

Interstitial Laser Photocoagulation Provides Effective Therapy for Thyroid Cysts

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Døssing H, Bennedbæk FN, Hegedüs L. Interstitial laser photocoagulation (ILP) of benign cystic thyroid nodules—a prospective randomized trial. J Clin Endocrinol Metab 2013;98:E1213-7 [Epub June 18, 2013].

SUMMARY • • • • • • • • •

Background

Thyroid cysts are common. Although a cyst may harbor a papillary thyroid cancer in its wall, this is relatively rare. The main problems that cysts cause are a feeling of pressure in the neck and cosmetic symptoms. Aspiration of cysts is usually successful in reducing their size and relieving acute symptoms, but there is frequent recurrence to the original size. Eventually, surgical removal of the cyst, often accompanied by lobectomy, is required, even though the cyst is benign. The current study compares treatment of cysts by aspiration alone versus interstitial laser photocoagulation (ILP).

Methods

Forty-four euthyroid patients (30 women and 14 men, median age, 49 years) had palpable, symptomatic, cystic thyroid nodules that were cytologically classified as benign. The patients were randomly assigned to one of the two treatment groups. They were studied at baseline and 1, 3, and 6 months after the treatment by ultrasonographic measurements of cyst volume as well as of the solid part of the nodule, and by patients' self-report of symptoms.

Under lidocaine anesthesia, the cyst was aspirated through an 18-gauge needle containing a 0.4-mm laser fiber. Then the laser fiber was positioned in order to induce necrosis and destroy the cyst membrane and the solid part of the nodule using a power of 2 to 3 watts.

Results

Pure cysts were found in 8 of the 22 patients in the aspiration group and in 9 of the 22 in the ILP

group. The other patients had mixed cystic and solid lesions, but the cysts were the dominant portion of the nodules. The median total nodule volume was 10.0 ml in the aspiration group and 11.8 ml in the ILP group. In the ILP group, remission of the cystic part (<1 ml remaining) occurred in 15 of 22 patients (68%), as compared with 4 of 22 (18%) treated with aspiration alone (P<0.002), at the 6-month evaluation. The reduction of the cystic component was 94% in the ILP group and 32% in the aspiration group (P<0.007). There was a reduction in the solid component in 54% of the ILP group (2.5 ml reduced to 1.0 ml), but no reduction in the aspiration group (2.6 ml increased to 3.0 ml).

The duration of the ILP treatment was 600 seconds. As a consequence of the procedure, 11 patients in the ILP group reported slight to moderate pain that lasted about 2 days, necessitating mild analgesics in 8 patients. There were no laryngeal-nerve injuries. At the 6-month evaluation, there was relief of symptoms in the ILP group but not in the aspiration group.

A total of 10 patients in the aspiration group who had recurrence of their cyst were subsequently cured by ILP. Eventually, 9 patients with persistent cysts had thyroid surgery and were found to have benign histology.

Conclusions

Interstitial laser photocoagulation significantly reduces the recurrence rate of thyroid cysts and the volume of the solid nodule component; it also relieves pressure symptoms. This procedure constitutes an important alternative to surgery.

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ANALYSIS AND COMMENTARY • • • • •

The current study is a randomized, controlled trial of this innovative procedure previously reported by this outstanding Danish group (1). They also reported that ILP could be used to treat benign solid nodules (2), and others showed that it was effective therapy for cervical nodal recurrence of papillary thyroid cancer (3), reviewed recently in Clinical Thyroidology (4). The authors have reported similar results

with the treatment of thyroid cysts by ethanol (5), but prefer the ILP procedure because seepage of ethanol outside the capsule may cause pronounced pain or more serious side effects, such as paresis of the vocal cords or extraglandular fibrosis.

The main disadvantage of ILP is that it requires a highly trained and skillful operator. The procedure is beyond the expertise of clinical endocrinologists in the United States.

References

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