



## THYROID NODULES

# Laser ablation therapy is effective for shrinking benign thyroid nodules but has significant complications

### BACKGROUND

Thyroid nodules are the most common endocrine disorder. Nodules are evaluated for thyroid cancer with a biopsy and those containing cancer or suspicious for cancer are removed by surgery. Benign nodules are usually not removed unless they grow over time or cause symptoms such as difficulty swallowing or choking. Laser ablation therapy for benign thyroid nodules is a relatively new, non-surgical procedure. The method has been used previously for treatment of thyroid cysts and for the destruction of lymph nodes with thyroid cancer. This study aimed to determine if laser ablation for benign thyroid nodules was effective, well tolerated and if complications occurred.

### THE FULL ARTICLE TITLE:

Pacella CM et al Outcomes and risk factors for complications of laser ablation for thyroid nodules. a multicenter study on 1531 patients. *J Clin Endocrinol Metab.* August 14, 2015 [Epub ahead of print].

### SUMMARY OF THE STUDY

Researchers reviewed the records of patients at 8 Italian referral centers who had this procedure from January 2004 to December 2013. The laser ablation therapy was performed by endocrinologists, interventional radiologists, or a surgeon, depending on the center. All institutions had at least 2 years of experience with laser ablation and did more than 20 procedures per year.

A needle was inserted into the target thyroid nodule under ultrasound guidance. Laser treatments were performed through the needle and the amount of energy delivered was based on the size of the nodule. Patients were evaluated immediately after the procedure, one month after the procedure and again at 12 months. Symptoms were evaluated by using a questionnaire. The nodule was evaluated by inspection. If patients had voice changes, they underwent fiberoptic laryngoscopy to see the vocal cords.

The study included 1531 patients who underwent laser ablation for 1534 nodules. A total of 83% of the nodules

were treated with a single session of laser ablation, 13% required two sessions and 3% required 3 sessions. The average reduction in nodule volume at 12 months was 72%. There were no changes in thyroid function at 12 months. Local symptoms attributed to the nodules generally improved, as did the cosmetic appearance.

There were 17 complications, 8 major and 9 minor; none were life-threatening. A total of 8 patients had voice changes immediately after the session and laryngoscopy showed the vocal-cords not working correctly. All were treated with steroids and recovered completely. The minor complications included bruising and skin burns. About 30% of patients experienced pain, often radiating to the jaw or shoulder that disappeared when the laser was turned off. Persistent moderate or severe pain was reported in about 2%; this disappeared within 3 days. A total of 12 patients (0.7%) fainted and 141 patients (3.3%) had fever that lasted up to 3 days.

According to this study, laser ablation therapy of benign nodules is effective, reproducible, and generally well tolerated and has a low risk of major complications.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This is an interesting technique that is not widely used in the United States. It is important that the centers reporting their data all had at least 2 years of experience with the procedure, which probably contributed to the low number of complications reported. The major complication was temporary vocal-cord paralysis in almost 1% of patients. Also 1 in 3 patients experienced pain with the procedure. Depending on the cost associated with the technique and whether it is easy for physicians to perform, this could potentially become a more common treatment option for benign thyroid nodules.

— Ronald B. Kuppersmith, MD, FACS

### ATA THYROID BROCHURE LINKS

Thyroid Nodules: <http://www.thyroid.org/thyroid-nodules/>



**THYROID NODULES**, continued

**ABBREVIATIONS & DEFINITIONS**

**Thyroid nodule:** an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (Benign), ~5% are cancerous.

**Thyroid Ultrasound:** a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

**Laser ablation therapy:** a procedure where laser treatments are performed through a needle inserted into a thyroid nodule.

**Fiberoptic laryngoscopy:** a procedure where a fiberoptic tube is inserted into the throat to see the vocal cords.