we can characterize nodules as either benign, indeterminate, and potentially malignant with an in-office biopsy. A symptomatic nodule determined to be benign now can be treated with multiple options.

Of course, the most definitive option is surgery, which has the advantage of eliminating the entire nodule completely. The **downside of surgery**, however, is that the entire thyroid lobe is removed, including functional thyroid tissue, thus predisposing to hypothyroidism and a **lifetime of medication**. The hospital charges alone for this procedure are approximately \$30,000-\$40,000. This does not include the additional surgeon's, anesthesiologist's, and pathologist's charges. Long term costs for management of permanent hypothyroidism is also not factored in these charges. Although surgical risks for thyroidectomy are low, complications are frequent enough to increase the morbidity to the patient and create considerable cost for management and therapy. Most of the thyroid surgery in the United States is performed by low volume surgeons, who have a higher complication rate compared to high volume surgeons. Fortunately, nonoperative approaches are now available for which the complication rate for is easily one tenth or less than for open surgery.^{1,2}

Thyroid radiofrequency ablation (RFA) was introduced in Korea in 2002 and has become the most common mode of managing benign thyroid nodules throughout Asia, Europe, and the United Kingdom for the past decade. This treatment modality has become so common that entire sets of guidelines have been established and even updated. An International Multidisciplinary Consensus Statement of the Head and Neck Society states that radiofrequency ablation should now be recognized as the first modality of treatment if available.³

Radiofrequency Ablation of soft tissue received U.S. FDA clearance in late 2018 and has been slowly introduced to the endocrine, surgical, and head and neck community of physicians. This intervention requires a water-cooled RF probe which can be specifically directed to the vascular margins of the target nodule. The water-cooled RF probe focused energy safely and effectively destroys the abnormal tissue and vascular supply. The equipment is expensive, and the length of the procedure takes much longer than laser thermal ablation. With the laser treatment, a laser fiber is introduced in the middle of the nodule and the heat dissipates radially.

*The studies comparing the two treatments document the **superiority of RFA over laser** in terms of better outcomes. The nodules decrease more in volume with RFA and the requirement for secondary procedures is only*

5% as compared to 10% seen with laser. This superiority of RFA has been documented in multiple studies including the 12-month Randomized (LARA II Study) Trial.⁴

The significant difference in the procedure regarding skill required, time of the procedure, cost of the equipment, and effectiveness of therapy, makes applying the Category III CPT code assigned for Laser ablation of thyroid nodules inappropriate. **RFA thyroid nodules are equivalent to interventions performed by an interventional radiologist for RF Ablation of liver and renal tumors.**

These procedures require image guided complete thermal ablation of solid tumors in other complex areas of the body. The procedure codes for these procedures are

- 47382 which has a work RVU assignment of 14.9, and
- 50592 which has a work RVU of 6.55.

Hospital charges for these procedures range from \$45,000 to \$25,000 respectively.

The indications for thyroid RFA are the same as for thyroid surgery. Visual deformity and compressive symptoms (such as foreign body sensation, pressure, dysphagia, hoarseness, and choking sensation) are relieved within weeks of RFA as the ablated nodule shrinks in volume.

Additionally, RFA thyroid has completely changed the management of autonomous thyroid nodules. No longer is costly radioactive iodine exposure necessary. Radioactive iodine not only destroys the specific lesion, but also the adjacent healthy thyroid tissue, more often rendering the recipient hypothyroid. The surgical option of thyroid lobectomy requires removal of healthy thyroid tissue around the toxic nodule. **With RFA thyroid nodules, only the abnormal tissue is treated**, thus allowing for prompt restoration of normal thyroid function.

With the success of RFA in treatment of autonomous thyroid nodules, those of us in the Thyroidology community envision a change in the upcoming guidelines to consider RFA thyroid as the first line of therapy for this disease process.

Each of the following, recent references refer to decades of articles of successful RFA well recognized and accepted in World literature. Where noted, the full article can be downloaded from the Thyroid Nodule Treatment Center website.

References

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