

Lung VCAR clinical case study

Retrospective evaluation of lung nodules

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History

50-year-old woman with 25 year., 1.5 pack/day smoking history, and with chronic, intermittent bronchitis. Solitary, 1.1cm perifissural pulmonary nodule was found by CT. PET scan subsequently showed no abnormal metabolic activity.

Exam protocol

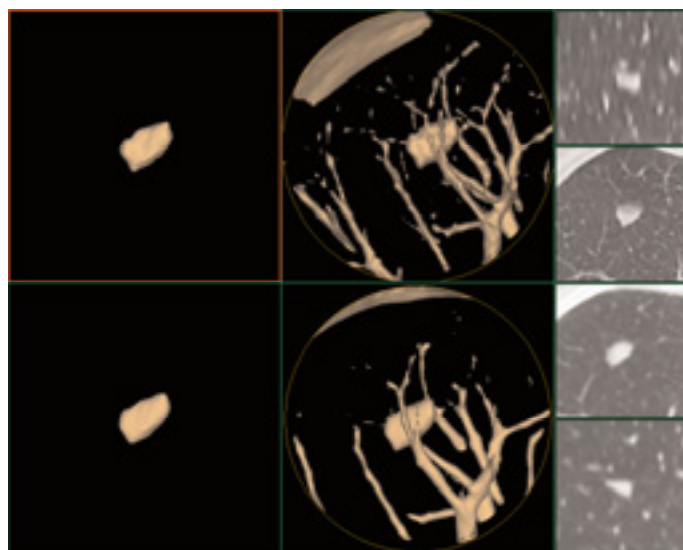
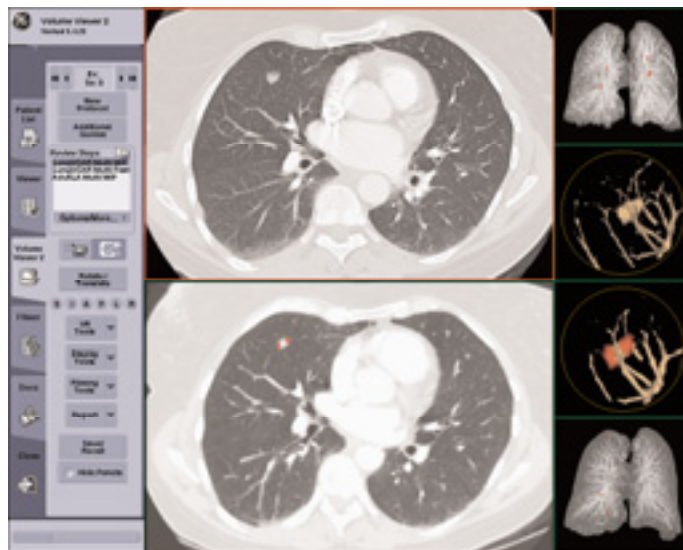
Current examination, dated 10/19/05 was obtained with 1.25mm image thickness in standard reconstruction algorithm, which was segmented and compared to a prior examination from 6/9/05. Earlier examination had been obtained as a routine thoracic CT examination, with 2.5mm image thickness in lung algorithm. Because raw data from the earlier examination was no longer available, the recommended 1.25mm images in standard algorithm were not reconstructed.

Findings

Retrospective calculation of the 6/9/05 exam revealed a nodule volume of 289mm³. Calculated volume decreased to 219mm³ on 10/19/05, for a -23% change. The range of error in volume calculation for a small nodule such as this, especially using 2.5mm thickness and lung algorithm, is most likely greater than 10-20%. The nodule was therefore felt to be stable, and close serial follow-up volume measurements were recommended, as opposed to biopsy.

Discussion:

This case shows the utility of the GE Lung VCAR™ software in order to retrospectively evaluate a lung lesion with intermediate to low suspicion, based on its location, morphologic appearance and absence of abnormal PET uptake. Although optimum segmentation is performed with 1.25mm image thickness and standard/bone reconstruction algorithm, retrospective calculation with routine 2.5mm images in lung algorithm may be used as an approximate method of confirming stability, as long as the increased range of uncertainty resulting from these methods is considered.



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