



Active Surveillance or Surgery in Papillary Thyroid Microcarcinoma: An Ongoing Controversy

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Since the 1980s, the incidence of thyroid cancer has increased rapidly, especially for papillary thyroid carcinoma (PTC), which is a subtype of differentiated thyroid cancer (DTC). This upward trend is due to the increase in the frequency of subclinical thyroid cancer diagnoses with the development of diagnostic technology, most notably ultrasonography [1]. However, due to the indolent nature of DTC, the cancer mortality rates have not changed. Accordingly, various diagnostic and treatment guidelines have been established worldwide.

DTC with a maximum diameter of 10 mm or less is defined as microcarcinoma, according to the World Health Organization classification. Although papillary thyroid microcarcinoma (PTMC) is small, thyroidectomy has been recommended as a treatment in the past, considering the incidence of lymph node metastasis and multiple tumor formation. The continuing debate over whether PTMC continues to grow and develop clinically or if it is life-threatening in all patients has raised doubts about the adequacy of surgical treatment for subclinical PTMC. According to previous studies, the prevalence of PTMC incidentally discovered by ultrasonography without any symptoms in healthy women over 30 years of age is about 3.5%, which is similar to the prevalence of asymptomatic PTMC confirmed by autopsy (0.5%–5.2%) [2].

Based on these considerations, an active surveillance strategy was first proposed as an alternative to immediate surgical treatment for PTMC in 1993 by Akira Miyauchi of Kuma Hospital [3]. Through the results of several studies, active surveillance was adopted as a recommendation in the 2011 Japanese guidelines and the 2015 American Thyroid Association guidelines. Low-risk

PTMC patients are selected for this active surveillance strategy. The criteria for low risk are as follows: (1) no lymph node metastasis or distant metastasis clinically or radiologically, (2) no aggressive subtype of PTC on cytology, and (3) no evidence of trachea or recurrent laryngeal nerve invasion [4].

However, despite the selection of patients according to these detailed criteria, the controversial part of active surveillance is that a proportion of patients still undergo conversion surgery depending on the degree of disease progression. In 2014, Kuma Hospital, which first proposed active surveillance, reported the results of active surveillance in 1,235 patients. During the 10-year active surveillance period, an increase in tumor size was observed in 8% of patients, lymph node metastasis in 3.8% of patients, and conversion surgery was performed in 16% of patients [5]. Several studies afterward reported that 3.5%–24% of patients who were managed through active surveillance underwent conversion surgery due to patients' preference or disease progression [4].

Nevertheless, considering the pathophysiological aspects of PTMC, active surveillance is a very attractive option. The method of immediate surgical treatment depends strongly on the operator's experience, and even for operators with extensive experience, surgical complications such as vocal cord paralysis and hypoparathyroidism are within the realm of possibility [6]. This fact causes vague fears for patients. In a recently published comparative study analyzing the patient-reported outcomes of active surveillance and immediate surgery, the active surveillance group showed more advantageous results in psychological health, such as depression and anxiety [4]. Another study found that patients who underwent active surveillance showed better quality of life than those who underwent surgery, and patients who underwent lobectomy had a better quality of life than those who underwent total thyroidectomy [7].

In conclusion, active surveillance is an effective strategy for PTMC with stagnant disease progression and a good prognosis.

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However, to reduce the conversion rate to surgery, it is necessary to improve the selection criteria for patients in whom active surveillance would be suitable. In addition, since only prospective observational research on this topic has been carried out, a large-scale, randomized, controlled study is necessary to obtain definitive oncological results and patient-reported outcomes. Most importantly, since both active surveillance and surgery aim to provide optimal treatment, it is critical to select a treatment option according to the tumor's characteristics and the patient's factors through a multidisciplinary team consultation, rather than preferentially applying one approach.

CONFLICT OF INTEREST

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

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