

Dual Source CT

Kidney tumor imaging with VNC Dual Energy

SOMATOM Definition Dual Energy scanning

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HISTORY

A 56-year-old male patient was referred to the University Hospital Pilsen with abdominal pressure pain near right kidney region.

The patient also experienced fever and weight loss.

A hematuria exists and has been proven by the general practitioner.

The proximate ultrasound shows a right kidney infiltration.

DIAGNOSIS

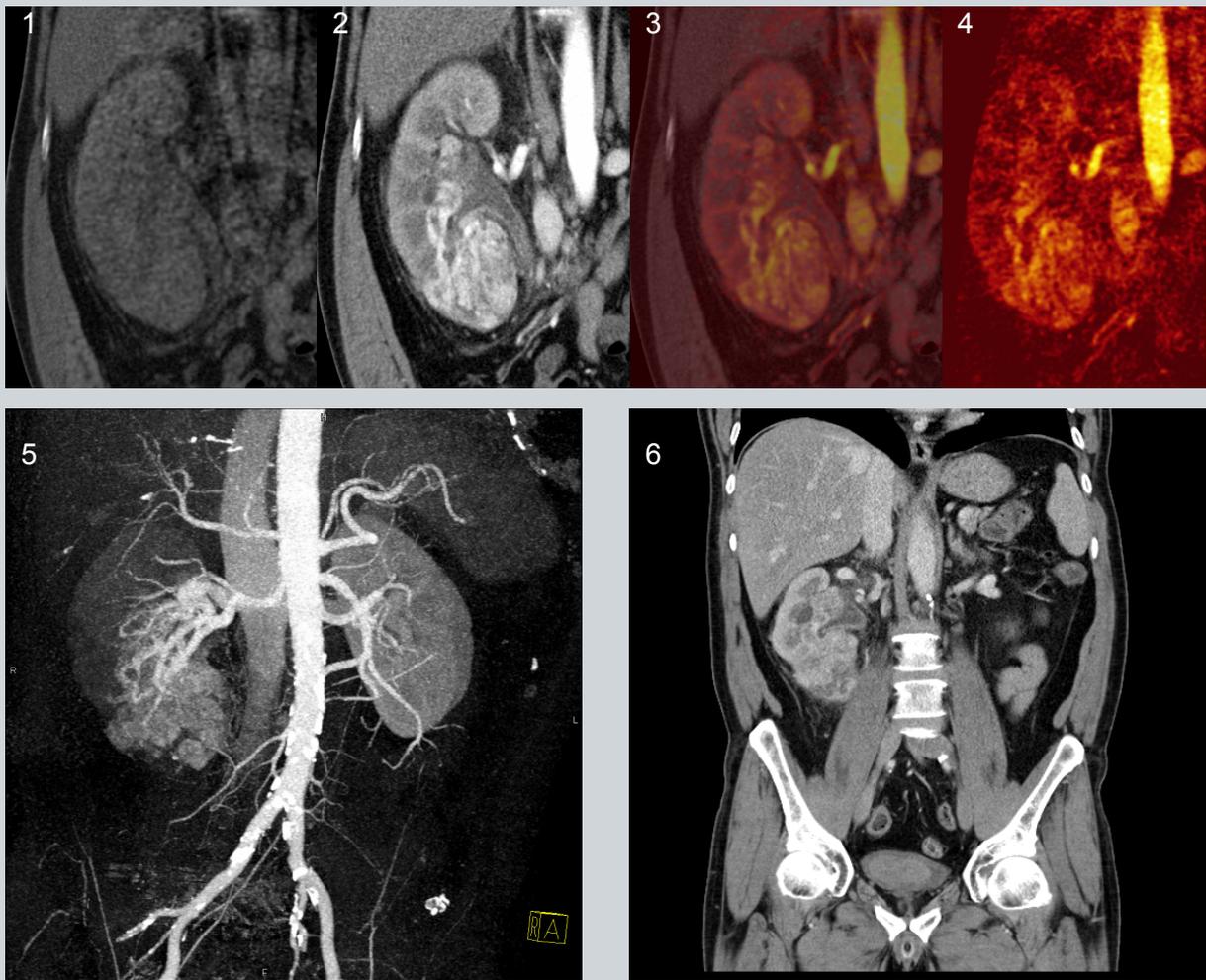
After the Dual Energy scan performed on the SOMATOM Definition Dual Source CT, the post processing of the images in VNC (Virtual non Contrast) displayed a color-coded iodine distribution map.

The Dual Energy iodine assignment confirms a tumor infiltration of the right kidney, emphasizing by color-codery the hypervascularized tumor tissue with involvement of the renal vein.

The same SOMATOM Definition DSCT scan verified metastases in retroperitoneal lymph nodes.

COMMENTS

In the Dual Energy 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. Enhancement patterns of kidney regions can clearly be visualized with the Dual Energy VNC application.



1. Dual Energy scan virtual non contrast (VNC)
2. Dual Energy scan composed data with contrast
3. Mixed visualization of VNC and iodine concentration
4. Dual Energy application highlights iodine concentration
5. VRT with Bone Removal shows vascular status of the tumor
6. Coronal reformation of the right kidney using Optimum Contrast

EXAMINATION PROTOCOL

<i>Scanner</i>	<i>SOMATOM Definition</i>
Scan area	Abdomen CTA
Scan length	500 mm
Scan time	17s
Scan direction	Cranio-Caudal
kV	140/80
Effective mAs	60/360
Rotation time	0.5 s
Slice collimation	0.6 mm
Reconstructed slice thickness	0.6 mm
Increment	0.4 mm
Kernel	B20f

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