

# Dual Source CT Carotid Stenosis diagnosed with Dual Energy

## SOMATOM Definition Dual Energy scanning

Authors: E. Hendrich, MD; A. Will, MD; St. Martinoff, MD.

Department of: Radiology and Nuclear Medicine, German Heart Center, Munich, Germany

### HISTORY

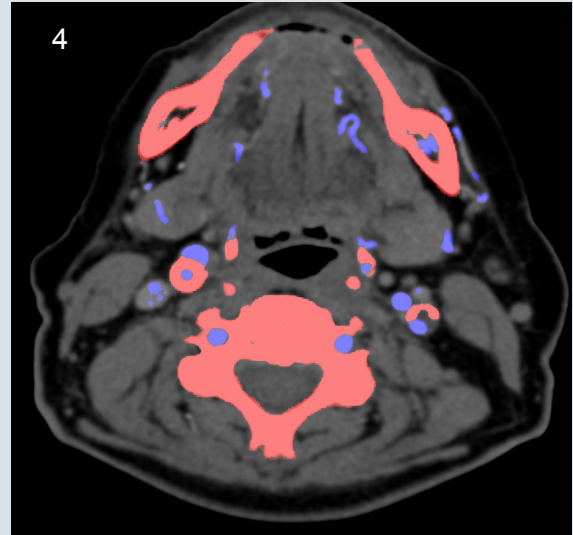
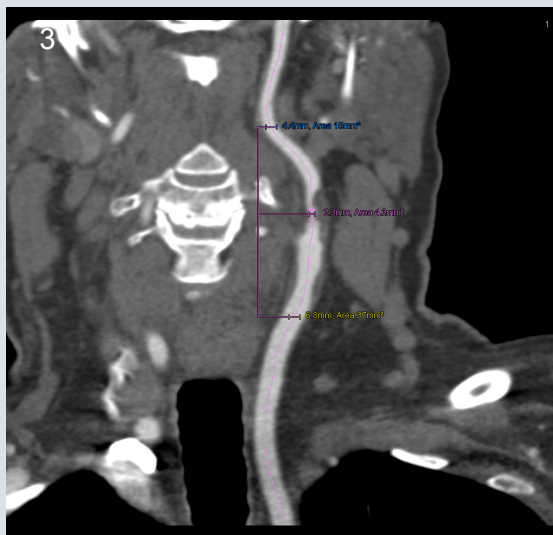
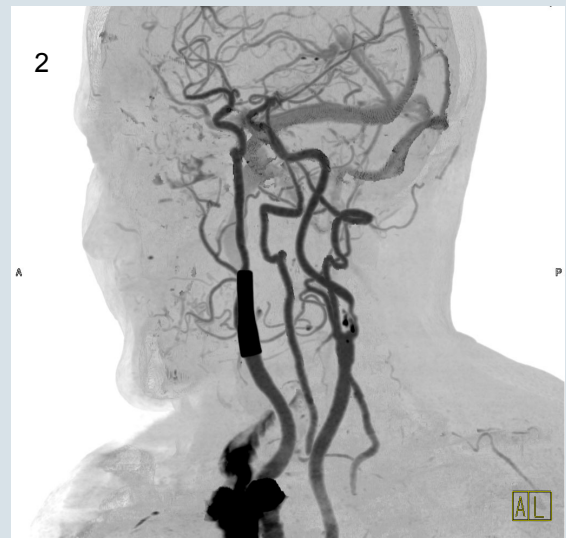
A 65 year-old woman presented with complaints about recurrent vertigo. Weeks ago, the leading stenosis in the right internal carotid artery (ICA) had been stented. During routinely performed ultrasound examination a stenosis was also seen in the left ICA. To verify these results and for planning of interventional PTA (percutaneous transluminal angioplasty) and stent positioning in the left ICA a CT-Angiography with Dual Energy technology has been accomplished subsequently.

### DIAGNOSIS

CT-Angiography proved the result of the ultrasound examination. A quite severe stenosis in the proximal left ICA, with cranio-caudal extension of 13 mm, due to a semicircular atheromatous plaque could be confirmed. A restenosis of the implanted stent in the proximal right ICA could be ruled out. Moreover, other profound arteriosclerotic alterations in the circle of willis could be excluded by CT-Angiography.

### COMMENTS

*Syngo* DE Direct Angio delivers reliable information about vessel status and therefore plays an important role in vessel imaging. The subtraction of bone structures and parallel visualization of calcified plaque provides the detailed analysis of vessel lumen and plaque. A very positive effect is the comfortable integration of Dual Energy into the post processing procedure. Hence *syngo* DE Direct Angio has become an inherent part of our vascular imaging workflow.



Pictures 1 & 2: Excellent visualization of the Carotid syphon and the stenosis in the proximal left ICA with VRT and MIP technique

Picture 3: Quantitative stenosis evaluation in Syngo InSpace AVA

Picture 4: Visualization of Plaque differentiation with DualEnergy

## EXAMINATION PROTOCOL

<i>Scanner</i>	<i>SOMATOM Definition</i>
<b>Scan area</b>	<b>Carotis</b>
<b>Scan length</b>	<b>281mm</b>
<b>Scan time</b>	<b>6s</b>
<b>Scan direction</b>	<b>caudo-cranial</b>
<b>kV</b>	<b>140/80</b>
<b>Effective mAs</b>	<b>48/204</b>
<b>Rotation time</b>	<b>0.33s</b>
<b>Slice collimation</b>	<b>0.6</b>
<b>Reconstructed slice thickness</b>	<b>0.75mm</b>
<b>Increment</b>	<b>0.6</b>
<b>Kernel</b>	<b>D30f</b>

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.