

The authors reported no conflicts of interest.

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non-small cell lung cancer who undergo sublobar resection. *J Thorac Cardiovasc Surg.* 2018;156:394-402.

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**REPLY FROM  
AUTHORS: POSITIVE  
NODES AFTER  
SEGMENTECTOMY:  
TAKE A DEEP BREATH  
AND GIVE ADJUVANT  
TREATMENT**



**Reply to the Editor:**

Intentional segmentectomy is gaining acceptance as the procedure of choice for small (<2 cm) clinical N0 non-small cell lung cancer (NSCLC). Controversy about the oncologic equivalence of both operations will continue until results from the randomized controlled trials CALGB1405035 and JCOG0802/WJOG4607L are reported. It is not surprising that our findings generate expressions of caution among thoracic surgeons, who may believe in significant oncologic benefits of lobectomy over segmentectomy in regards to obtaining larger negative margins and greater lymph node counts. There is no doubt that the presence of unsuspected nodal disease is significantly associated with lower survival; however, our findings indicate that lobectomy does not offer better survival than segmentectomy in this population.<sup>1</sup>

Liu and colleagues<sup>2</sup> argue that applying more-stringent selection criteria for segmentectomy might avoid the dilemma of having to decide on completion lobectomy, if unsuspected lymph node disease is found. Quite the contrary, we embrace those findings. A positive nodal disease implies successful nodal dissection irrespective of lobectomy or segmentectomy. Substantial evidence exists that lymph node disease compounds many (if not most) of the local histopathologic tumor characteristics as being the supreme prognostic marker.<sup>3</sup> And, as our results show, adjuvant systemic treatment improves survival in patients with unsuspected lymph node disease irrespective of the extent of lung resection. Moreover, our study does not serve as a general comparison between segmentectomy and lobectomy for cT1aN0 NSCLC, as we only studied subset of

patients who were pathologically upstaged with regional lymph node metastases (pN1/N2). Therefore, it should not be construed with comparative analysis between lobectomy and segmentectomy for stage I NSCLC, as shown by Khullar and colleagues<sup>4</sup> and Speicher and colleagues.<sup>5</sup>

We agree with Liu and colleagues that intentional segmentectomy should follow proper oncologic principles, including negative margins equal to at least the diameter of the tumor and a thorough lymph node dissection to avoid false understaging. As asserted by the authors, more work is also needed to study the significance of spread through air spaces when selecting patients for segmentectomy. However, we believe that using a strict inclusion criteria for segmentectomy based on consolidation/tumor ratio of  $\leq 0.5$  might be unnecessary, as similar survival have also been shown between sublobar resection and lobectomy for pure solid stage IA NSCLC by the International Early Lung Cancer Action Program (I-ELCAP) investigators.<sup>6</sup> Similarly, we are not convinced that frozen section at stations 10 to 13 should be mandated for cT1N0 NSCLC, as we have shown that completion lobectomy may not offer any additional survival benefit in patients with unsuspected lymph node metastases.

In summary, we believe that selection criteria for segmentectomy should include several variables not completely defined yet, and caution should be exercised about the inappropriate use of segmentectomy in good surgical candidates for lobectomy. However, when unsuspected lymph node disease is found on final pathology, adjuvant chemotherapy appears to have a greater impact on overall survival than the type of anatomic resection.

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**REPLY: THE IMPORTANCE OF APPROPRIATE SELECTION FOR SEGMENTECTOMY**



**Reply to the Editor:**

We appreciate the response to our commentary by Liu and colleagues<sup>1</sup> regarding the study by Razi and colleagues<sup>2</sup> evaluating segmentectomy versus lobectomy for cT1 N0 M0 non-small cell lung cancer who were discovered to have “unsuspected” pathologic N1 or N2 disease. We largely agree with the key points raised by Liu and colleagues. Appropriate selection of patients for segmentectomy is critical. In general, segmentectomy can be a reasonable choice for small, peripheral tumors that are  $\leq 2$  cm in diameter when a segmental margin that is greater than or equal to the tumor diameter is achievable, particularly in patients with advanced age, who are frailer and have reduced cardiopulmonary reserve. There are 2 ongoing randomized controlled trials—the results of which are eagerly anticipated—designed to further improve our understanding of patient selection for limited resection for cT1a (peripheral tumors  $< 2$  cm) N0 M0 non-small cell lung cancer: CALGB 140503<sup>3</sup> and JCOG0802/WJOG4607L.<sup>4</sup>

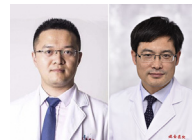
In the era of lung cancer screening and increased identification of small, peripheral tumors, the uncommon scenario of unsuspected N1 and N2 disease during a segmentectomy will likely become more frequent. It will be important to continue evaluating questions regarding the extent of parenchymal resection in the setting of N1 and unsuspected N2 disease in well-designed multicenter studies that have granular data that include details about N1 and N2 lymph nodes and that have data regarding pulmonary function.

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**ROBOTIC SEGMENTECTOMY: WE ARE STILL ON THE WAY**



**To the Editor:**

In their Commentary, Song and Flores<sup>1</sup> propose several thoughtful questions and describe certain limitations of robotic segmentectomy. We cannot agree with them more. However, we are still willing to clarify the question inherent to their Commentary.

Our study<sup>2</sup> indicated that robot-assisted thoracic surgery (RATS) demonstrated improved N1 node retrieval as a potential benefit; however, nodal upstaging did not achieve a significant difference between the 2 groups. We only observed 2 cT1b N0 adenocarcinomas in the RATS group upstaged to pT1b N2 after propensity score-matched analysis.<sup>2</sup> The possible reasons for this low rate of nodal upstaging in our study were the careful determination of clinical stage with positron-emission tomography, computed tomography, and other methods as well as strict selection of slowly growing ground glass opacity (GGO) nodules for segmentectomy procedures in both cohorts. It seems that difference in nodal upstaging between these 2 techniques is still controversial. Wilson and colleagues<sup>3</sup> reported that the rate of nodal upstaging for robotic anatomical resection, including lobectomy and segmentectomy, appeared to be superior to video-assisted thoracoscopic surgery (VATS) and similar to thoracotomy for stage I non-small cell lung cancer. Further, a recent