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Real-World Comparison of CT-free Electromagnetic Navigation and CT-Guided Localization for Pulmonary nodules

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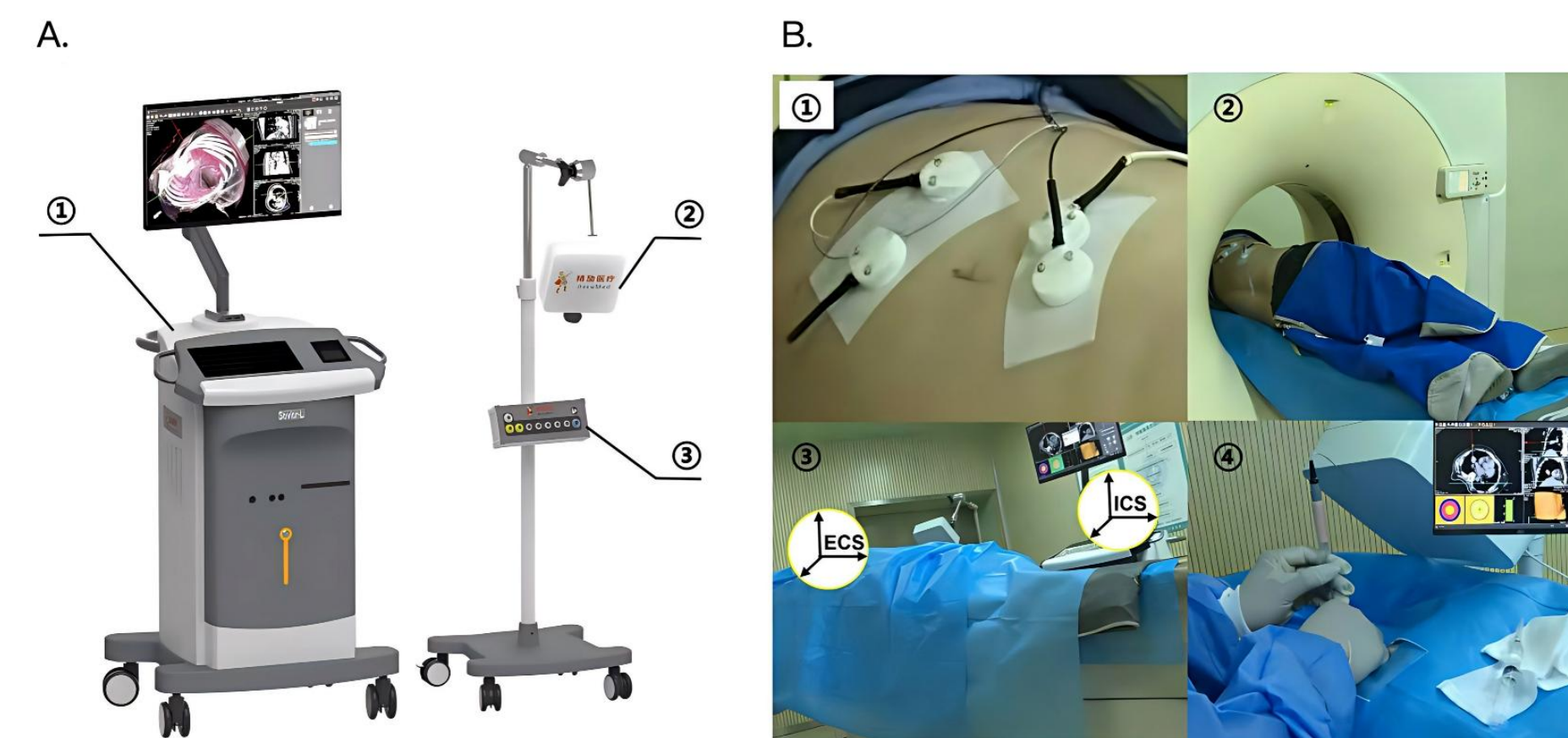


Background

- Conventional CT-guided localization fragments care across the CT suite, ward, and operating room, increasing transfer delays and radiation exposure.
- We compared workflow efficiency, localization-related radiation, and perioperative outcomes for CT-free ENPP versus CT guidance.

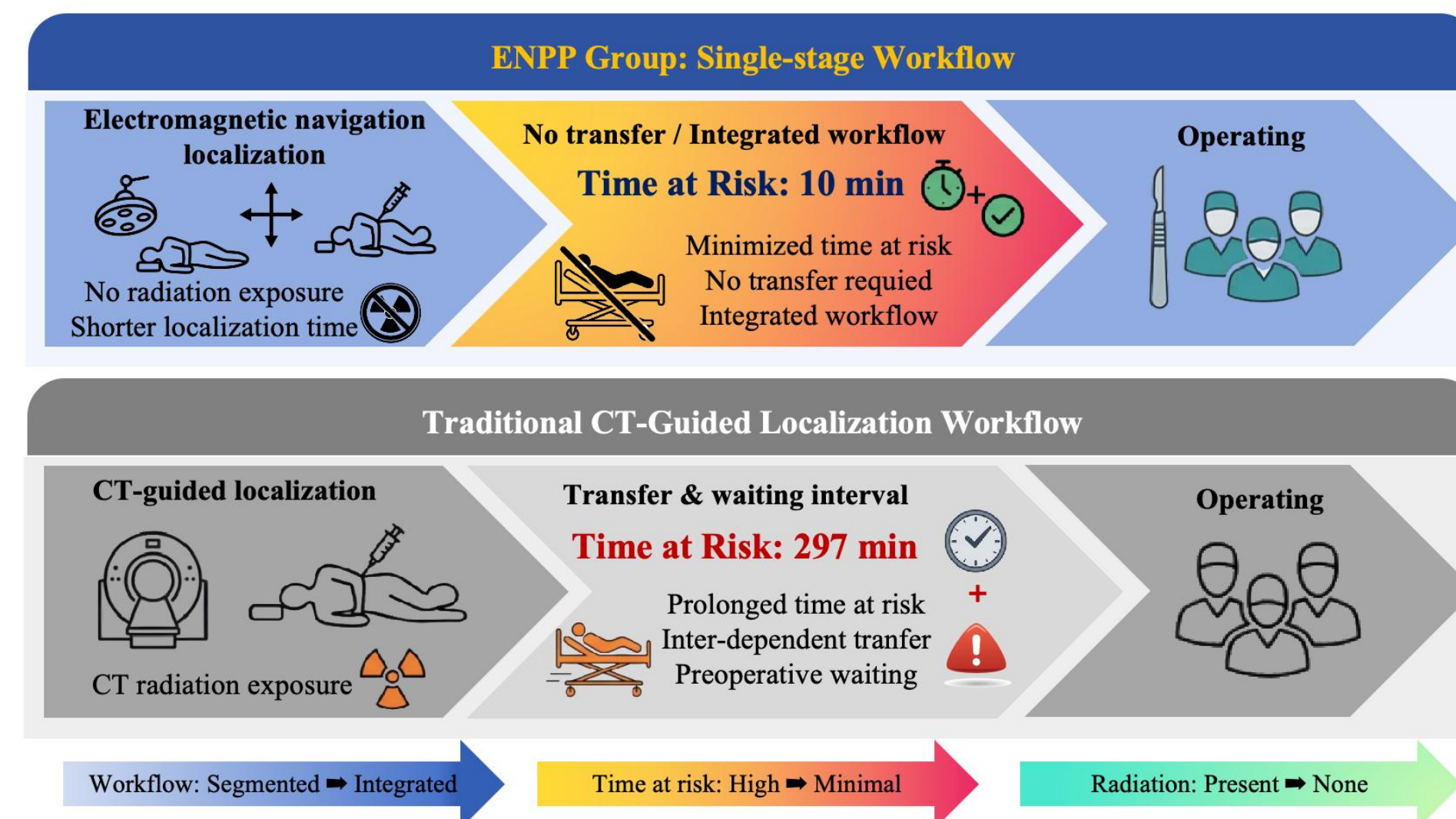
Methods

- Single-center retrospective cohort, Jul 2024-Dec 2025
- 215 patients: CT-guided 162; CT-free ENPP 53
- IPTW with common support and trimmed extreme weights; analysis n=169
- Outcomes: workflow metrics, operative time, hospital stay, and radiation



Technique: Electromagnetic tracking enables real-time puncture without additional CT scanning.

Workflow Comparison of Pulmonary Nodule Localization



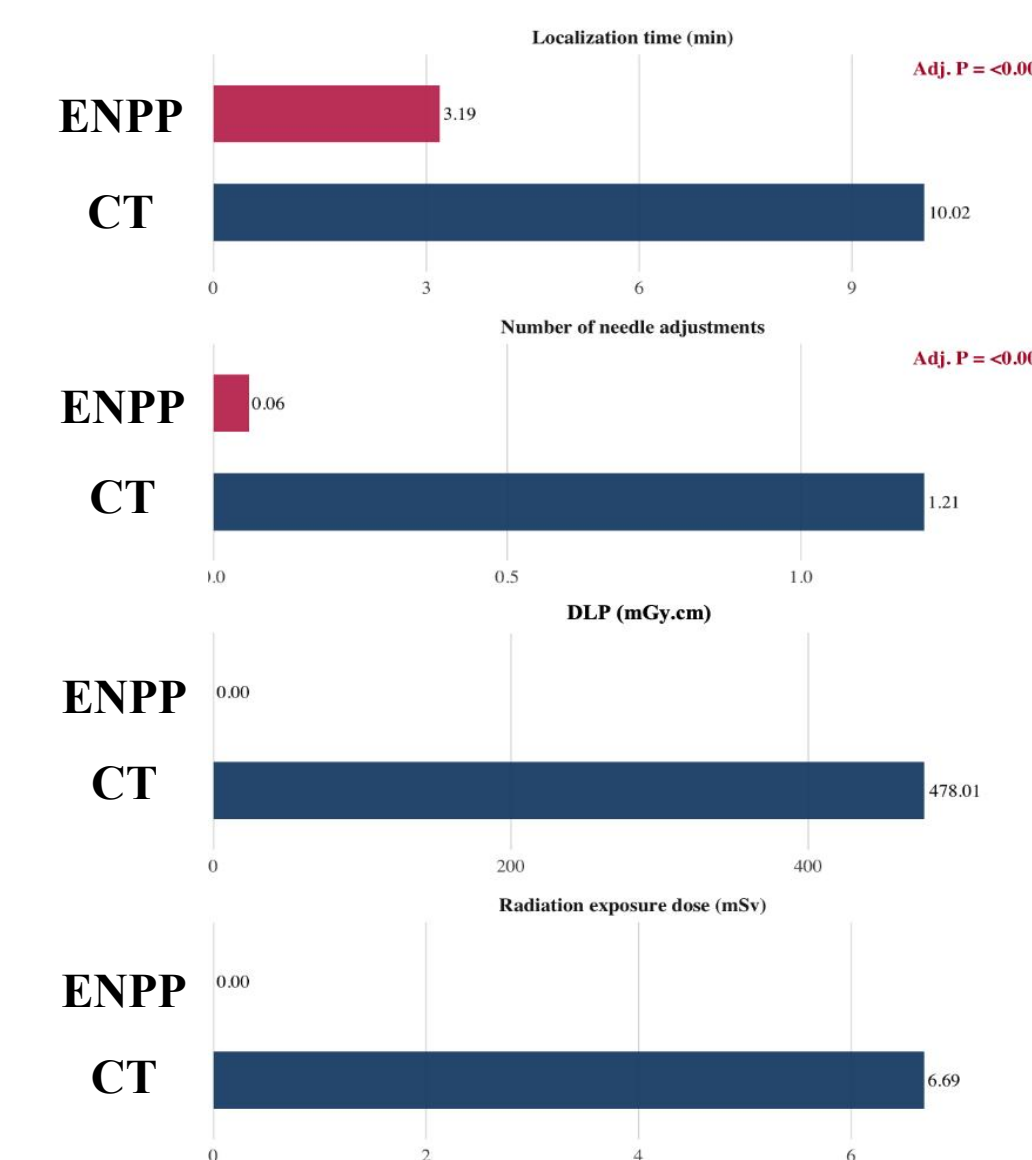
Workflow: Single-stage CT-free ENPP reduces transfer delay, time at risk, and added radiation.

Results

ADJUSTED WORKFLOW EFFECTS

-6.52 min localization time
-300.02 min time at risk
-1.27 needle adjustments

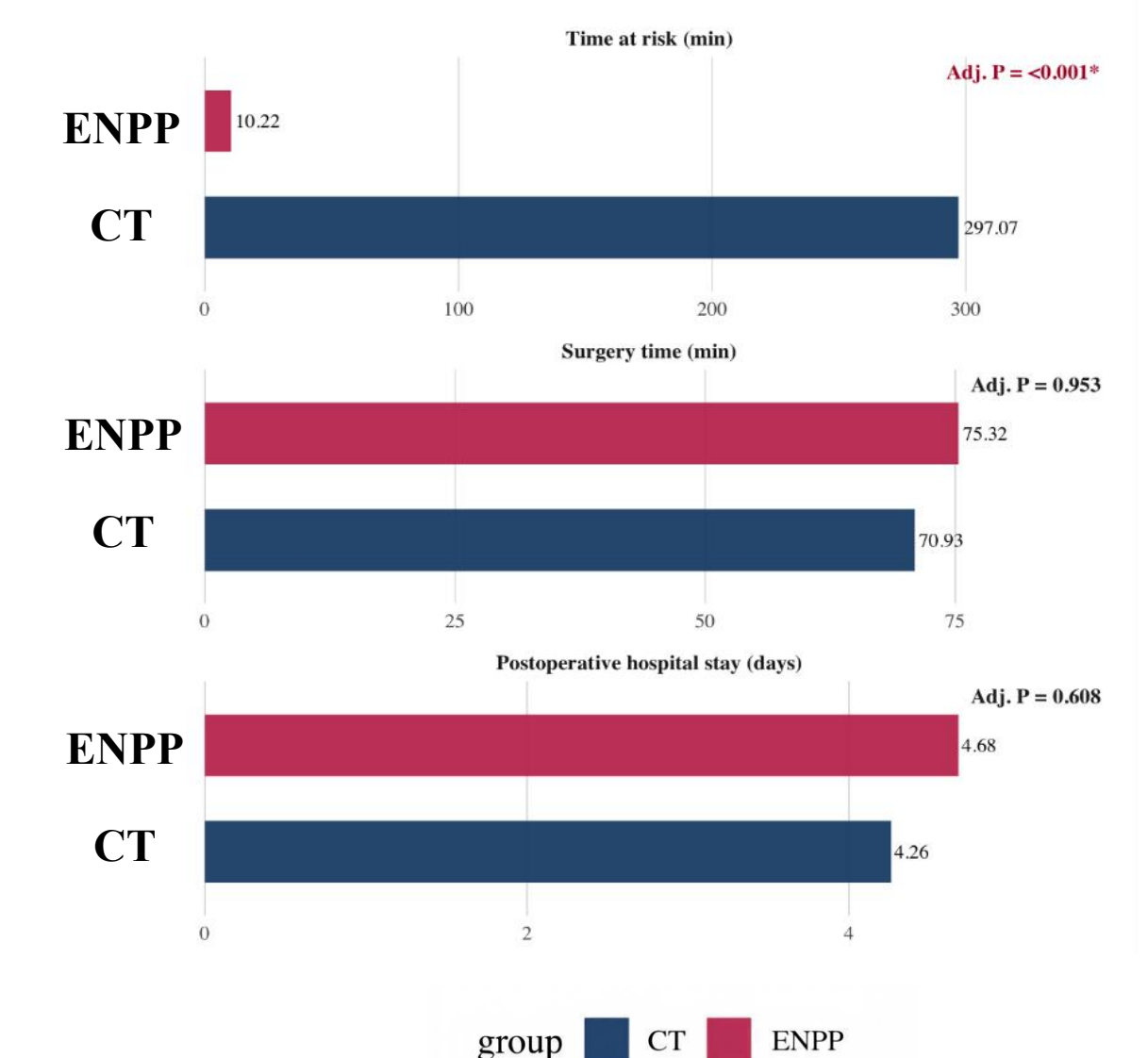
Workflow comparison



CLINICAL CONTINUITY

Operative time: no difference
Hospital stay: no difference
Weighted analysis: n=169

Perioperative outcomes



0 mSv Added Localization Radiation

Conclusions

- Shorter localization and time at risk.
- Fewer needle adjustments; no added CT radiation.
- No difference in operative time or hospital stay.

Disclosures: The authors report no competing interests.



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