Lung Cancer Growth Curves Based on CT Imaging

To the Editor:

We read with interest the recent article in CHEST (December 2009) by Lindell et al in which the authors state that this “study is the only one to have evaluated growth curves of lung cancers using multiple CT scans.” We would like to point out our previously published article that examined growth rates in 54 lung lesions, including 33 primary non-small cell lung cancers, based on volumetric measurements from thin-section CT imaging. Individual growth curves were plotted for the 20 lesions with >=3 CT scans, including 13 non-small cell lung cancers. As in the study by Lindell et al, we found considerable variability in growth rates among the individual cancers that were analyzed. On the other hand, however, most of our lesions showed exponential growth, differing somewhat from the results of Lindell et al.

Lindell et al noted that their study was limited by the accuracy of two-dimensional measurements for volume calculation. Indeed, in our study, we found that calculated growth rates differed substantially, depending on the volume measurement technique used (ie, based on lesion diameter, lesion area, or direct volume measurement using automatic segmentation and direct volume measurement); presumably, direct volume measurements are superior to the other methods because primary lung cancers are not spherical and often grow asymmetrically. Despite the potential limitations of our studies, CT imaging-based growth rates are undoubtedly more accurate than the oft-quoted rates based on data derived from older chest radiography studies.

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References