

Dual Source CT Lung Perfused Blood Volume imaging with Dual Energy

SOMATOM Definition Dual Energy scanning

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HISTORY

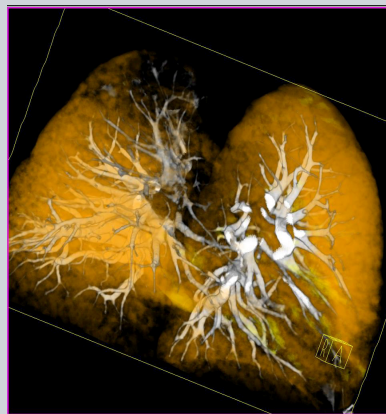
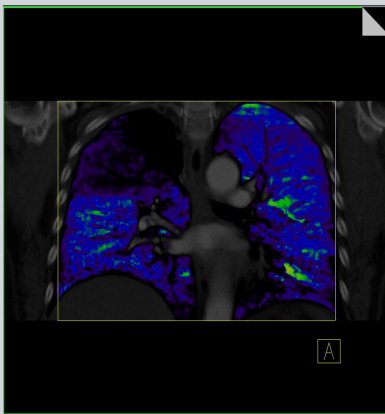
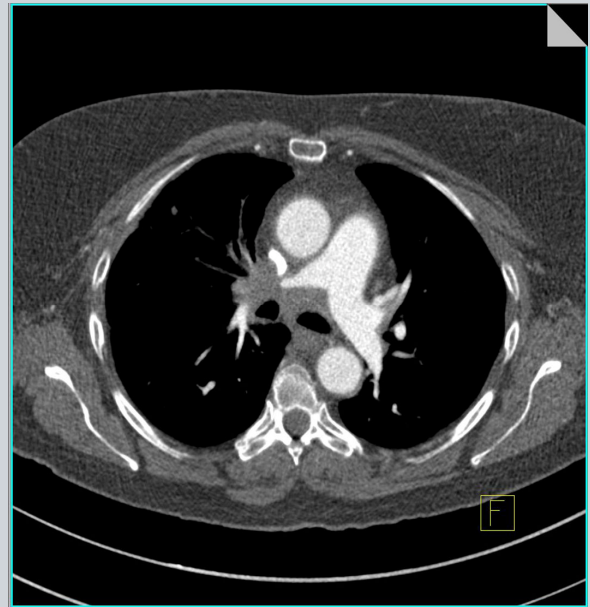
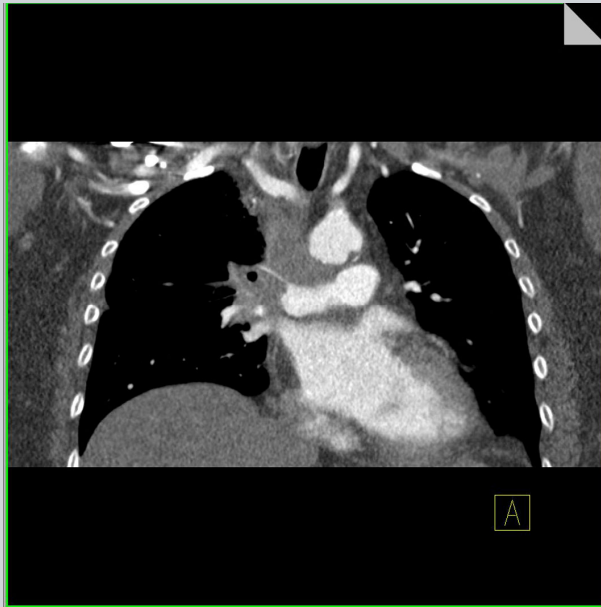
A 61 year old woman with known advanced lung cancer presented to the emergency department with sudden onset of shortness of breath, chest pain, and dropped arterial O₂-saturation. She was referred to pulmonary CT angiography for clinically suspected pulmonary embolism.

DIAGNOSIS

Pulmonary CTA was performed utilizing the Dual Energy Lung PBV protocol. Pulmonary embolism could be ruled out by CTA. Instead, a large lymph node mass in the upper mediastinum was identified. This mass caused encasing of the superior vena cava, the right pulmonary artery, and major obstruction of the right upper lobe branch. Analysis of the iodine distribution map with Dual Energy revealed a huge perfusion defect of the whole upper lobe of the right lung, explaining the woman's symptoms. The patient was then immediately referred to the Department of Radiation Oncology of our hospital for emergency irradiation.

COMMENTS

Analysis of pulmonary iodine distribution with Dual Energy can provide important information not only about the significance of intravascular obstruction such as pulmonary embolism but about vascular obstruction in general. The influence of vascular obstruction identified with the conventional morphological information of CT on hemodynamics can be assessed using different information of the same scan. Thus, Dual Energy CT can provide both morphological and functional information within one scan.



EXAMINATION PROTOCOL

<i>Scanner</i>	<i>SOMATOM Definition</i>
Scan area	<i>Thorax</i>
Scan length	<i>180 mm</i>
Scan time	<i>5 s</i>
Scan direction	<i>Caudo-cranial</i>
kV	<i>140/ 80 kV</i>
Effective mAs	<i>28/176 eff. mAs</i>
Rotation time	<i>0.33 s</i>
Slice collimation	<i>14 x 1.2 mm</i>
Reconstructed slice thickness	<i>1.5 mm</i>
Increment	<i>1 mm</i>
Kernel	<i>D30f</i>

The information presented in this case study is for illustration only and is not intended to be relied upon by the reader for instruction as to the practice of medicine. Any health care practitioner reading this information is reminded that they must use their own learning, training and expertise in dealing with their individual patients. This material does not substitute for that duty and is not intended by Siemens Medical Systems to be used for any purpose in that regard.

The drugs and doses mentioned herein are consistent with the approval labelling for uses and/or indications of the drug. The treating physician bears the sole responsibility for the diagnosis and treatment of patients, including drugs and doses prescribed in connection with such use. The Operating Instructions must always be strictly followed when operating the CT System. The source for the technical data is the corresponding data sheets. Results may vary.