



# RE: 2017 Thyroid Radiofrequency Ablation Guideline: The Korean Society of Thyroid Radiology

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Dear Editor,

With great interest, we read the article “2017 Thyroid Radiofrequency Ablation Guideline: Korean Society of Thyroid Radiology” (1). In recent years, both Korea and Italy have published recommendations for treating thyroid nodules with radiofrequency ablation (RFA) (2, 3). Since 2009, the Korean Society of Thyroid Radiology (KSThR) has continuously updated the recommendations regarding thyroid RFA. The 2017 guidelines proposed by the KSThR include indications, pre-procedural evaluations, procedures, post-procedural monitoring, efficacy, and safety with

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abundant meaningful evidences.

In the present article, in addition to the trans-isthmic approach and moving-shot technique, which are two basic techniques for thyroid RFA, the authors briefly mention vascular ablation techniques, which have been introduced to minimize marginal regrowth. Park et al. (4) have proposed vascular ablation techniques, including the artery-first and marginal venous ablation techniques, to improve the efficacy of thyroid RFA. According to our experience, it is not uncommon to find marginal veins surrounding thyroid nodules; however, finding a feeding artery is significantly less likely. Additionally, we must question whether or not it is safe to ablate a feeding artery without covering it with sufficient isthmic tissue or to ablate the marginal veins without ablating the feeding artery. We also believe that vascular ablation techniques may not be simple for beginners and could result in a greater number of bleeding complication events. However, we noted the recommendations as interesting and would like to thank the authors for this highly beneficial work.

Based on our preliminary experience with thyroid RFA, we believe that the recommendations for thyroid RFA reported by the KSThR are appropriate for clinical practice and that the proposed key issues may provide a more comprehensive review for doctors interested in thyroid RFA.

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**Response**

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To the Editor,

First, we appreciate your thoughtful comments of Dr. Cheng and Dr. Lin on our article. The 2017 thyroid radiofrequency ablation (RFA) guideline, published in the Korean Journal of Radiology (1) recommend standard (i.e., perithyroidal lidocaine injection, trans-isthmic approach, and moving-shot technique) and advanced techniques (i.e., vascular ablation techniques, including the artery-first and marginal venous ablation techniques), to improve the efficacy of thyroid RFA. Operators can apply the artery-first ablation technique in hypervascular thyroid nodules (2). Hypervascular nodules are resistant to heat because of heat-sink effect, therefore marginal recurrence is more common in these cases than in hypovascular nodules (i.e., spongiform nodules). To minimize marginal recurrence, the 2017 guideline recommend artery-first ablation techniques. Before ablation, operators evaluate feeding arteries using color Doppler ultrasonography (US). During ablation of the arteries, operators should not ablate arteries outside the thyroid gland to prevent bleeding. Bleeding and hematoma are the major complications of thyroid RFA (3). We recommend artery ablation, especially at isthmic area, during a trans-isthmic approach. However, as you described, feeding arteries cannot be identified on color Doppler US in some thyroid nodules. In such cases, ablation of nodule and perinodular veins can achieve excellent results.

Venous staining achieved by perinodular vein ablation is also effective in inducing venous infarction of thyroid

nodules. This ablation technique is essential for prevention of marginal recurrence (4). However as you described, there are several critical structures around the thyroid gland, such as the esophagus, recurrent laryngeal nerve, medial variation of vagus nerve, and middle cervical sympathetic ganglion (5, 6). Evaluation of these structures before ablation and monitoring during procedure are essential for complication-free thyroid ablation. Fortunately, these structures are well-visible on US, except for the recurrent laryngeal nerve. Therefore, operators with a good knowledge of perithyroidal anatomy and experience with thyroid RFA can use these advanced techniques safely.

We believe that your comments have enriched our study and we sincerely appreciate your attention.

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