

^{SURE}Subtraction Iodine Mapping for Bone Metastasis

"^{SURE}Subtraction imaging provides additional accuracy for the detection of small bone metastases."

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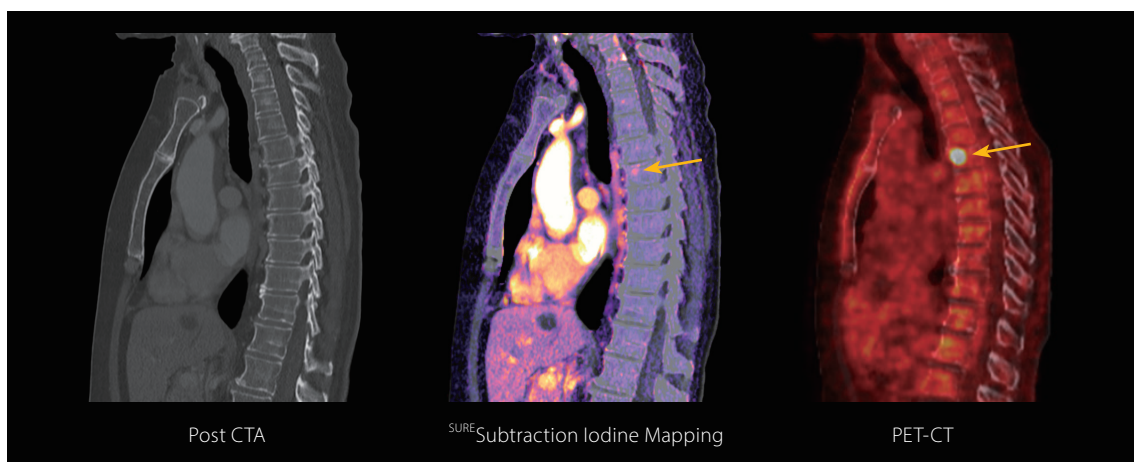
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Patient History

A 60-year-old man was diagnosed with non-small cell lung cancer of the left upper lobe. A multiphase chest-abdomen-pelvis scan was requested for initial staging of metastasis. Iodine maps were automatically generated from the multiphase data with ^{SURE}Subtraction integrated into the scan protocol.

Results

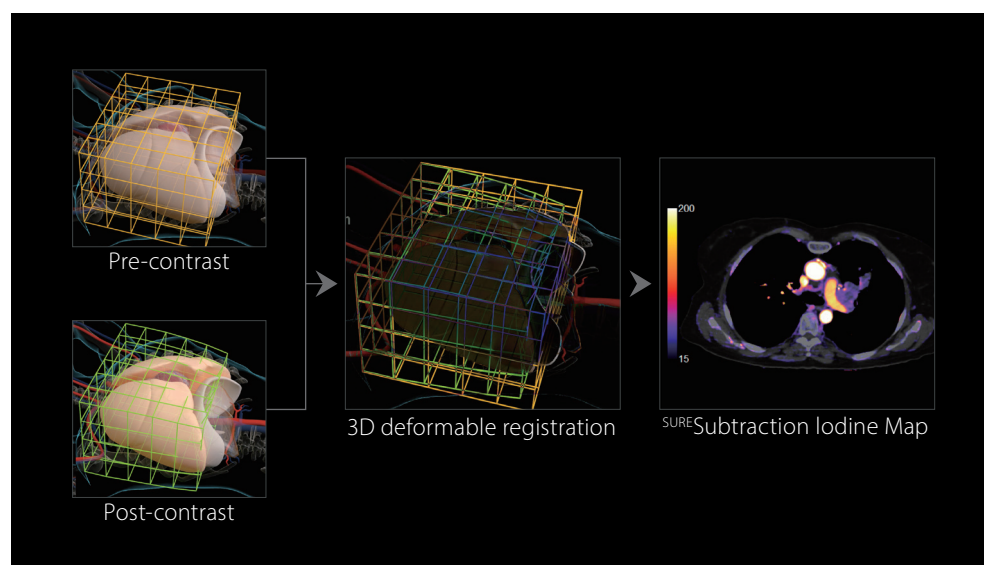


Reconstructions of bone and ^{SURE}Subtraction Iodine Mapping were performed automatically after the scan. The sagittal iodine map of the thoracic spine shows a bone metastasis (yellow arrows) in the thoracic vertebrae, which was not clearly visualized on the bone reconstruction of the thorax. The metastasis was confirmed with PET-CT.

Technology

^{SURE}Subtraction Iodine Mapping utilizes a pre- and post-contrast scan to isolate iodine signal.

The key to obtaining accurate results lies with an anatomically aware 3D deformable registration algorithm that compensates for patient motion which may occur between the two scans. This ensures highly accurate iodine signal extraction, with the result superimposed on the post-contrast CTA image as a color overlay to clearly demonstrate even subtle differences in HU attenuation.



Conclusion

^{SURE}Subtraction Iodine Maps can be generated from any routine multiphase scan protocol, which may help to improve the conspicuity of vascular lesions with color enhanced visualization.

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Clinical results may vary due to clinical setting, patient presentation and other factors.

Acquisition

Scanner Model: Aquilion PRIME

Scan Mode: ^{SURE}Subtraction Scan
Collimation: 0.5 mm x 80
Exposure: 120 kV, ^{SURE}Exposure
Rotation Time: 0.5 second
Dose Reduction: AIDR^{*1} 3D Enhanced
CTDI: 2.9 + 7.4 mGy
DLP: 195.2 + 282 mGy·cm
Effective Dose: 4.52 mSv
k-factor: 0.0145^{*2}

^{*1} Adaptive Iterative Dose Reduction

^{*2} American Association of Physicists in Medicine (AAPM) Report 96, 2008.

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