CT in the operating room allows more precise removal of small lung cancers

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A new technique that brings CT imaging into the operating room will allow surgeons to precisely demarcate and remove small sub-centimeter lung nodules, leaving as much healthy tissue as possible, according to Raphael Bueno, MD, of Brigham and Women's Hospital in Boston. His team is presenting the results of this late-breaking research at the 94th AATS Annual Meeting in Toronto, ON, Canada on April 30, 2014.

Lung cancer remains the deadliest cancer and a recent study, the National Lung Cancer Screening Trial, indicated that screening with low-dose computed tomography (CT) scans in smokers, who have certain risk factors, may decrease the number of deaths. Lung cancer screening with CT can detect many small lung lesions that can potentially be cancerous and should be removed surgically. The goal is to remove these small lung cancers but at the same time spare as much healthy lung as possible. To do so requires being able to precisely determine the exact location of the nodule and its margins.

"These results are exciting and promising, indicating that image-guided lung surgery could play a significant role in the treatment of lung cancer ," says Dr. Bueno. "This surgical approach has the potential to increase accuracy and reduce errors. It is like using GPS to navigate to the destination and perform a true surgical strike."

In this phase I/II clinical study conducted in conjunction with researchers from the Siemens Corporation, 20 patients were identified who had small pulmonary nodules in the outer half of the lung. Previous

CT scans showed that the lesions were very small, ranging from 0.6 to 1.8 cm. The nodules were so small that they could not be easily palpated or seen.

Using a CT scanner in the operating room, surgeons first marked the location of the lung nodules by inserting two small markers (T-bars) through the skin and placing them next to the nodule. The markers have attached wires that make them visible to surgeons during the resection process. This technique is safe and successful for nodule localization and all patients underwent complete removal of the lesions with minimal removal of healthy lung tissue.

"We propose that image-guided video assisted thoracic surgery (IVATS) can be used to improve the ability to precisely identify small pulmonary nodules and allow for resections of sub-centimeter nodules," says Dr. Bueno.

More information: "Image-Guided Video Assisted Thoracic Surgery (iVATS): A Phase I/II Clinical Trial's Preliminary Report," by Yifan Zheng, Ritu Gill, Jagadeesan Jayender, Julianne Barlow, Erin Girard, Philip Meade Hartigan, and Rapheal Bueno. Presentation at the 94th AATS Annual Meeting. April 26-30, 2014, Toronto, ON, Canada during the Adult Cardiac Surgery Session on April 30, 8:48 AM ET. aats.org/annualmeeting

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