



RE: Management of Low-Risk Papillary Thyroid Microcarcinoma

Jung Hwan Baek, MD¹, Dong Gyu Na, MD²,
Hye Sun Park, MD¹

¹Department of Radiology and Research Institute of Radiology, University of Ulsan College of Medicine, Asan Medical Center, Seoul 05505, Korea;

²Department of Radiology, Human Medical Imaging and Intervention Center, Seoul 06524, Korea

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We read with great interest the case report by Sun et al. (1), entitled "Papillary thyroid carcinoma treated with radiofrequency ablation in a patient with hypertrophic cardiomyopathy: a case report," and the letter to the editor by Kim (2), both of which were published in the Korean Journal of Radiology. Sun et al. (1) presented a case of papillary thyroid microcarcinoma (PTMC) treated with radiofrequency ablation in an inoperable condition, and Kim (2) made a comment that simple observation would have been more appropriate rather than radiofrequency ablation for the presented case. There is an ongoing debate on the management of low-risk PTMC, which is not associated with poor prognostic features such as extrathyroidal extension or lymph node metastasis. Recently, active surveillance, instead of immediate surgery, has been suggested for the first-line management of low-risk PTMC (3, 4). This recommendation is based on the results of Japanese

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Corresponding author: Jung Hwan Baek, MD, Department of Radiology and Research Institute of Radiology, University of Ulsan College of Medicine, Asan Medical Center, 88 Olympic-ro 43-gil, Songpa-gu, Seoul 05505, Korea.

• Tel: (822) 3010-4352 • Fax: (822) 476-0090

• E-mail: radbaek@naver.com

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observational trials (4-6) in which most subclinical, low-risk PTMC cases did not progress to clinical disease, and in whom delayed rescue surgery was effective for progressed tumors. A recent observational study by Ito et al. (6) reported that only 6.8% of enrolled patients with low-risk PTMC showed progression to clinical disease during a 10-year observation period. At present, there is no proven reliable predictor for early detection of potentially aggressive PTMC. Active surveillance with delayed rescue surgery could prevent overtreatment and morbidity of unnecessary surgery in patients with indolent PTMC. Therefore, active surveillance is a reasonable management strategy for patients with low-risk PTMC considering the potential harm of immediate surgery.

However, active surveillance is also limited in some respects. First, the incidence of tumor progression to clinical disease is not always low on long-term observations in young patients with low-risk PTMC. A recent observational study (6) reported that 22.5% of young patients showed tumor progression to clinical disease, and that 16.1% showed node metastasis over a 10-year observation period. In addition, the incidence of tumor progression is unknown beyond 10 years of follow-up. Such patients will eventually undergo delayed thyroid surgery, and more aggressive surgeries such as total thyroidectomy and neck dissection may be required in patients with node metastasis. Second, patients with suspicious nodules in ultrasonography (US) or biopsy-proven PTMC tend to show anxiety. This anxiety may be an obstacle for successful long-term surveillance and may decrease quality of life, especially in young and middle-aged patients who usually require surveillance for more than 10–20 years. Therefore, decreasing the invasiveness of treatment can potentially be another option for the management of selected patients with low-risk PTMC because it avoids the potential harm of immediate surgery. However, it does not obviate possible overtreatment. Third, active surveillance also has limitations for ideal personalized management of low risk PTMC patients.

Ultrasound-guided thermal ablation has played an increasingly important role in reducing the aggressiveness of treatments, possibly being the solution that would best compensate for the morbidity of thyroid surgery. Recently, treatment of PTMC with thermal ablation techniques (laser, radiofrequency, and microwave ablation) has been reported.

No local tumor recurrence or metastasis to lymph nodes in the neck has been reported in short-term follow-up (1, 7-9). In addition, 4-year follow-up results by Kim et al. (10) reported no major procedure-related complications and no tumor recurrence. Meanwhile, Valcavi et al. (11) reported the results of three patients who received total thyroidectomy after laser ablation of PTMC. Laser ablation was effective for the primary cancer, but multiple, tiny cancer lesions in the thyroid, and microscopic metastases in lymph nodes, were detected on surgery. Therefore, thermal ablation of thyroid cancer is effective for the management of the primary cancer itself, but is limited for the control of regional microscopic metastasis or tiny multifocal cancers. However, thermal ablation therapy of low-risk PTMC may be comparable to surgical treatment. The clinical significance of radiologically or clinically undetectable, small indolent papillary carcinoma and microscopically metastatic cancer in lymph nodes remains unclear (3). Thus, surgical lobectomy without prophylactic neck dissection is recommended as a standard surgical therapy for low-risk PTMC.

At present, there is no accumulated evidence of the advantages and disadvantages between active surveillance and thermal ablation in low-risk PTMC patients. Regarding the current concept of personalized medicine, each treatment method may be used appropriately according to the status of the patient, and thermal ablation therapy is a potential alternative to active surveillance for low-risk PTMC patients. In the case presented by Sun et al. (1), it is unclear whether active surveillance was more appropriate than thermal ablation, because the patient could not undergo delayed rescue surgery due to high surgical risk, and may have had a worse prognosis if the thyroid cancer had progressed. At present, there are only several preliminary reports of thermal ablation therapy applied to patients with low-risk PTMC, and further investigations are necessary to determine the safety and efficacy of this therapy. Further clinical trials for nonsurgical management options are needed for optimal personalized management of low-risk PTMC.

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