Ethanol ablation of benign thyroid nodules: experience of a tertiary referral centre

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Objective

To evaluate the safety and efficacy of ethanol ablation (EA) of benign thyroid nodules in Queen Elizabeth Hospital.

Technique

Under local anaesthesia, ultrasound-guided aspiration of the cystic thyroid nodule is first performed.

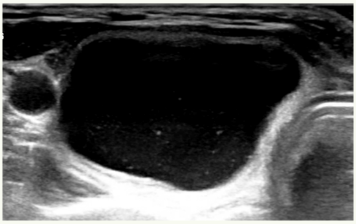

Fig 1. Pre-EA image of a cystic thyroid nodule

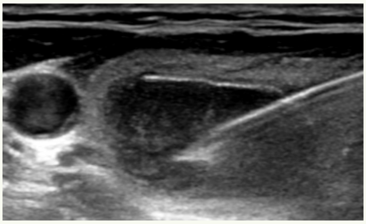

Fig 2. Shrinkage of the cystic nodule during aspiration

Absolute ethanol is then injected into the cystic cavity.
After 2 minutes, the injected ethanol is aspirated.

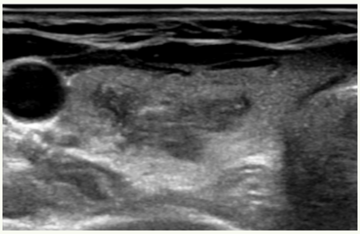

Fig 3. Image immediately post-EA showing complete collapse of the cystic nodule

Materials and Method

This is a retrospective single-centre study of 35 patients who underwent EA of 38 FNAC-confirmed benign thyroid nodules between September 2020 and March 2025.

Reduction in volume of thyroid nodules measured by sonography, cosmetic and symptomatic improvement documented at clinic follow-up, and complications following ablation were assessed.

Ellipsoid volume of a thyroid nodule was calculated using the following formula [1]:

Volume (ml) = [width in cm
x depth (anteroposterior) in cm
x length (craniocaudal) in cm] x 0.525

Volume reduction percentage was calculated by:

(Baseline volume – Post EA volume) /
Baseline volume x 100%

Wilcoxon signed rank test was applied to compare the pre- and post-EA thyroid nodule volume changes.

Results

Efficacy:

22 of the 38 thyroid nodules were included.
16 nodules were excluded. These cases were excluded either because patients have been scheduled for sonography 1 year post-EA but not yet attended, or their measurement records were incomplete.

Median follow-up period: 365.5 days

- Significant volume reduction of nodules was achieved, with a median shrinkage of 76% ($P < 0.001$)
- 18 out of 20 patients (90%) reported subjective shrinkage of nodules, while 2 of the patients (10%) reported symptom relief

Safety:

35 patients with a total of 38 nodules were studied.

1 case reported hoarseness after procedure during clinic follow-up on day 29 post-EA. Patient's voice recovered around 3 months post-ablation.
No complication is observed otherwise.

Conclusion

Ethanol ablation is a safe and efficacious treatment for predominantly cystic benign thyroid nodules. Such technique should be considered as an alternative for patients who cannot or do not wish to undergo surgery for predominantly cystic benign thyroid nodules.

Reference

1. Hussain I, Zulfiqar F, Li X, Ahmad S, Aljammal J. Safety and Efficacy of Radiofrequency Ablation of Thyroid Nodules-Expanding Treatment Options in the United States. *J Endocr Soc*. 2021;5(8):bvab110. Published 2021 Jun 10. doi:10.1210/jendso/bvab110