

Lung VCAR clinical case study

Using volume measurements to monitor nodule change prior to biopsy

Dr. Fergus Gleeson
Consultant Radiologist
Churchill Hospital, Oxford



History

A 76-year-old lady, undergoing chest CT examination as part of a study into the effects of passive smoking. A nodule was detected in the left upper lobe.

Exam protocol

	Exam 1	Exam 2	Exam 3
Slice thickness	1.25	1.25	1.25
MA	150	180	150
KV	120	120	120
DFOV	30cm	30cm	30cm
Table speed	16.75	16.75	16.75
Pitch	1.675	1.675	1.675
Scanner	GE LightSpeed®	GE LightSpeed	GE LightSpeed

Case findings

As it was technically difficult to biopsy, and the patient was unkeen to have further investigations, a follow-up scan was performed. Lung VCAR™ confirmed on first follow-up exam that the second scan confirmed that the nodule had increased in size by approximately 30%. The patient declined intervention and a policy of a further scan was agreed. The second follow-up exam confirmed further growth, and a subsequent biopsy revealed adenocarcinoma.

Exam date	2004-04-13	2004-10-19	2005-04-19
Slice index	155	133	145
Calcification	No	No	No
Density	Solid	Solid	Solid
Shape	Round	Round	Round
Surface	Smooth	Smooth	Smooth
Severity	Probably suspicious	Probably suspicious	Probably suspicious
L-R/A-P/I-S	10.5mm/13.5mm/17.6mm	10.9mm/14.4mm/16.4mm	13.5mm/14.6mm/18.9mm
Volume	630mm ³	815mm ³	874mm ³
Days growth		189 d	371 d
% growth		29%	39%
Doubling time		510 days	2 years 58 days

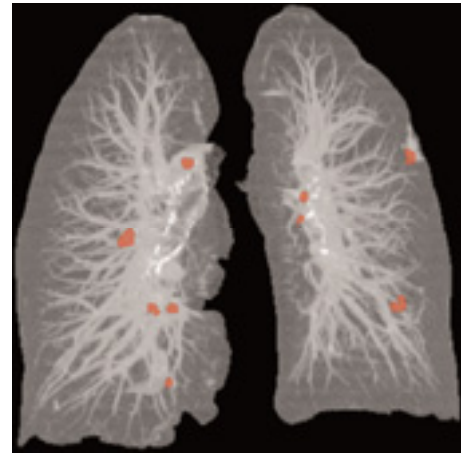


Figure 2
Exam 2 - mapping



Figure 1a
Exam 1 - axial

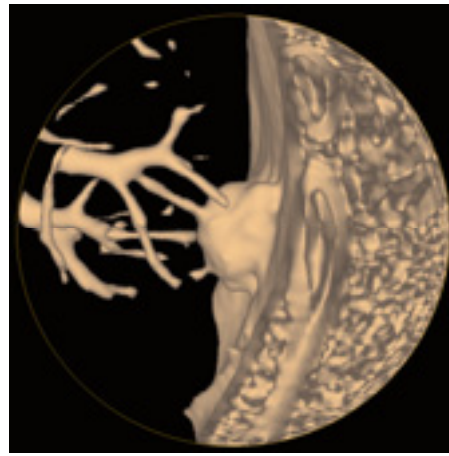


Figure 1b
Exam 1 - shutter

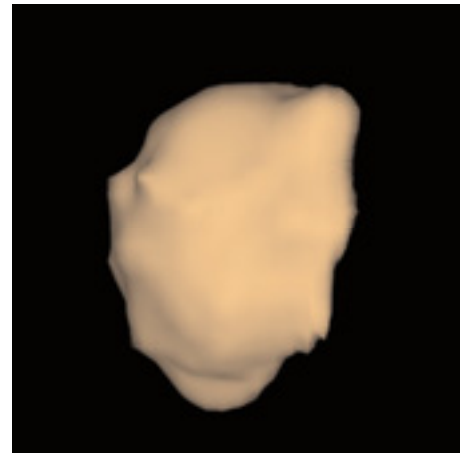


Figure 1c
Exam 1 - segment

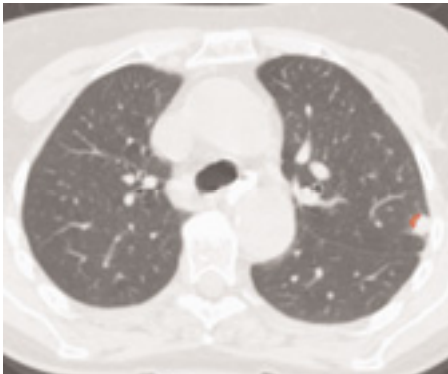


Figure 2a
Exam 2 - axial

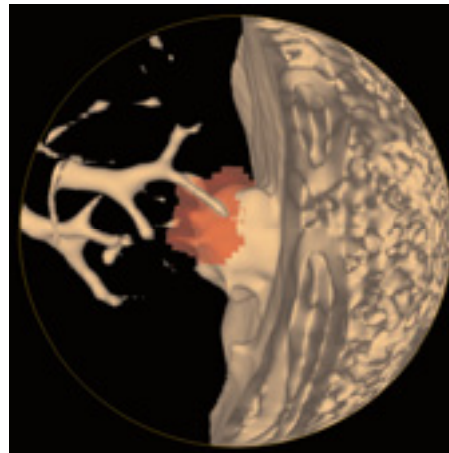


Figure 2b
Exam 2 - shutter

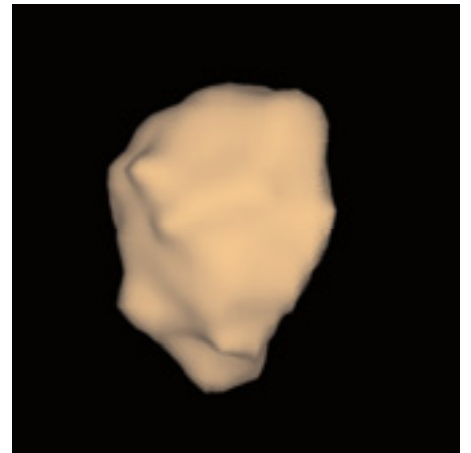


Figure 2c
Exam 2 - segment

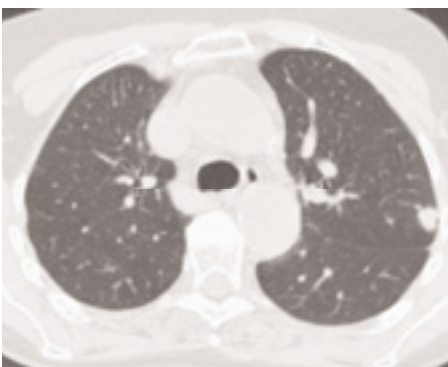


Figure 3a
Exam 3 - axial

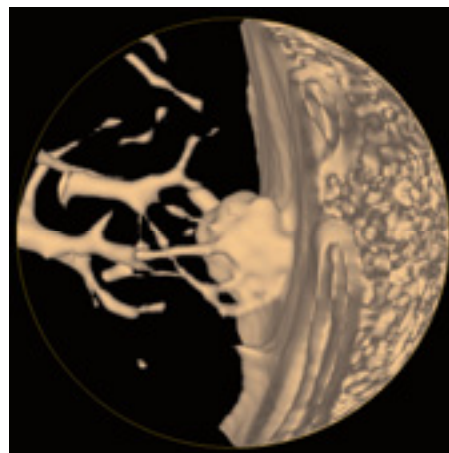


Figure 3b
Exam 3 - shutter

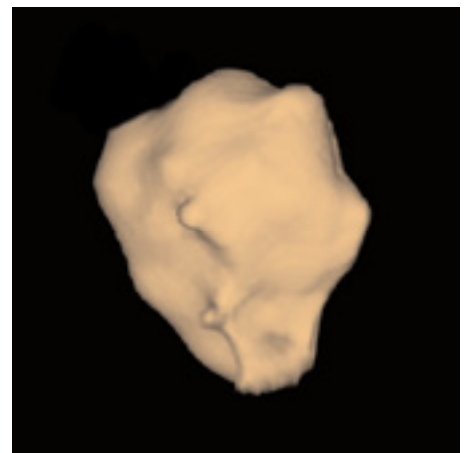


Figure 3c
Exam 3 - segment

©2005 General Electric Company – All rights reserved.

General Electric Company reserves the right to make changes in specifications and features shown herein, or discontinue the product described at any time without notice or obligation.

GE, GE Monogram, LightSpeed® and VCAR™ are trademarks of General Electric Company.

GE Medical Systems, a General Electric company, going to market as GE Healthcare.

For more than 100 years, scientists and industry leaders have relied on General Electric for technology, services and productivity solutions. So no matter what challenges your healthcare system faces – you can always count on GE to help deliver the highest quality services and support.

For details, please contact your GE Healthcare representative today.

GE Healthcare
3000 North Grandview
Waukesha, WI 53188
U.S.A.

www.gehealthcare.com



imagination at work