References

1. Hattori A, Suzuki K, Takamochi K, Wakabayashi M, Aokage K, Saji H, et al. Prognostic impact of a ground-glass opacity component in clinical stage IA non-small cell lung cancer. *J Thorac Cardiovasc Surg*. 2021; 161:1469-80.
2. Suzuki K, Koike T, Asakawa T, Kusumoto M, Asamura H, Nagai K, et al; Japan Lung Cancer Surgical Study Group (JCOG LCSSG). A prospective radiological study of thin-section computed tomography to predict pathological noninvasiveness in peripheral clinical IA lung cancer (Japan Clinical Oncology Group 0201). *J Thorac Oncol*. 2011;6:751-6.
3. Hattori A, Matsunaga T, Takamochi K, Oh S, Suzuki K. Prognostic impact of a ground glass opacity component in the clinical T classification of non-small cell lung cancer. *J Thorac Cardiovasc Surg*. 2017;154: 2102-10.e1.
4. Hattori A, Hirayama S, Matsunaga T, Hayashi T, Takamochi K, Oh S, et al. Distinct clinicopathologic characteristics and prognosis based on the presence of ground glass opacity component in clinical stage IA lung adenocarcinoma. *J Thorac Oncol*. 2019;14:265-75.
5. Hattori A, Matsunaga T, Takamochi K, Oh S, Suzuki K. Radiological classification of multiple lung cancers and the prognostic impact based on the presence of a ground glass opacity component on thin-section computed tomography. *Lung Cancer*. 2017;113:7-13.
6. Aokage K, Miyoshi T, Ishii G, Kusumoto M, Nomura S, Katsumata S, et al. Influence of ground glass opacity and the corresponding pathological findings on survival in patients with clinical stage I non-small cell lung cancer. *J Thorac Oncol*. 2018;13:533-42.
7. Fu F, Zhang Y, Wen Z, Zheng D, Gao Z, Han H, et al. Distinct prognostic factors in patients with stage I non-small cell lung cancer with radiologic part-solid or solid lesions. *J Thorac Oncol*. 2019;14:2133-42.
8. Ding N, Mao Y, Gao S, Xue Q, Wang D, Zhao J, et al. Predictors of lymph node metastasis and possible selective lymph node dissection in clinical stage IA non-small cell lung cancer. *J Thorac Dis*. 2018;10:4061-8.

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Commentary: A picture really is worth a thousand words

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Hattori and colleagues¹ present compelling data that demonstrate the beneficial impact of ground-glass characteristics when accompanying solid lung cancers. Strengths of this study include the inclusion of a sizable number of patients, the inclusion of data from several institutions, carefully performed measurements verified by multiple investigators, and the long follow-up necessary to reach reliable and valid conclusions. The results add another dimension to the issue of ground-glass lesions that, while not as common in the West, are increasingly being seen due to the adoption of computed tomography-based lung cancer screening. The main limitation of the data gathered in the authors' work is the lack of positron emission tomography scan information. Notwithstanding this limitation, the utility of these findings over and above pathologic examination of the lesions is the ability to use the data for surgical

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CENTRAL MESSAGE

Imaging data may contribute to much greater prognostic information than previously appreciated.

decision-making instead of simply determining prognosis after the fact.

The utility of the results published here provoke important questions. First, in this era of the creation of large databases, should we not be collecting images along with clinical data to facilitate the conduct of such investigations in the future? Surely, with the logarithmic expansion of data-storage capacity, this should be feasible. Second, it is clear that we have not maximized the use of relatively straightforward measures such as imaging characteristics and pathology information (spread through air spaces [STAS]² as a prime example), whereas the emphasis on more complex genomic data has occupied our efforts. Perhaps we need to renew our enthusiasm for simpler solutions. Third, if a straightforward characteristic such as the ground-glass nature of radiographic opacities has

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Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication Jan 28, 2020; accepted for publication Feb 1, 2020; available ahead of print February 8, 2020.

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J Thorac Cardiovasc Surg 2021;161:1482-3

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2020.02.003>

such important prognostic value, more complex algorithms such as “radiomics” may be able to enhance predictive abilities multifold.^{3,4} This potential makes it even more important to consider the inclusion of critical images in existing surgical databases. Perhaps, in the future, a “radiomic score” will become part of a pre-resection staging that guides surgical therapy.

References

1. Hattori A, Suzuki K, Takamochi K, Wakabayashi M, Aokage K, Saji H, et al. Prognostic impact of a ground-glass opacity component in clinical stage IA non-small cell lung cancer. *J Thorac Cardiovasc Surg.* 2021; 161:1469-80.
2. Kadota K, Nitadori J, Sima CS, Ujiie H, Rizk NP, Jones DR, et al. Tumor spread through air spaces is an important pattern of invasion and impacts the frequency and location of recurrences after limited resection for small stage I lung adenocarcinomas. *J Thorac Oncol.* 2015;10:806-14.
3. Starkov P, Aguilera TA, Golden DI, Shultz DB, Trakul N, Maxim PG, et al. The use of texture-based radiomics CT analysis to predict outcomes in early-stage non-small cell lung cancer treated with stereotactic ablative radiotherapy. *Br J Radiol.* 2019;92:20180228.
4. Wang X, Duan H, Li X, Ye X, Huang G, Nie SD. A prognostic analysis method for non-small cell lung cancer based on the computed tomography radiomics. *Phys Med Biol.* 2020;65:045006.