Case Study

Enhancing Diagnostic Confidence: Unleashing the Power of Iodine Mapping for CTPA Imaging

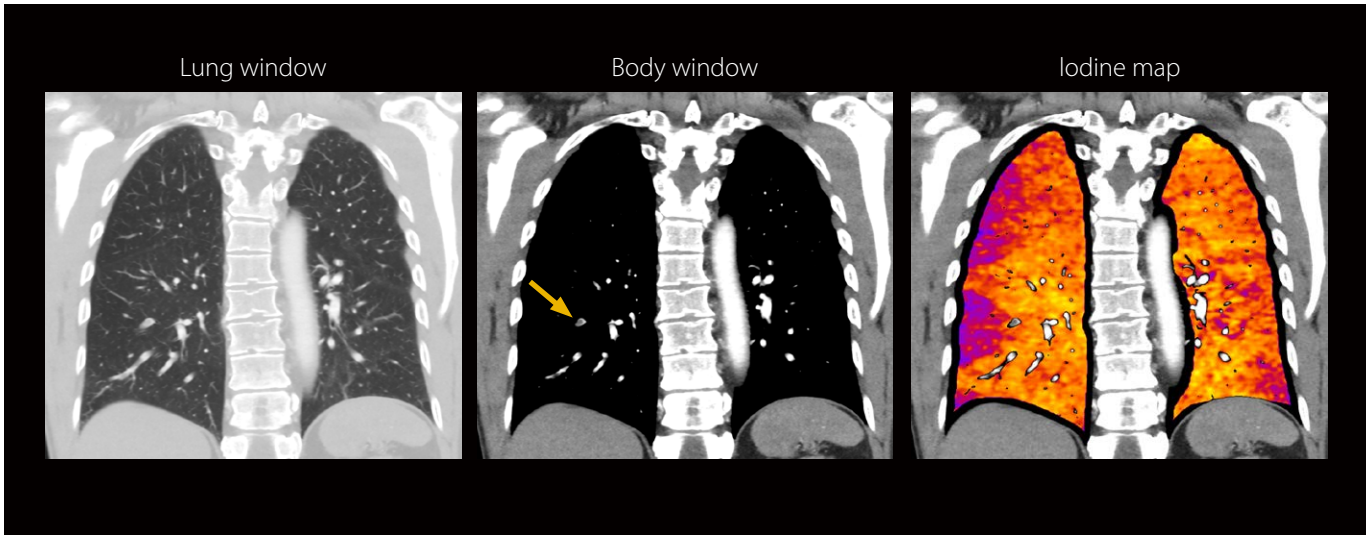
"We use Iodine mapping for CTPA imaging routinely for enhanced detection of pulmonary embolism.
It is particularly valuable in identifying sub-segmental emboli as well as chronic thromboembolic disease. The additional information provided by iodine maps improves diagnostic accuracy and aids in making crucial treatment decisions."

Dr. Russell Bull
Royal Bournemouth Hospital, United Kingdom

Patient History

Patient arrives to the emergency department with shortness of breath. A CT pulmonary angiogram (CTPA) is performed . The iodine maps are automatically generated and sent to PACS for immediate review.

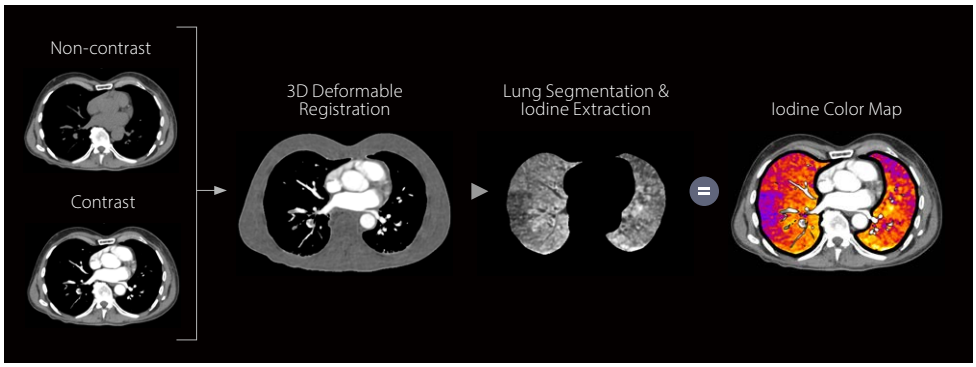
Result



The iodine maps demonstrate an area of hypo-perfusion indicative of a pulmonary embolus. This allowed the occlusive embolus to be rapidly identified in the right pulmonary circulation on the conventional gray scale anatomical images. The added information from the iodine maps facilitates the expedited and accurate diagnosis of pulmonary embolism, potentially saving valuable time in patient care.

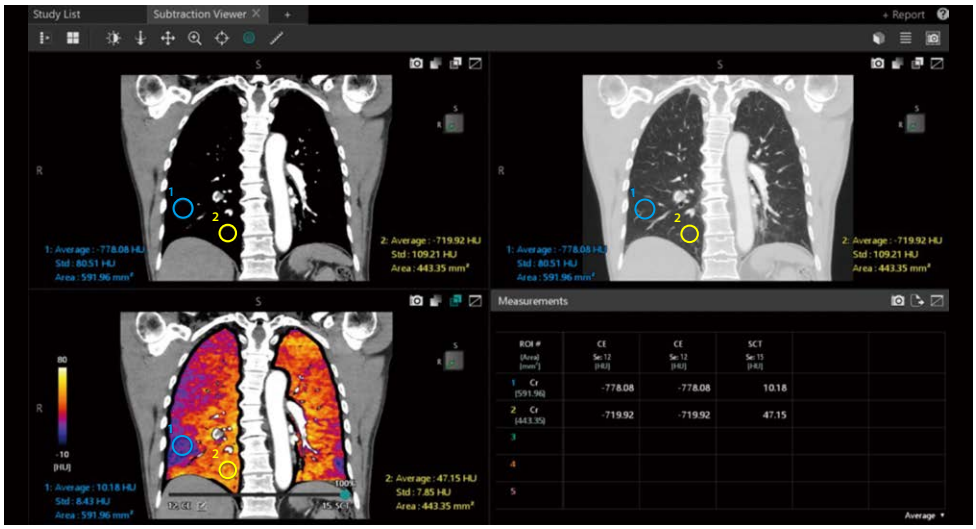
Technology

Iodine mapping SCT utilizes a 3D deformable registration algorithm for precise iodine signal extraction, compensating for patient motion. The extracted iodine is displayed in color, fused with the contrast-enhanced image, and automatically sent to PACS.



Subtraction Viewer

When using the SCT Viewer* it is also possible to interactively scroll the color iodine maps synchronized with the grayscale images for quick visualization and detection of hypoperfused areas.



Conclusion

In this patient the iodine maps demonstrated an area of hypo-perfusion allowing the rapid identification of a pulmonary embolus. Iodine mapping boosts diagnostic confidence, guiding informed decisions for pulmonary vascular disease management.

All of Canon Medical's CT scanners can provide this unique package, enabling color blood flow maps for any single source, single energy, multiphase protocol with a pre-contrast scan.

*Subtraction is an option on the CT console and the Viewer is an option on the Vitrea Workstation

Acquisition

Scanner Model:	Aquilion Serve
Scan Mode:	Ultra Helical Subtraction
Collimation:	0.5 mm × 80
Exposure:	120 kV, SURE Exposure
Rotation Time:	0.35 s
CTDIvol:	1.6, 2.0 mGy
Total DLP:	126.9 mGy·cm
Effective Dose:	1.78 mSv
k-factor:	0.014*

Key Benefits

- Available with any single source, single energy CT
- Automatic image processing and transfer
- Display local iodine distribution
- Detect/rule out contrast enhancement
- Detect local perfusion differences

Key Benefits

- Automatic hanging layouts
- Synchronized review of all displayed images
- Geometric and HU measurements

* American Association of Physicists in Medicine (AAPM) Report 96, 2008.

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