
European Thyroid Association and Cardiovascular and Interventional Radiological Society of Europe 2021 Clinical Practice Guideline for the Use of Minimally Invasive Treatments in Malignant Thyroid Lesions

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Table 1. Indications for use of MITs in PTMCs

Factors favoring thermal ablation	Factors favoring surgery
<i>Demographics</i>	<i>Demographics</i>
Old age	Young age
Relevant comorbidities	No comorbidities
No family history of aggressive forms	Familial form
Contralateral vocal cord palsy	–
Refusal of surgery	–
<i>Cytology</i>	<i>Cytology</i>
Papillary carcinoma classical variant	Worrisome cytology features
–	High-risk molecular pattern
<i>US examination</i>	<i>US examination</i>
Central location	Subcapsular location
Well defined margins	Posterior location
Absence of capsular contact	Paratracheal location
Solitary thyroid lesion	Multinodular goiter
No evidence of extrathyroidal spread	Extrathyroidal spread
<i>Technical resources</i>	<i>Technical resources</i>
Expertise in US-guided ablation procedures	High-volume thyroid surgery

MITs, minimally invasive treatments; PTMCs, papillary thyroid microcarcinomas; US, ultrasound.

Recommendation 1

Consider the use of image-guided MITs in the multimodal approach to patients with thyroid cancer. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 2

A multidisciplinary team, which includes members with specific expertise in MIT, perform the selection of patients eligible for MIT based on the patient's clinical, demographic, and imaging characteristics. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 3

Select the MIT modality based on involved organ(s), staging of the disease, patient characteristics and preferences, and specific competences and resources at the treating center. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 4

Inform patients about MIT feasibility and its advantages and limitations in comparison with the other management strategies. Strength of recommendation 1*; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 5

Consider the use of image-guided TA for patients with low-risk PTMC, mainly if the patient is at surgical risk, is expected to have short life expectancy, has comorbidities that need to be prioritized before thyroid surgery, or is unwilling to undergo surgery or AS. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 6

Inform patients with incidentally discovered PTMC who are suitable for AS about TA as a therapeutic alternative to immediate surgery or AS. Strength of recommendation 1*, evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 7

Inform patients with PTMC about advantages and limitations of TA in comparison with the other management options and the need of protracted clinical and US follow-up for ruling out potential loco-regional recurrences. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 8

Choose treatment modality based on specific competences and resources at the individual center, because LA, RFA, and MWA are similarly safe and effective TA techniques for low-risk PTMC. Strength of recommendation 1; evidence $\emptyset\emptyset\emptyset\emptyset$. Strong agreement (11/11; 100%)

Recommendation 9

Abstain from using EA and HIFU for PTMC treatment, due to insufficient evidence and technical limitations. Strength of recommendation 1*; evidence $\emptyset\emptyset\emptyset\emptyset$. Strong agreement (11/11, 100%)

Recommendation 10

Consider MIT for palliative purposes, preferentially in the context of a multimodality approach, in patients with primary thyroid cancer, other than low-risk PTMC. Strength of recommendation 2*; evidence $\emptyset\emptyset\emptyset\emptyset$. Strong agreement (11/11, 100%)

Recommendation 11

Consider MIT as an alternative option to surgical neck dissection in patients with radioiodine refractory cervical recurrences who are at surgical risk or decline further surgery. Strength of recommendation 1; evidence $\emptyset\emptyset\emptyset\emptyset$. Strong agreement (11/11, 100%)

Recommendation 12

Confirm the diagnosis of DTC recurrence by fine needle aspiration or core-needle biopsy before MIT. Strength of recommendation 1; evidence $\emptyset\emptyset\emptyset\emptyset$. Strong agreement (11/11, 100%)

Recommendation 13

Consider the following clinical factors as favoring MIT for DTC: cervical recurrences, a previous surgical neck dissection, presence of surgical complications, small size metastases, and limited latero-cervical lymph node involvement. Strength of recommendation 1; evidence $\emptyset\emptyset\emptyset\emptyset$. Strong agreement (11/11, 100%)

Recommendation 14

Consider MIT only for palliative purposes in DTC recurrences with extensive lymph node involvement, central location, evidence of radioiodine uptake, and clinical and histological factors suggestive of aggressive disease. Strength of recommendation 1; evidence $\emptyset\emptyset\emptyset\emptyset$. Strong agreement (11/11, 100%)

Recommendation 15

Consider TA among the treatment options in patients with oligometastatic or oligoprogressive disease, to achieve local tumor control or pain palliation. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 16

Consider TA for the palliative treatment of painful bone metastases. Ablation may be proposed alone or in combination with bone consolidation and EBRT to improve the clinical outcome. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 17

Consider TA, alone or in combination with EBRT, with a local curative intent for <20 mm bone metastases. Strength of recommendation 2*, evidence ØØØØ. Strong agreement (11/11, 100%)

Recommendation 18

Consider TA for residual RAI-refractory oligo-metastatic lung (sized <2 cm) and liver (sized <3 cm) DTC metastases, preferentially in the context of a multimodality approach. Strength of recommendation 1; evidence ØØØØ. Strong agreement (11/11, 100%)