Dual Source CT
Esophageal varices – Dual Energy imaging for treatment planning

SOMATOM Definition Dual Energy scanning

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HISTORY

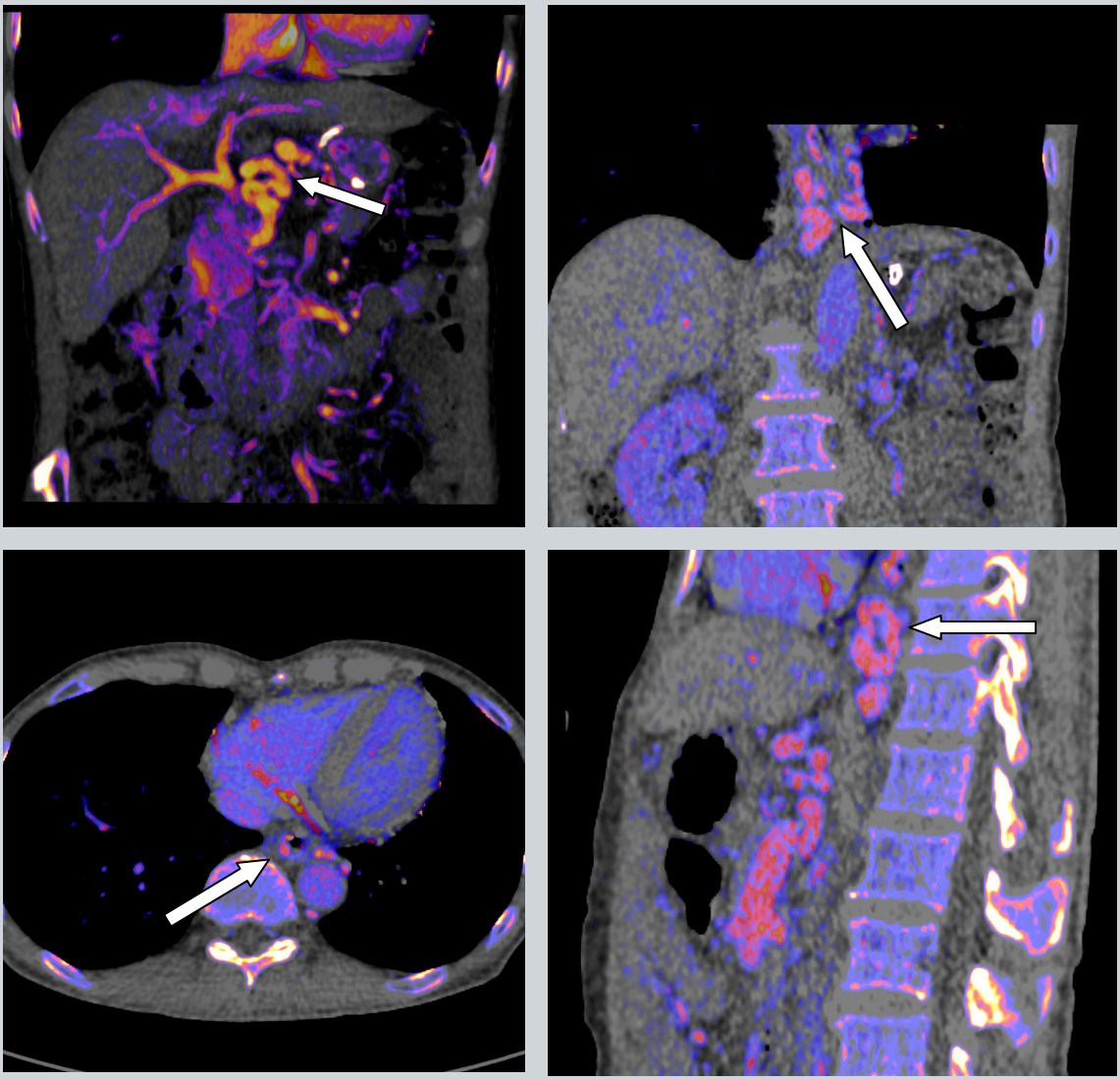
A 72 year-old male with liver cirrhosis and esophageal varices was referred to a Dual Source CT scan for planning the endoscopic treatment of his esophageal varices.
A scan of the abdomen was performed on the SOMATOM Definition using spiral Dual Energy evaluation.

DIAGNOSIS

The patient had developed esophageal varices as a result of portal hypertension secondary to liver cirrhosis. The Dual Energy arterial and portal venous phase scans revealed that collateral blood flow was established over the coronary vein (left gastric vein) to the esophageal varices.

COMMENTS

In the Dual Energy scan mode, two x-ray sources can be operated simultaneously at different kV levels. The results are two spiral data sets acquired in a single scan providing diverse information that allows one to differentiate, characterize, isolate, and distinguish the imaged tissue and material.
With the Liver Virtual Non-Contrast application, images of the vascular map can be superimposed on MPR virtual non-contrast liver images. In the present case, these images provide valuable information about the venous collateral circulation associated with esophageal varices and therefore make Dual Energy imaging useful for planning the endoscopic treatment of esophageal varices.



Dual Energy Virtual Non Contrast application visualizes the veins and varices surrounding the esophagus shown in red color. Collateral blood flow was established over the coronary vein

EXAMINATION PROTOCOL

Scanner	SOMATOM Definition
Scan area	*Abdomen*
Scan length	*237 mm*
Scan time	*8 s*
Scan direction	*Cranio-caudal*
kV	*140/80 kV*
Effective mAs	*50/198 eff mAs*
Rotation time	*0.5 s*
Slice collimation	*0.6 mm*
Reconstructed slice thickness	*1.0 mm*
Increment	*1.0 mm*
Pitch	*0.7*
Kernel	*D30f*
Contrast amount	*100 ml*
Contrast flow rate	*3 ml/sec*