



Inquiries Regarding “Delayed Cancer Diagnosis in Thyroid Nodules Initially Treated as Benign With Radiofrequency Ablation: Ultrasound Characteristics and Predictors for Cancer”

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We recently read an intriguing paper in your journal titled “Delayed cancer diagnosis in thyroid nodules initially treated as benign with radiofrequency ablation: ultrasound characteristics and predictors for cancer” [1]. In the study, the authors discussed the treatment of 148 benign symptomatic nodules using radiofrequency ablation (RFA). Subsequently, 22 nodules were surgically removed; of these, seven nodules that were postoperatively considered malignant were subsequently identified as follicular neoplasms during regrowth using core needle biopsy (CNB). The authors concluded that regrowth during long-term follow-up or suboptimal response during short-term

follow-up after RFA should raise concerns about potential malignancies. This finding is quite remarkable and must be considered when revising the concerned guidelines, as proposed by the authors.

We wish to put forth three inquiries for the authors. First, nodules that were considered benign following two rounds of fine-needle aspiration or CNB were subsequently identified as follicular neoplasms in the CNB conducted after RFA. In such cases, what factors may have contributed to the benign diagnoses initially? Can this observation be attributed to potential false negatives, including intra- or inter-observer variability; variations in application of histopathological criteria (i.e., Bethesda classification); or changes induced in the nodules following RFA? Furthermore, undertreatment can result in progression to malignancy over time [2]. What are the thoughts of the authors on these possibilities?

Second, the authors suggested that a revision of the guidelines is necessary, and we agree. We would like to know if the authors have any specific recommendations. Indications for RFA include parameters, such as nodule size, ultrasonography findings, and histological results; of these, which parameter(s) do the authors believe should be revised [3]? How do we differentiate between surgical indications versus indications for additional RFA when regrowth is detected [4]?

Third, the authors mentioned malignant potential in cases of suboptimal volume reduction (generally < 50%). However, the reasons for suboptimal reduction may include the operator’s skill, pain during RFA, and location of the nodule (i.e., exophytic location). For example, inadequate ablation by an inexperienced operator invariably results in suboptimal reduction. Therefore, we agree that suboptimal reduction may indicate malignant potential; nonetheless, sufficient operator performance is a prerequisite. Consequently, the initial ablation ratio is an appropriate assessment of the operator performance [5].

We would like to express my sincerest appreciation to the authors who conducted the research with remarkable dedication, followed up patients who developed regrowth, and published previously undiscovered facts.

Conflicts of Interest

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REFERENCES

1. Kim MK, Shin JH, Hahn SY, Kim H. Delayed cancer diagnosis in thyroid nodules initially treated as benign with radiofrequency ablation: ultrasound characteristics and predictors for cancer. *Korean J Radiol* 2023;24:903-911
2. Dobrinja C, Bernardi S, Fabris B, Eramo R, Makovac P, Bazzocchi G, et al. Surgical and pathological changes after radiofrequency ablation of thyroid nodules. *Int J Endocrinol* 2015;2015:576576
3. Ha EJ, Chung SR, Na DG, Ahn HS, Chung J, Lee JY, et al. 2021 Korean thyroid imaging reporting and data system and imaging-based management of thyroid nodules: Korean Society of Thyroid Radiology consensus statement and recommendations. *Korean J Radiol* 2021;22:2094-2123
4. Kim HJ, Baek JH, Cho W, Sim JS. Long-term follow-up of the radiofrequency ablation of benign thyroid nodules: the value of additional treatment. *Ultrasonography* 2022;41:661-669
5. Sim JS, Baek JH, Cho W. Initial ablation ratio: quantitative value predicting the therapeutic success of thyroid radiofrequency ablation. *Thyroid* 2018;28:1443-1449