International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

Thermal ablation for papillary thyroid microcarcinoma in the isthmus: a systematic review and meta-analysis

INPLASY202520104

doi: 10.37766/inplasy2025.2.0104

Received: 23 February 2025

Published: 23 February 2025

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202520104

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 February 2025 and was last updated on 23 February 2025.

INTRODUCTION

Review question / Objective To explore the safety and efficacy of thermal ablation (TA) for papillary thyroid microcarcinoma located in the isthmus.

Condition being studied Thyroid cancer located in the isthmus is not uncommon in clinical practice. Due to its unique anatomical position, the treatment of papillary thyroid microcarcinoma (PTMC) in the isthmus remains controversial. Some surgeons recommend total thyroidectomy, but the potential complications from surgery may lead to adverse outcomes for patients. Ultrasound-guided thermal ablation is an accepted alternative treatment for low-risk PTMC in the thyroid lobe. Several studies have explored the safety and efficacy of thermal ablation for PTMC in the isthmus , but there is a lack of relevant meta-analyses. Therefore, this study holds significant clinical importance.

METHODS

Search strategy (("Thyroid Cancer, Papillary"[Mesh]) OR ((((((((((((((((Cancer, Papillary Thyroid[Title/Abstract]) OR (Cancers, Papillary Thyroid[Title/Abstract])) OR (Papillary Thyroid Cancer[Title/Abstract])) OR (Papillary Thyroid Cancers[Title/Abstract])) OR (Thyroid Cancers, Papillary[Title/Abstract])) OR (Papillary Thyroid Carcinoma[Title/Abstract])) OR (Thyroid Carcinoma, Papillary[Title/Abstract])) OR (Carcinoma, Papillary Thyroid[Title/Abstract])) OR (Carcinomas, Papillary Thyroid[Title/Abstract])) OR (Papillary Thyroid Carcinomas[Title/Abstract])) OR (Thyroid Carcinomas, Papillary[Title/Abstract])) OR (Papillary Carcinoma Of Thyroid[Title/Abstract])) OR (papillary thyroid microcarcinoma[Title/Abstract])) OR (Thyroid papillary microcarcinoma[Title/Abstract])) OR (Papillary thyroid micro-carcinoma[Title/Abstract])) OR (Thyroid microcarcinoma[Title/Abstract]))) AND ((("Ablation Techniques"[Mesh]) OR ("Radiofrequency Ablation"[Mesh])) OR (ablation[Title/Abstract])).

Participant or population Inclusion criteria were as follows:1.Pathologically confirmed papillary thyroid carcinoma (PTC);2.Tumor located in the thyroid isthmus;3.Maximum tumor diameter ≤10 mm.

Intervention Thermal ablation, including radiofrequency ablation, microwave ablation, and laser ablation.

Comparator Patients with low-risk papillary thyroid microcarcinomas undergoing active surveillence.

Study designs to be included Retrospective analysis or Prospective analysis.

Eligibility criteria Inclusion criteria were as follows:1.Pathologically confirmed papillary thyroid carcinoma (PTC);2.Tumor located in the thyroid isthmus;3.Maximum tumor diameter ≤10 mm.

Information sources Pubmed、web of science、Embase、Coherence.

Main outcome(s) Volume reduction ,complete tumor disappearance, tumor recurrence, LNM, and overall complications.

Quality assessment / Risk of bias analysis Since the studies included were nonrandomized controlled, retrospective or prospective observational studies, two researchers independently conducted the Newcastle–Ottawa Scale (NOS) to evaluate the literature quality.

Strategy of data synthesis The choice of a random-effects model was based on substantial heterogeneity (I2 > 50%), while a fixed-effects model was employed in cases of low heterogeneity (I2 < 50%).

Subgroup analysis Subgroups analysis may be performed based on the subtypes of methods of ablation.

Sensitivity analysis We used the sensitivity analysis to test the stability of this meta-analysis.

Country(ies) involved China.

Keywords Papillary Thyroid Carcinoma ,Thermal Ablation.

Contributions of each author
Author 1 - Yuqi Hao - Author 1 is responsible for literature screening, data extraction and analysis, and manuscript writing.

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