Georgia Institute of Technology and
Emory University
Atlanta, Ga

^cDepartment of Cardiac Surgery
Cardiovascular Center
University of Michigan Hospitals
Ann Arbor, Mich

References

1. Lancellotti P, Moura L, Pierard LA, Agricola E, Popescu BA, Tribouilloy C, et al. European Association of Echocardiography. European Association of Echocardiography recommendations for the assessment of valvular regurgitation. Part 2: mitral and tricuspid regurgitation (native valve disease). *Eur J Echocardiogr*. 2010;11:307-32.
2. Acker MA, Parides MK, Perrault LP, Moskowitz AJ, Gelijns AC, Voisine P, et al. Mitral-valve repair versus replacement for severe ischemic mitral regurgitation. *N Engl J Med*. 2014;370:23-32.
3. Borger MA, Alam A, Murphy PM, Doenst T, David TE. Chronic ischemic mitral regurgitation: repair, replace or rethink? *Ann Thorac Surg*. 2006; 81:1153-61.
4. Rabbah JPM, Saikrishnan N, Siefert AW, Santhanakrishnan A, Yoganathan AP. Mechanics of healthy and functionally diseased mitral valves: a critical review. *J Biomech Eng*. 2013;135:021007.

<http://dx.doi.org/10.1016/j.jtcvs.2014.07.005>

THE ROLE OF LYMPHATIC INVASION IN THE MANAGEMENT OF PATIENTS WITH T1N0M0 PULMONARY ADENOCARCINOMA

To the Editor:

We read with interest the article by Mimae and colleagues¹ about the role of the lymphatic invasion (LI) at specimen examination in predicting prognosis in patients with clinically assessed T1N0M0 lung adenocarcinoma.

Mimae and colleagues¹ based their investigation on the evidence that some patients with clinically assessed T1N0M0 (6.7%) showed positive pathologic lymph node metastasis even though both computed tomographic and positron emission tomographic findings were negative at preoperative staging. Predictably, analysis of the clinical outcomes confirmed that patients with pN(+) disease had an higher positive rate of

LI and a lower prognosis than those with pN(−) disease.

Mimae and colleagues¹ also found that LI was a prognostic factor in patients with both pN(+) and pN(−) patients and, surprisingly, that there was no difference in prognosis between patients with pN(+) LI(−) disease and those with pN(−) LI(+) disease. These results could be explained if we were to admit the following: (1) that in pN(+) LI(−) cases, the tumor had a “slight” LI missed at the examination of the specimen slices, and (2) that LI, when present, is already a sign of malignant cells spreading even if nodal involvement has not been reached or revealed. Mimae and colleagues¹ therefore concluded that if LI status can classify clinical T1N0M0 into good or poor prognosis groups, it should be considered in the selection of patients who need adjuvant therapy.

We agree with Mimae and colleagues¹ and suggest a role for LI in the surgical strategy choice. Indeed, many cases of recurrence in patients with stage IA disease, particularly after limited resections,² could be explained by LI status. It is a common opinion³ that the high rate of recurrences in sublobar resection should be mainly ascribed to inadequate resection margins. In fact, according to the results of Mimae and colleagues,¹ in cases of LI only lobectomy allows the entire lobar lymphatic pathway removal, avoiding the spread of malignant cells. Limited resection should be considered adequate only in cases of N(−) LI(−) disease; unfortunately, however LI cannot be determined preoperatively or intraoperatively. These findings thus may limit the role of sublobar resection in patients with N0 disease.

We conclude by congratulating Mimae and colleagues¹ for their study.

Alessandro Baisi, MD
Federico Raveglia, MD
Alessandro Rizzi, MD

Ugo Cioffi, MD, PhD
Thoracic Surgery Unit
Ospedale San Paolo
University of Milan
Milan, Italy

References

1. Mimae T, Tsutani Y, Miyata Y, Yoshiya T, Ibuki Y, Kushitani K, et al. Role of lymphatic invasion in the prognosis of patients with clinical node-negative and pathologic node-positive lung adenocarcinoma. *J Thorac Cardiovasc Surg*. 2014;147: 1820-6.
2. Baisi A, De Simone M, Cioffi U, Raveglia F. Should pulmonary lobectomy be replaced by sublobar resection in patients with stage I non-small cell lung cancer? *J Thorac Cardiovasc Surg*. 2014; 147:1997-8.
3. Kent M, Landreneau R, Mandrekar S, Hillman S, Nichols F, Jones D, et al. Segmentectomy versus wedge resection for non-small cell lung cancer in high-risk operable patients. *Ann Thorac Surg*. 2013;96:1747-54.

<http://dx.doi.org/10.1016/j.jtcvs.2014.06.035>

Reply to the Editor:

We are grateful for the letter we received from Baisi and colleagues regarding our study¹ and delighted by their thoughtful insight into our results. As they described in the letter, the main point of our study was that lymphatic invasion (LI) is a predictive prognostic factor in patients with pN(+) and pN(−) clinical T1N0 lung adenocarcinoma. In addition, the recurrence-free survival curves of pN(+) LI(−) and pN(−) LI(+) tumors did not significantly differ. Thus, not only pN(+) LI(−/+), but also pN(−) LI(+) might indicate the presence of micrometastases. A pN(−) LI(+) lung adenocarcinoma does not always strictly correspond to localized disease. Therefore, patients with pN(−) and LI(+) tumors should be considered candidates for adjuvant therapy.

The suggestion about the role of LI status in the choice of surgical strategy is important. Although both wedge resection and segmentectomy are classified as limited resection, segmentectomy differs from wedge

resection with respect to lymph node dissection, which can proceed during radical segmentectomy, but not wedge resection.² Anatomic segmentectomy with lymph node dissection and an adequate surgical margin is considered curative for clinical T1aN0 and pathologic N(-) LI(-/+) peripheral lung tumors. We proposed pN0 criteria that included solid tumors ≤ 0.8 cm and a maximum standardized uptake value of ≤ 1.5 .³ Solitary peripheral lung lesions with preoperative radiographic findings that meet the criteria can be cured by segmentectomy with lymph node dissection. In contrast, wedge resection and segmentectomy with adequate margins and without lymph node dissection are considered curative for clinical T1aN0 and pathologic N(-) LI(-) peripheral lung lesions. However, LI(-) status cannot be proved before or during surgery. Thus, preoperative

radiographic findings for predicting LI status are needed to establish the optimal criteria for limited resection without lymph node dissection. In addition, because recent studies have shown that histologic subtypes correspond to the malignant aggressiveness of lung adenocarcinoma,⁴ the criteria for limited resection with and without lymph node dissection should also include the preoperative findings for predicting histologic subtypes.

From our findings, we believe the optimal surgical strategy for cT1N0M0 adenocarcinomas should be determined by considering LI, lymph node status, and histologic subtypes. The identification of predictors for these factors is essential.

Takahiro Mimae, MD, PhD

Morihito Okada, MD, PhD

Department of Surgical Oncology

Hiroshima University
Hiroshima, Japan

References

1. Mimae T, Tsutani Y, Miyata Y, Yoshiya T, Ibuki Y, Kushitani K, et al. Role of lymphatic invasion in the prognosis of patients with clinical node-negative and pathologic node-positive lung adenocarcinoma. *J Thorac Cardiovasc Surg.* 2014; 147:1820-6.
2. Okada M. Radical sublobar resection for small-diameter lung cancers. *Thorac Surg Clin.* 2013;23:301-11.
3. Tsutani Y, Miyata Y, Nakayama H, Okumura S, Adachi S, Yoshimura M, et al. Prediction of pathologic node-negative clinical stage IA lung adenocarcinoma for optimal candidates undergoing sublobar resection. *J Thorac Cardiovasc Surg.* 2012;144:1365-71.
4. Okada M. Subtyping lung adenocarcinoma according to the novel 2011 IASLC/ATS/ERS classification: correlation with patient prognosis. *Thorac Surg Clin.* 2013;23:179-86.

<http://dx.doi.org/10.1016/j.jtcvs.2014.07.023>

Notices of Correction

Re: Hoganson DM, Anderson JL, Weinberg EF, Swart EJ, Orrick BK, Borenstein JT, Vacanti JP. Branched vascular network architecture: a new approach to lung assist device technology. *J Thorac Cardiovasc Surg.* 2010;140:990-5.

In the above-noted article, Eric Swart's name included an incorrect middle initial. The corrected author list is printed below.

David M. Hoganson, MD, Jennifer L. Anderson, MD, Eli F. Weinberg, PhD, Eric Swart, BS, Brian K. Orrick, BS, Jeffrey T. Borenstein, PhD, and Joseph P. Vacanti, MD

Re: Calafiore AM, Refaie R, Iacò AL, Asif M, Al Shurafa HS, Al-Amri H, Romeo A, Di Mauro M. Chordal cutting in ischemic mitral regurgitation: a propensity-matched study. *J Thorac Cardiovasc Surg.* 2014;148:41-6.

In the above-noted article, Dr Refaie's second affiliation was inadvertently omitted. The corrected author list and affiliations are printed below.

Antonio M. Calafiore, MD,^a Reda Refaie, MD,^{a,c} Angela L. Iacò, MD,^a Mahmood Asif, MD,^a Heythem S. Al Shurafa, MD,^b Hussein Al-Amri, MD,^b Antonella Romeo, MD,^d and Michele Di Mauro, MD^{a,c}

From the Department of Adult Cardiac Surgery^a and Department of Adult Cardiology,^b Prince Sultan Cardiac Center, Riyadh, Saudi Arabia; Department of Cardiothoracic Surgery,^c Mansoura University, Mansoura, Egypt; Department of Cardiology,^d University of Catania, Catania, Italy; and Department of Cardiology,^e University of L'Aquila, L'Aquila, Italy.