



# Re: Additional treatment of recurrent or regrowing cystic thyroid nodules after ethanol ablation

## ULTRASONOGRAPHY

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### LETTER

<https://doi.org/10.14366/usg.21024>  
pISSN: 2288-5919 • eISSN: 2288-5943  
Ultrasonography 2021;40:619-620

We have read the letter regarding our recently published article in *Ultrasonography* and herein provide our responses.

The first question enquires about our reasons for performing additional treatment in cases where a solid component with vascularity is found at a 1-month follow up. We consider that one of the most challenging aspects of managing lesions is judging whether additional treatment is needed when solidity and vascularity are observed. As stated in the article, we suggest performing fine-needle aspiration or core needle biopsy to re-confirm that the nodule is still benign in cases showing vascularity and solidity. If a nodule is still benign without any symptoms, we suggest that it should be left alone. One item that we consider important, but was not discussed in the article, is the serum thyroid hormone level. As the goal for ethanol ablation (EA) of an autonomously-functioning thyroid nodule is to normalize thyroid hormone levels, rather than just to decrease the volume, monitoring thyroid function is sometimes required to decide upon additional treatment [1]. Even so, providing information about the possibility of additional treatment to the patient could be important for patient management, to prevent unnecessary concern about the lesion and harm to the patient-physician relationship.

Regarding the second question, "whether to provide additional treatment if the symptoms improve, even if the 1-month volume reduction ratio is less than 50%," we would like to answer that we consider we would wait without repeated treatment, as long as the nodule is benign and does not show vascularity or solidity. EA is known to be effective for treating cystic thyroid nodules, and shows good treatment results in long-term follow up. Del Prete et al. [2] reported that only 6.5% (6 of 92) of patients had a recurrent nodule at a 9-year follow-up after EA of cystic thyroid nodules. EA resulted in a 50% volume reduction in 94% of patients. Moreover, all patients showed a significant improvement in cyst-related symptoms because of the reduction in cyst volume. In another study from Korea that followed-up EA-treated predominantly cystic nodules for 55 months, the recurrence rate was 18.7% (20 of 107) at a 1-month follow-up, and the delayed recurrence rate was 24.1% (21 of 87) [3]. The major concerns are again the symptoms of the patient and the exclusion of atypical nodule behavior. Provided the patient is clinically stable without symptoms and the repeated pathologic result is benign, we think that it is reasonable to defer the decision for additional treatment and continue with follow-up.

Lastly, your comment stating that the term "recurrence" is used to suggest the failure of treatment or insufficient volume reduction in previous studies makes sense, but we consider it quite reasonable to use the term "recurrence" as we defined below, because when we perform EA, we completely

Received: February 3, 2021  
Revised: February 3, 2021  
Accepted: February 14, 2021

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Ultrasound in Medicine (KSUM)



#### How to cite this article:

Yim Y, Baek JH. Re: Additional treatment of recurrent or regrowing cystic thyroid nodules after ethanol ablation. *Ultrasonography*. 2021 Oct;40(4):619-620.

aspirate the cystic component of the nodule and inject ethanol to ensure that the nodule shows almost no residual cystic component in the immediate post-treatment state. We defined recurrent thyroid nodules according to three previously suggested criteria: (1) nodules with a fluid component  $\geq 1$  mL, (2) shrinkage of  $\leq 50\%$  of the initial nodule volume, and (3) demonstration of a solid component with vascularity. We defined therapeutic success based on the last follow-up result as a volume reduction  $> 50\%$ .

It remains a challenge to decide whether to perform additional treatment or follow-up in the management of cystic thyroid nodules. A comprehensive approach with evaluation of symptoms, nodule morphology, and pathologic results is required to avoid unnecessary additional treatment. We expect that further investigations will help to achieve better patient care.

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### Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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