change current clinical practice and whether the presence of STAS should lead to increased surveillance imaging. There is no current role for adjuvant chemotherapy in the treatment of T1b or T1c tumors, although these results support further investigation in this area.

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Commentary: STAS is here to STAY

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Non-small cell lung cancer (NSCLC) survival is slowly improving as multimodality therapies improve in efficacy for those patients diagnosed with advanced-stage disease. Lung cancer screening, although still drastically underused, is helping to identify more patients with early-stage NSCLC who would potentially be treated with lobectomy. However, recurrence and survival rates after lobectomy have been relatively stagnant over the last 10 years for these patients for reasons that have been poorly understood. Some are now starting to speculate that spread through air spaces (STAS) may be a contributing factor for the previously unexplained recurrence and survival statistics.^{1,2}

In this issue of the *Journal*, Jun and colleagues³ analyzed 506 patients who underwent lobectomy for pT1b, pT1c, and pT2a adenocarcinomas according to STAS +/- . For the patients with smaller tumors (pT1b and pT1c),

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CENTRAL MESSAGE

Assessment of STAS is critical for adequate pathologic staging and risk assessment for all patients with lung cancer.

STAS+ patients had a 7-fold and almost 3-fold increased risk of recurrence when compared with STAS- patients. Kaplan-Meier analysis also revealed that pT1b and pT1c STAS+ patients had similar survival to pT2a when controlling for smoking status, coronary artery disease, carotid endarterectomy, maximum standardized uptake value, pT, histologic grade, lymphatic invasion, and vascular invasion. The authors conclude that the presence of STAS in pT1b and pT1c N0 adenocarcinomas is associated with similar risk of recurrence as pT2aN0M0 and could be a contributing factor to lower overall survival rates than would be ideally seen for patients with early-stage NSCLC.

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So what do these data mean for the thoracic oncology community? Several important points emerge from these data. (1) STAS status must be reported for all lobectomy specimens regardless of pathologic stage as recommended by the World Health Organization. (2) Adequate surgical staging with complete lymph node assessment is critical for all patients with NSCLC. (3) These data continue to question the efficacy of sublobar resection for patients with pT1b and patients with pT1c, although not directly addressed in this analysis.

Jun and colleagues have provided more data to support the use and benefit of assessing STAS in patients undergoing lobectomy. It is not clear, at least in the United States, how adherent we are to the assessment of STAS in all patients undergoing lobectomy. In the era of increasing

availability of clinical trials for adjuvant therapy, STAS could become an important factor to study among patients receiving adjuvant therapy. It is clear that assessment of STAS is here to stay and needs to become a mainstay of pathologic assessment for all patients with NSCLC.

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