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INTERVENTIONAL RADIOLOGY

LETTER TO THE EDITOR

Letter to the Editor: Reconsidering the role of the pleural tail sign in predicting severe pneumothorax after computed tomography-guided lung biopsy

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Dear Editor,

We read with great interest the recent article by Hassan et al.,[1] which investigates the pleural tail sign (PTS) as a predictor of severe pneumothorax requiring chest tube placement following computed tomography (CT)-guided lung biopsy. The authors should be commended for focusing on clinically meaningful outcomes and for introducing a morphological subclassification of the PTS.

However, we would like to raise several methodological concerns that may limit the interpretation of the findings.

Pneumothorax following CT-guided lung biopsy is a well-established multifactorial complication. Robust evidence from meta-analyses and large cohort studies consistently demonstrates that severe pneumothorax requiring chest drainage is primarily driven by parenchymal and procedural factors, including emphysema, lesion depth, fissure or bulla traversal, needle trajectory, and the number of pleural punctures.[2-4] Among these, emphysema has repeatedly been identified as one of the strongest predictors, with markedly elevated odds ratios reported across studies.[3] In addition, contemporary interventional radiology practice and guideline-oriented recommendations emphasize the importance of procedural planning factors, such as needle-path optimization and avoidance of fissures, in mitigating pneumothorax risk. These principles are also highlighted in the Cardiovascular and Interventional Radiological Society of Europe standards of practice documents, which emphasize careful trajectory planning and minimization of pleural injury to reduce post-biopsy complications.[5] The absence of these guideline-supported variables further limits the clinical interpretability of the study.

In this context, the multivariable analysis appears limited, as it includes only lesion size, lesion depth, and the number of biopsies as covariates. Importantly, several key confounders, most notably emphysema and needle trajectory-related factors, were not incorporated into the analysis. Given their well-established and substantial impact on pneumothorax risk, the omission of these variables introduces a substantial risk of residual confounding and limits the ability to attribute an independent predictive role to the PTS.

Additionally, the observed effect size for the triangular PTS is modest (OR ≈ 2), especially when compared with the substantially stronger associations reported for established risk factors. In the absence of comprehensive adjustment, such an effect should be interpreted with caution, as it may reflect indirect associations mediated by unmeasured variables rather than a true independent effect. From a clinical perspective, it remains uncertain whether a predictor of this magnitude would meaningfully influence procedural decision-making.

Taken together, we believe that the findings presented by the authors should be considered hypothesis-generating rather than practice-changing in their current form. While the PTS may represent a potentially interesting imaging feature, its role as an independent predictor of severe pneumothorax remains uncertain and requires validation in studies incorporating comprehensive multivariable analyses aligned with current evidence and procedural standards.

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Footnotes

Conflict of interest disclosure

The authors declared no conflicts of interest.

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