TOSHIBA
MEDICAL

Case Study

Cardiac CTA with SEMAR

"SEMAR removes artifacts from metallic structures within or adjacent to the heart to greatly improve my ability to read cardiac CT examinations. I use it routinely in every case with a metal implant such as a pacemaker or defibrillator."

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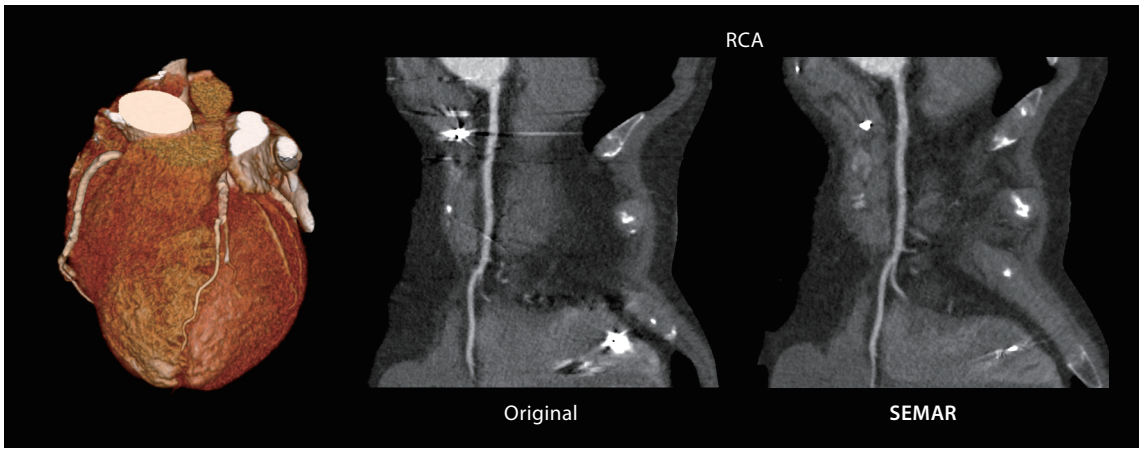
Patient History

A 69-year-old man with a pacemaker and an aortic valve prosthesis presented with chest pain. A coronary CTA was requested to rule out coronary artery disease.

Results



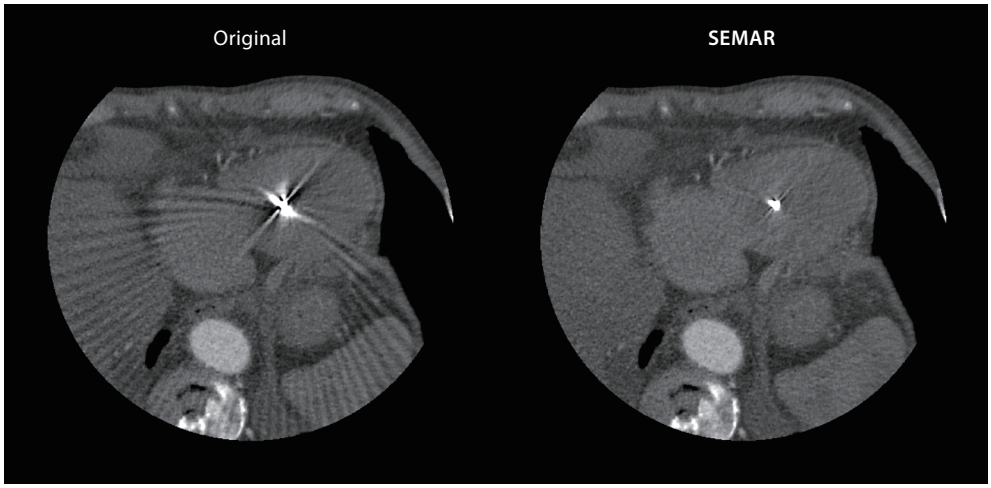
The proximal right coronary artery is partially obscured by artifacts. The artifacts caused by the metal pacemaker leads are no longer visible on the SEMAR reconstruction. No stenosis is seen in the vessel.

Technology

ECG-adapted SEMAR™ (Single Energy Metal Artifact Reduction) overcomes one of the remaining challenges in reading coronary CTA examinations in patients with implanted cardiac devices such as pacemakers and defibrillators.

Utilizing a dose neutral scan protocol and a unique reconstruction process, SEMAR can reduce metallic artifacts that might otherwise interfere with visualization of nearby coronary arteries.

In a recent study conducted by Tatsugami et al., the diagnostic value of SEMAR was investigated in patients with pacemakers and implanted defibrillators. Without the application of metallic artifact reduction techniques, 11.7% of all coronary segments were affected by metallic artifacts and judged nonevaluable. In these patients, SEMAR reconstruction improved visualization, permitting 97.9% of all coronary segments to be evaluated.[1]



Conclusion

SEMAR ensures easy and accurate visualization or imaging by effectively reducing metallic artifacts in coronary CTA examinations performed in patients with metal implants.

1. Tatsugami F, et al, British Journal of Radiology, 2016, DOI: 10.1259/bjr.20160493

Acquisition

Scanner Model:
Aquilion ONE™ / GENESIS Edition

Scan Mode:	Volume
Collimation:	0.5 mm x 260
Exposure:	SURE kV 100 kV
	SURE Exposure™
Rotation Time:	0.275 second
Dose Reduction:	AIDR*1 3D Enhanced
CTDI:	4.5 mGy
DLP:	58.3 mGy·cm
Effective Dose:	0.82 mSv
k-factor:	0.014*2

*1 Adaptive Iterative Dose Reduction
*2 American Association of Physicists in Medicine (AAPM) Report 96, 2008.

TOSHIBA MEDICAL SYSTEMS CORPORATION

http://www.toshibamedicalsystems.com

Model number: TSX-305A MCACT0304EAA 2017-07 TMSC/Produced in Japan

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