FIGURE 1. The illustration demonstrates the isovolumetric contraction phase of the left ventricle. Note that both aortic and mitral valves are in the closed position, and the atria and right ventricle are removed. A, The illustration demonstrates the occurrence of mitral regurgitation in functional ischemic mitral regurgitation. B, The illustration demonstrates the annular downsizing, equatorial dilatations, and increased sphericity that may be the deleterious effects of downsizing mitral annuloplasty during the isovolumetric contraction phase. C, The illustration demonstrates true sizing mitral annuloplasty and patch augmentation.

leaflet angle accurately predicts outcome after restrictive mitral valve annuloplasty for ischemic mitral regurgitation. *Circulation*. 2007;115:782-91.

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

Reply to the Editor:

Advances in mitral valve repair have taught us that judicious annular downsizing with a complete rigid ring abolishes ischemic mitral regurgitation (IMR) in most cases. In a select subgroup, however, downsized annuloplasty can fail, resulting in persistent or recurrent mitral regurgitation. In analyzing these patients, preoperative predictors of repair failure have been advocated that may potentially aid future procedure selection.¹ Despite this knowledge, uncertainty remains in selecting the best procedure for eliminating mitral regurgitation.

The importance of surgically eliminating mitral regurgitation was highlighted in a recent clinical trial assessing the relative effectiveness of annuloplasty and replacement in severe IMR.² This study reported no significant differences at 12 months in reverse ventricular remodeling, survival, and clinical outcomes between patients undergoing mitral valve annuloplasty and replacement. Conclusions drawn from this study,

however were dampened by the finding that 32% of patients undergoing annuloplasty exhibited significant recurrent mitral regurgitation, reduced left ventricular remodeling, and impaired survival. This patient subset emphasizes the importance of selecting repairs that terminate IMR and prohibit persistent or recurrent regurgitation. Moreover, it is necessary to categorize future IMR outcomes into 3 distinct groups: repair, replacement, and repair with persistent or significant recurrent regurgitation.

The letter by Tavlasoglu and colleagues further underlines the importance of improving patient outcomes by selecting repairs that eliminate IMR. In cases in which downsized annuloplasty is anticipated to be suboptimal, we agree that adjunct techniques may assist in maximizing coaptation length, reducing tethering, and ceasing regurgitation. As described by Tavlasoglu and colleagues, this is particularly critical when extensive equatorial left ventricular dilatation and chordalization of the posterior leaflet is observed. Beyond leaflet augmentation, other adjunct techniques have demonstrated success and should be considered. These include papillary muscle relocation, papillary muscle approximation, chordal cutting, and external ventricular constraint.^{3,4} Regardless

of the chosen technique, 2 fundamental goals are consistent in these procedures: maximizing leaflet coaptation and reducing subvalvular tethering. Only when elimination of IMR cannot predictably be achieved by repair should selective replacement be considered.

In light of current controversies in patient and procedure selection, a critical need exists to evaluate IMR surgical techniques on the basis of robust quantitative data. Clinical, animal, and in vitro studies must continue to address this challenge directly by providing evidence-based insight into procedure selection in targeted subsets of patients with IMR.²⁻⁴ Clinical decisions made from robust quantitative data will improve methods for eliminating IMR and potentially improve long-term patient outcomes. These efforts are important now more than ever to address and treat the significant and growing clinical burden of IMR.

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<http://dx.doi.org/10.1016/j.jtcvs.2014.07.014>

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.

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<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