

INPLASY

INPLASY2026100037

doi: 10.37766/inplasy2026.10.0037

Received: 8 October 2026

Published: 8 October 2026

Corresponding author:

Zhongyan Yang

13012725813@163.com

Author Affiliation:

Binzhou People's Hospital.

CT-guided pulmonary nodule localization: A meta-analysis of using medical glue versus localization needle

Gao, P; Liu, C; Yang, Z.

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2026100037

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 8 October 2026 and was last updated on 8 October 2026.

INTRODUCTION

Review question / Objective The aim of this meta-analysis is to analyze the safety and effectiveness of CT-guided pulmonary nodule localization by using medical glue and localization needle.

Condition being studied Preoperative CT-guided localization has been widely used before video-assisted thoracoscopic surgery for pulmonary nodules. Medical glue and localization needle are commonly used localization materials. However, the relative outcomes are still unclear.

METHODS

Search strategy (((glue) OR (medical glue)) AND (((localization needle) OR (anchoring needle)) OR (anchoring hook))) AND ((localization) OR (localizing))) AND ((lung) OR (pulmonary))) AND ((nodule) OR (lesion)).

Participant or population Patients with pulmonary nodules.

Intervention CT-guided medical glue injection.

Comparator CT-guided localization needle placement.

Study designs to be included Comparative studies.

Eligibility criteria Studies meeting the following criteria were eligible for inclusion:
(a) Study types: comparative studies;
(b) Diseases: patients with pulmonary nodules;
(c) Intervention type: CT-guided medical glue injection vs. localization needle placement;
(d) Languages: no limitations.

Information sources PubMed, Cochrane Library, Embase, and Wanfangdatabases.

Main outcome(s) Technical success rate of localization.

Additional outcome(s) Localization time, complications, and VATS time.

Quality assessment / Risk of bias analysis

Assessment for the randomized controlled trials was carried out using the Cochrane risk-of-bias tool and were assigned a high, low, or unclear risk of bias for each of the following: detection, performance, attrition, reporting, selection, and other bias.

The Newcastle-Ottawa scale (NOS) was used to evaluate all non-RCT studies by assigning them points based upon selection, comparability, and outcome criteria (4, 2, and 3 points, respectively). A study was regarded as outstanding quality if it had a NOS score ≥ 7 .

Strategy of data synthesis Data from all endpoints were pooled using RevMan v5.3. Mean differences (MDs) with 95% confidence intervals (CIs) were used for the analysis of continuous variables, whereas odds ratios (ORs) with 95% CIs were used for the analysis of categorical variables. The heterogeneity of the study was evaluated using the I^2 statistic and Q test, with $I^2 > 50\%$ denoting significant heterogeneity. Through the random-effects models, the pooled analyses in the context of significant heterogeneity were conducted, whereas fixed-effects models were used when no significant heterogeneity was present. A leave-one-out approach was used to conduct sensitivity analyses aimed at identifying studies that contributed to detected heterogeneity. The risk of publication bias was assessed using funnel plots, with the risk considered low when all studies fit within the funnel plot. When this was not the case, studies were further analyzed using Egger's test in Stata v12.0.

Subgroup analysis None.

Sensitivity analysis Yes.

Country(ies) involved China.

Keywords CT; Pulmonary nodule; Localization; Medical glue; Localization needle.

Contributions of each author

Author 1 - Peng Gao.

Author 2 - Chunhui Liu.

Author 3 - Zhongyan Yang.