TOSHIBA

Leading Innovation >>>

AIDR 3D
integrated

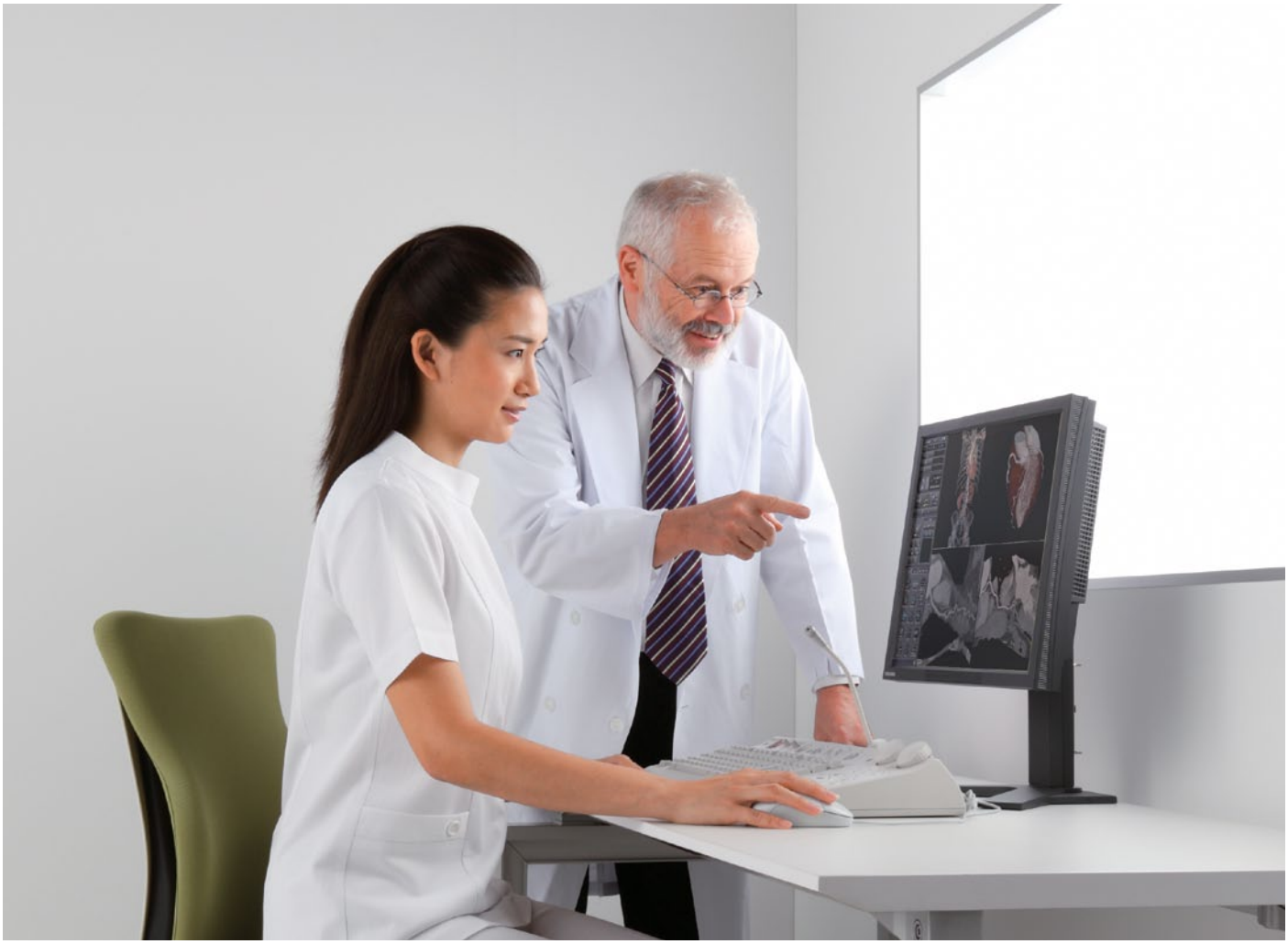
Aquilion
RXL EDITION

Low Dose, Lightning Speed, Latest Applications

The New Standard for Radiology

Toshiba Medical Systems is committed to the development of new technologies to minimize radiation dose while maintaining industry-leading image quality. These dose-reduction technologies and more are standard in the Aquilion™ /RXL CT system.

The Aquilion /RXL 16 detector row CT system delivers routine low-dose scans for each patient in a wide variety of clinical examinations with lightning reconstruction speed and unsurpassed workflow. The system is designed to comfortably handle the pace in the busiest of departments, and will be able to continue meeting healthcare demands well into the future.



LOW-DOSE TECHNOLOGIES

Aquilion /RXL incorporates Toshiba's latest technologies for the reduction of exposure dose while maintaining high image quality.

- AIDR 3D (Adaptive Iterative Dose Reduction 3D)
- SUREExposure™ 3D Adaptive (automatic exposure control)
- Active Collimator
- Dose Management Functions – Dose Check/Dose Report

LIGHTNING SPEED

The new console enables significant improvements in workflow, with faster reconstruction, automated processing, and remote access capabilities.

- High-Speed Reconstruction
- Automated Processing
- SUREXtension™ (Remote Access)*

LATEST APPLICATIONS

- Cardiac Examinations*
- Colon View*
- Lung Volume Analysis*
- Fat Index View*

16-SLICE CONFIGURATION

Entering the world of the Aquilion family with adaptive iterative dose reduction technology (AIDR 3D) and active collimator for ultra low dose scanning.

32-SLICE CONFIGURATION

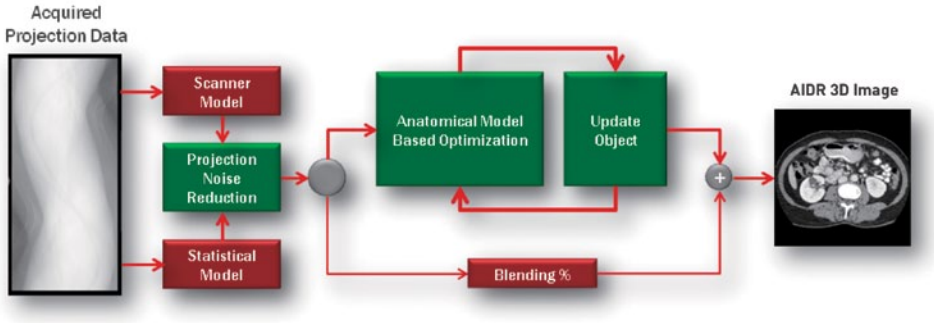
Aquilion reliability combined with double slice reconstruction for outstanding spatial resolution and extended flexibility.

**Option*

Toshiba's Dose Reduction Technologies

AIDR 3D (ADAPTIVE ITERATIVE DOSE REDUCTION 3D)

AIDR 3D is a sophisticated algorithm that has been designed to work in both the raw data and reconstruction domains. The collective AIDR 3D process results in robust noise reduction, which is essential for achieving ultra low-dose examinations in routine clinical imaging. This iterative algorithm is superior to non-iterative approaches in removing background noise while preserving diagnostic information.

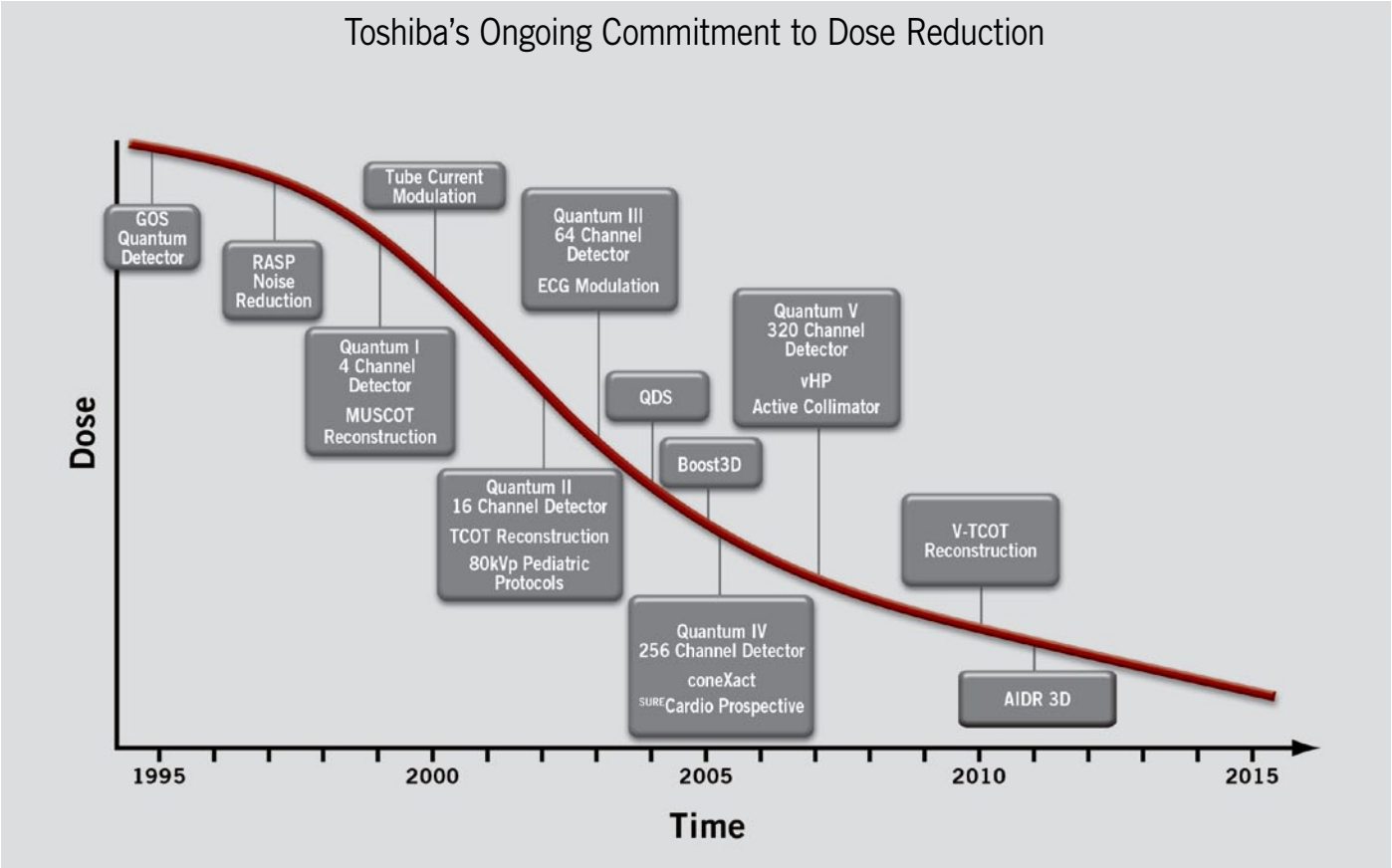


SUREEXPOSURE 3D ADAPTIVE (INTEGRATED WITH AIDR 3D)

The integration of dose reduction features is essential for optimal dose management. AIDR 3D has therefore been seamlessly integrated with SUREExposure 3D Adaptive, Toshiba's automatic tube current modulation software. SUREExposure 3D Adaptive is a powerful dose reduction tool that modulates the exposure for each patient based on a preset target level of image quality. When it is combined with AIDR 3D, X-ray exposure is automatically reduced before the scan to maintain the preprogrammed image quality adjusted for the expected level of noise reduction.

Integrated dose reduction of 74.3% with AIDR 3D and SUREExposure 3D Adaptive

Toshiba offers a full suite of dose reduction technologies to improve patient safety while producing high-quality images for accurate diagnosis.



TOSHIBA'S CT SYSTEMS – DESIGNED FOR LOW DOSE EXAMS

Dose reduction is considered in every step of the system design, because Toshiba engineers recognize that all the small dose savings add up. For example, the gantry is designed with the X-ray tube located further from the patient, reducing the skin entrance dose.

Aquilion /RXL employs the latest dose reduction technologies such as SUREExposure 3D Adaptive, Active Collimator, and AIDR 3D in the standard configuration.

Comprehensive Low-Dose Examination

Aquilion /RXL dose reduction and reporting technologies are integrated into every step of each scan performed, ensuring the highest possible level of patient safety.

Using Toshiba's exclusive Quantum Detector technology, Aquilion /RXL provides consistent image quality with an industry-leading low-contrast resolution of 2 mm at 0.3%.

Exam Plan

PROTOCOL SELECTION

Aquilion /RXL is delivered with an extensive range of clinically proven scan protocols that are ready to use "out-of-the-box".

After patient registration, the system automatically loads the correct selection of adult or child protocols based on the patient's age. In addition, protocols are anatomically grouped with an intuitive graphical interface to ensure easy and correct protocol selection.

DOSE CHECK

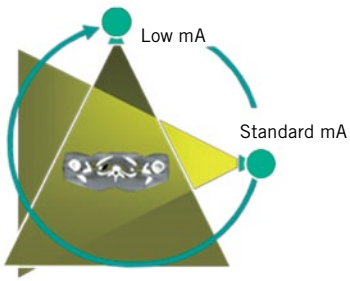
The Dose Check software helps ensure that the user-defined radiation dose limits cannot be exceeded by incorrect operation of the system.

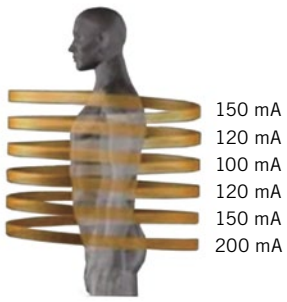
Scan

SUREEXPOSURE 3D ADAPTIVE

SUREExposure 3D Adaptive can achieve a dose reduction of up to 40%, depending on the individual patient and the anatomical region to be scanned.

By using AIDR 3D in combination, the dose is automatically reduced further by up to 75% before the scan. In this manner, dose reduction can be integrated into every scan protocol.





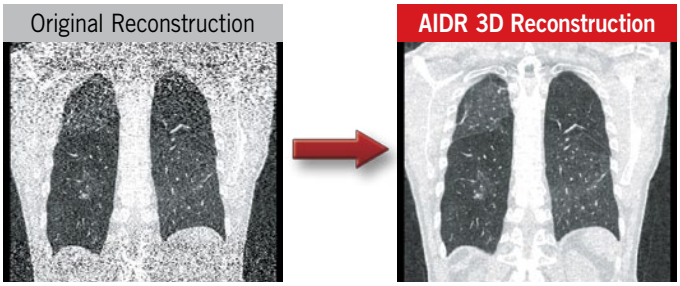
ACTIVE COLLIMATOR

Active Collimator operates automatically to block all X-rays not required for image reconstruction in helical scanning, resulting in further dose reduction.

Reconstruction

AIDR 3D

AIDR 3D can be applied to all acquisition modes in routine clinical use and is able to remove up to 50% of image noise, resulting in dose reductions of up to 75%.



Report

DOSE REPORT

In accordance with IHE recommendations, the Radiation Exposure Monitoring Profile function is provided in the software. This function automatically records all scanning data, enabling accurate tracking of the dose for a particular study.

High definition 32 slices in a single rotation.

Aquilion /RXL presents the latest state of technological innovation in Multi Slice CT technology. With the new coneXact™ algorithm the Aquilion /RXL is able to generate 32 unique slices per rotation* with more detail than ever before. No additional exposure is necessary as this breakthrough technology is entirely reconstruction based.

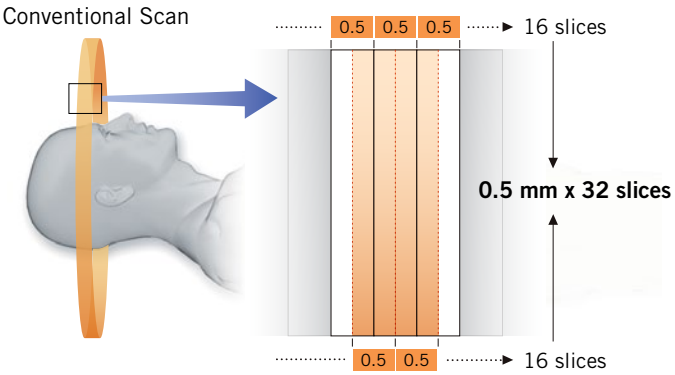
CONEXACT RECONSTRUCTION

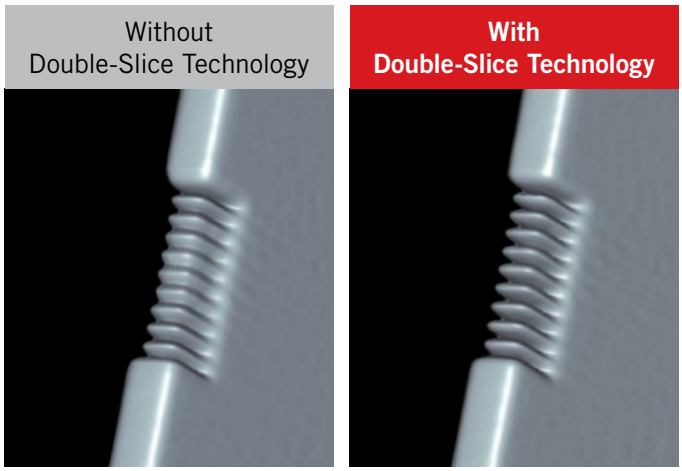
Developed for Aquilion ONE™ dynamic volume CT, new proprietary algorithms using the coneXact technology are now available for Aquilion /RXL.

As a result, partial volume effects are minimized and leading to more detailed images while maintaining superior low contrast detectability.

DOUBLE-SLICE TECHNOLOGY

Taking full advantage of the coneXact technology, acquired volume data can be reconstructed in double density, resulting in a more true-to-original reconstruction in MPR and 3D rendered images.





*for 32-slice configuration

Double-Slice Technology

High Fidelity

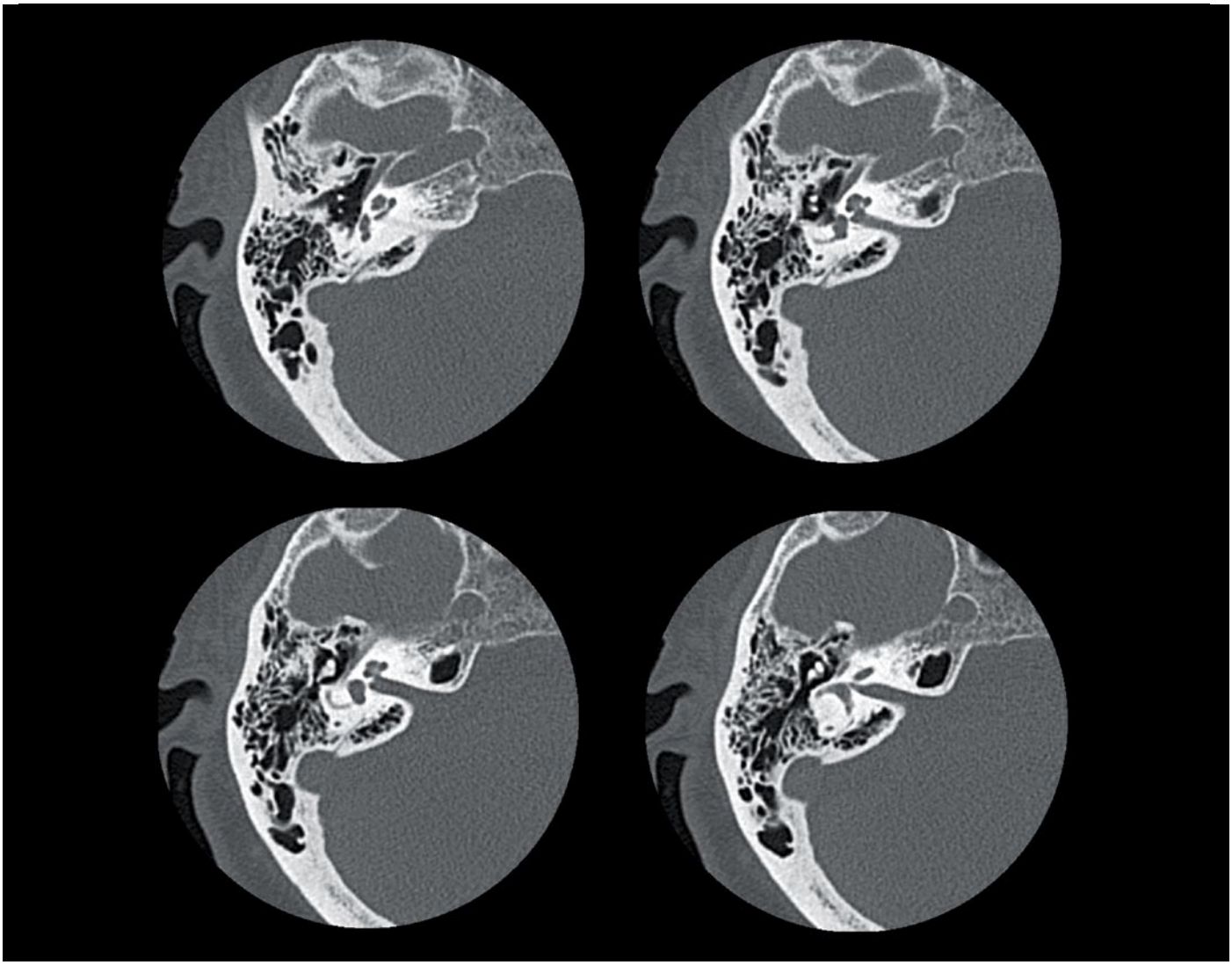
Double-slice reconstruction technology provides full fidelity images with superior resolution. Details of the most intricate structures are sharply depicted in any imaging plane.

Advanced Technology

The advanced coneXact reconstruction technology originally developed for Aquilion ONE has been reengineered for Aquilion /RXL to provide the same high-quality image reconstruction.

Innovative Solution

Toshiba's unique double-slice solution both increases image resolution and reduces cone beam artifacts with absolutely no exposure dose penalty.



Temporal Bone: Double-slice reconstruction using coneXact technology provides exceptional spatial resolution, as demonstrated in these axial images of the inner ear.

Optimizing the Clinical Workflow

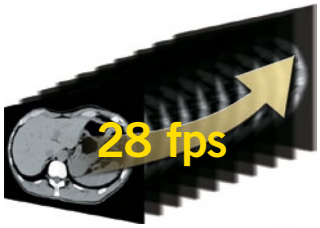
Aquilion /RXL incorporates a new console to improve productivity and optimize the workflow. Automated processing enables fast access to images for accurate diagnosis.

High-Speed Reconstruction

NEW CONSOLE ARCHITECTURE

Aquilion /RXL accelerates the process of providing the information required for making the best treatment decisions throughout the workflow.

With a reconstruction speed of up to 28[*1] images per second (16 images per second for standard configuration), all the images are available in a flash, even when Toshiba's unique 0.5 mm slice thickness is used.



Automated Processing

ULTRAFAST DATA TRANSFER

- The enhanced DICOM protocol allows an ultrafast data transfer speed of up to 60 images per second.
- Automated data transfer to multiple destinations can be set in the exam protocol.

MPR IMAGE GENERATION – MULTIVIEW

MultiView automation saves time by reconstructing MPR images as a part of the exam protocol, reducing the number of images for initial review and/or printing.

Automated Processing

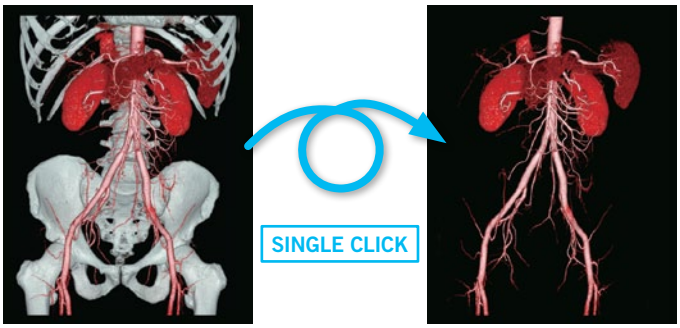
SUREtechnologies™

Toshiba's sophisticated clinical application software packages for various anatomical regions provide automated processing for accurate diagnosis and significant improvements in workflow.

AUTOMATED BONE REMOVAL

Aquilion /RXL incorporates automated bone removal algorithms to quickly and accurately segment bone in CT angiography examinations.

In just a few seconds, high-quality angiographic images are available for diagnosis.



Workflow Flexibility

SUREXtension*1

Healthcare providers increasingly need to make information resources available outside the traditional workplace.

SUREXtension provides remote access to Toshiba's powerful post-processing applications from client PCs in the hospital.

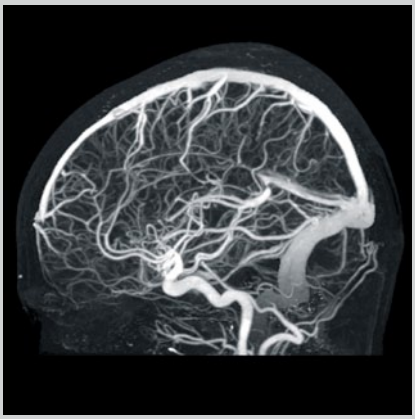
Two concurrent users (the console operator plus one remote user) are supported per console with no compromise in performance*2.

*1: Option
*2: Subject to the network environment

Maximizing Clinical Capabilities

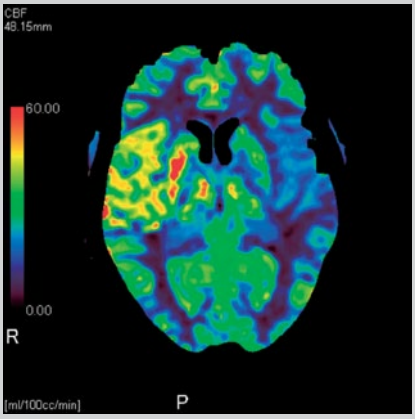
Aquilion /RXL supports Toshiba's sophisticated suite of SURETechnologies and other advanced software tools to further increase clinical utility, and incorporates cutting-edge clinical application capabilities to meet customer needs.

NEURO



SURESubtraction™*

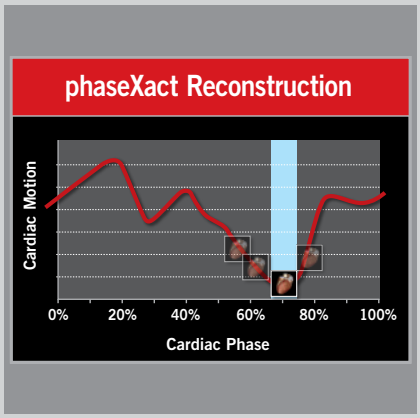
Automated digital subtraction of intra-cranial vessels from bone



CBP Study*

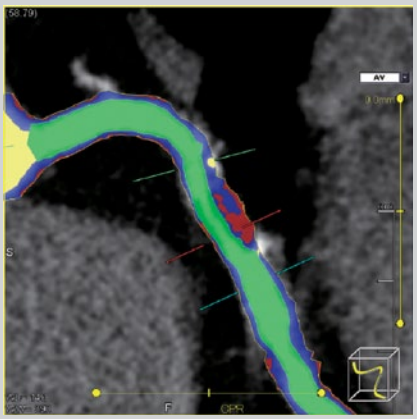
Analysis of bloodflow characteristics from dynamic scan images and display of the results as map images

CARDIAC



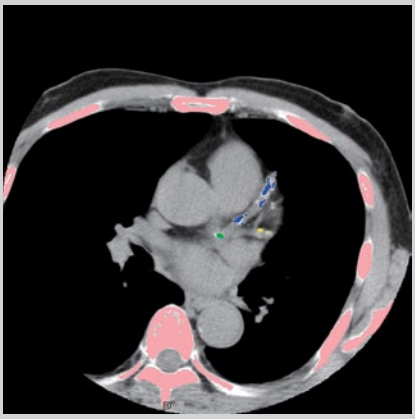
SURECardio™ with phaseXact*

Accurate cardiac images and enhanced workflow by automatic selection of optimum scan parameters



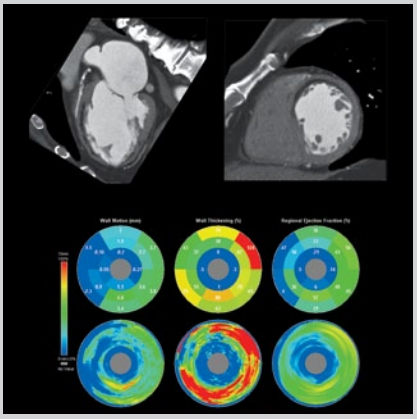
SUREPlaque™*

Automated plaque visualization and characterization



SURECardio Scoring*

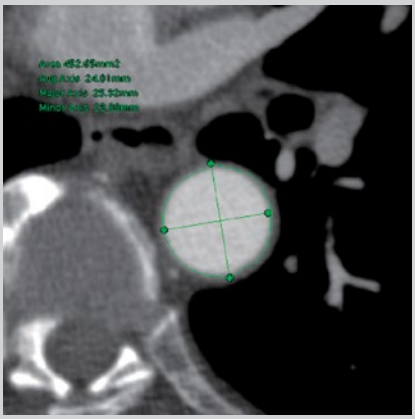
Fast and easy evaluation of calcium based on non-contrast ECG-gated data



Cardiac Function Analysis*

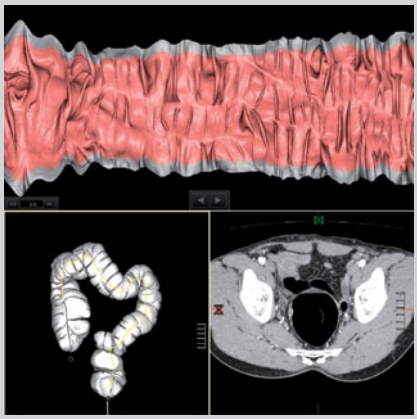
Calculation of various functional parameters, such as the ejection fraction, wall motion, and cardiac output

BODY



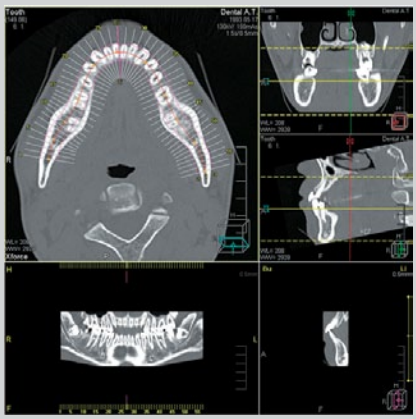
Vessel View*

Generation and display of CPR and cross-cut images of blood vessels



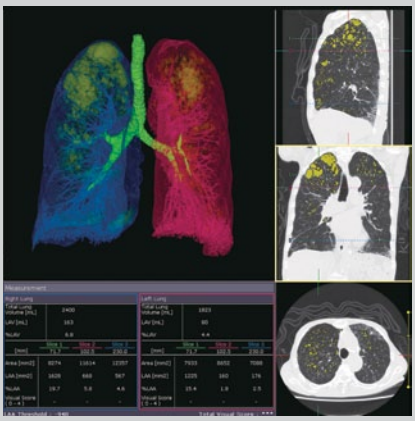
Colon View*

Advanced analysis and reporting tools for CT colonoscopy, with display functions such as filet view, fly through, and polyp tagging



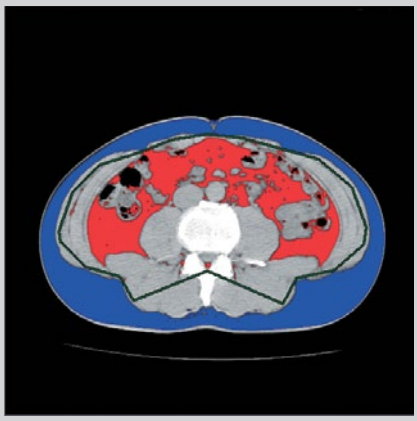
Dental Analysis*

Comprehensive dental MPR with easy-to-use tools for pre-operative planning



Lung Volume Analysis*

Quantification of low attenuation regions in lung tissue (regions of pulmonary emphysema)



Fat Index View*

Automatic calculation of the ratio of visceral to subcutaneous fat as a prognostic indicator of the risk of metabolic syndrome

SUREFluoro™*

Real-time reconstruction and display of fluoroscopic images for faster and safer interventional procedures

*Option

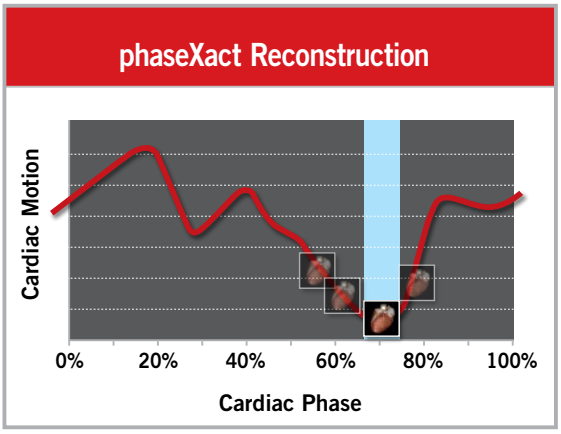
Cardiac scanning made easy.

High performance in image quality and speed must go hand in hand with efficient workflow. The Aquilion /RXL has specifically addressed workflow integration to optimize productivity and enhance diagnosis.

SUREcardio™ with phaseXact*

Delivers clear, accurate cardiac images and enhances patient throughput and workflow by automatically selecting optimum scan parameters.

- Automated, clinically validated protocols provide the best temporal resolution regardless of patient heart rate or condition
- Achieve consistent Cardiac CTA with adaptive, multi-segment reconstruction
- Decrease patient scan time through protocol automation
- Reduce view time and storage space with phaseXact, which automatically selects the cardiac phase with the least motion



SUREcardio Scoring*

Provides fast and easy evaluation of calcium based on non-contrasted, ECG-gated data directly from the Aquilion console.

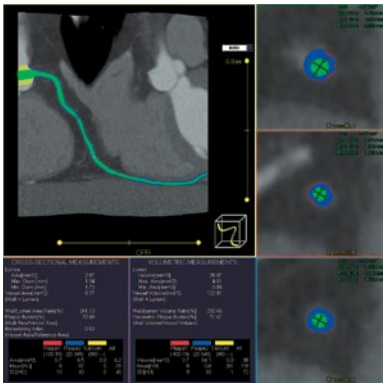
- Calculates Ca scores using the Agaston method and the volume mass method
- A report and the representative images showing calcium are automatically generated

SUREcardio Scoring for fast volumetric coronary calcium evaluation.

SUREplaque™*

A comprehensive advanced visualization tool to assist clinicians in evaluating the characteristics inside the blood vessel.

- Visualize coronary vessel anatomy and disease with ease using defined HU ranges
- Quantify plaque burden and coronary remodeling non-invasively
- Characterize lesions in the vessel wall as either calcified or non-calcified



SUREplaque permits both classification and quantification of coronary artery plaques.

*Option

Continuously advancing the state-of-the-art.

DELIVERING HIGH-QUALITY, COST-EFFECTIVE PATIENT CARE

Aquilion /RXL provides more ways to help you better manage the cost of providing healthcare without compromising the quality of physician and patient services.

- Make more efficient use of limited resources with flexible financing options
- Increase utilization with faster throughput and access to a wider range of applications

QUALITY MANAGEMENT

In 1915 Toshiba developed the first X-ray tube in Japan. Since that time we have continuously pursued product quality, while developing and producing many products with superior safety, durability, flexibility, economy, and serviceability. Toshiba's fundamental principles are based on respect for people. In addition to strict compliance with the law, our goal is to provide products and services that improve our customer's lives, and contribute to society.

GLOBAL NETWORK

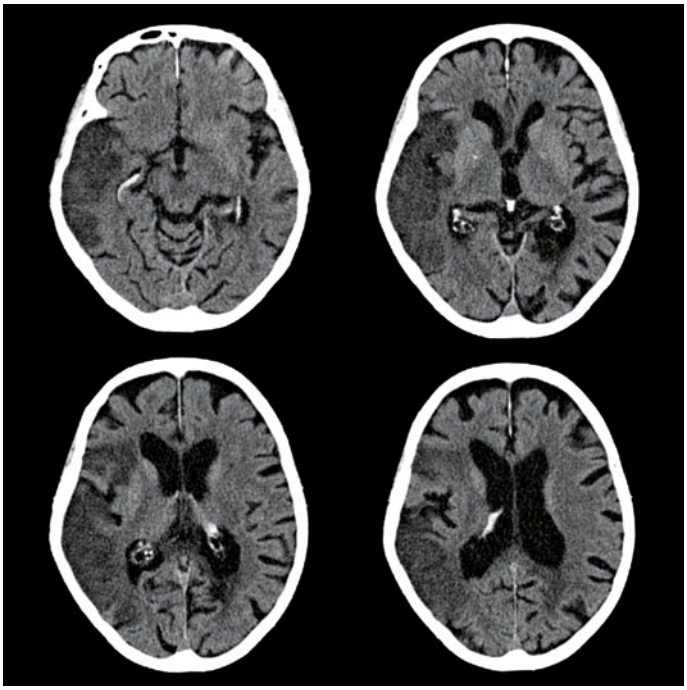
With a network of local corporations and representatives in more than 120 countries across the globe, we are proud of our record of service and support to the leading medical institutions throughout the world.

TOSHIBA LEARNING CENTERS

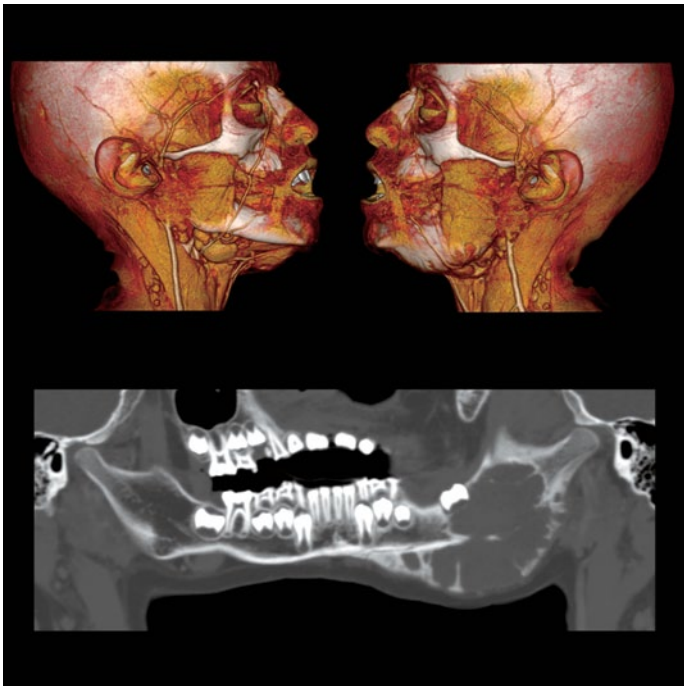
To ensure consistent scanning and a faster diagnosis with Aquilion CT scanners, Toshiba's global training facilities provide courses for clinicians and technologists.

Customer Support & Training Center at the Nasu Headquarters.

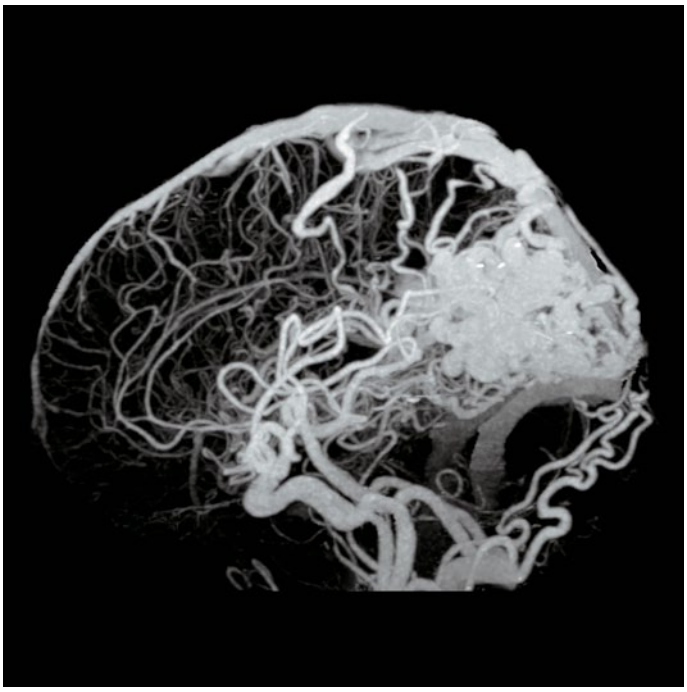
Aquilion /RXL
Clinical Excellence With Minimal Dose



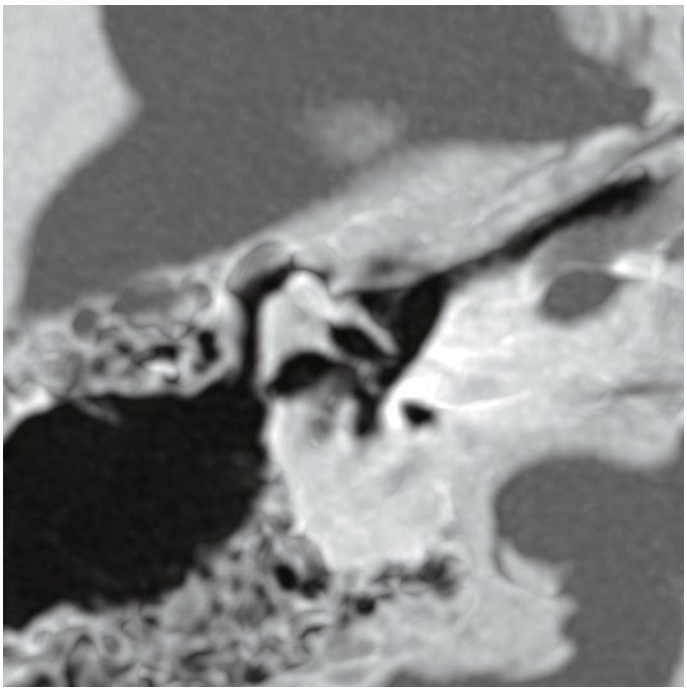
Temporal and parietal lobe infarct.



Mandibular bone cyst seen in MPR and 3D.

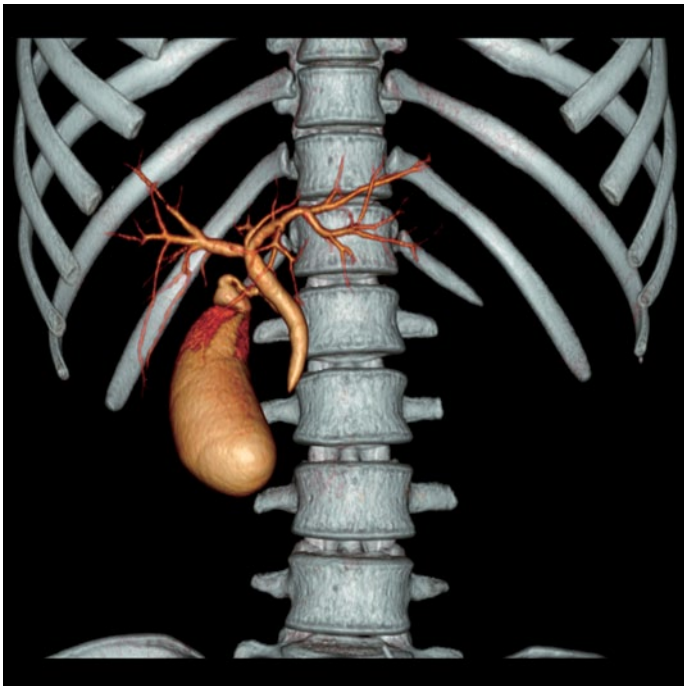


AVM demonstrated using brain CTA with SUREsubtraction.

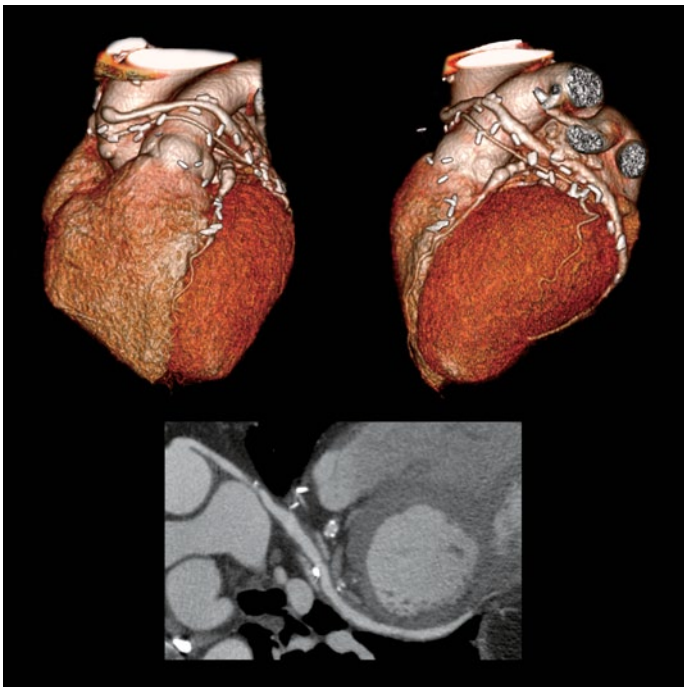


Inner ear structures reconstructed with high resolution.

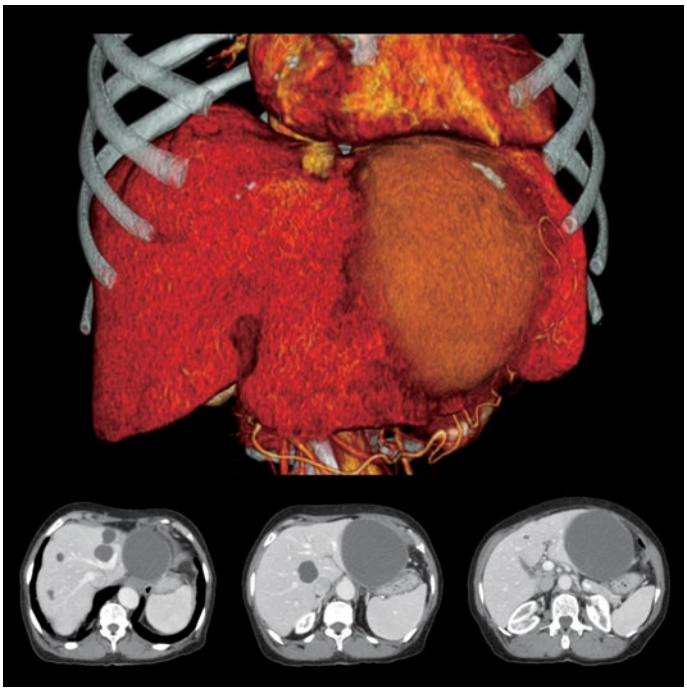
Small lung nodules reconstructed using a 0.5 mm slice thickness.



Cholangiogram rendered using on-console 3D.

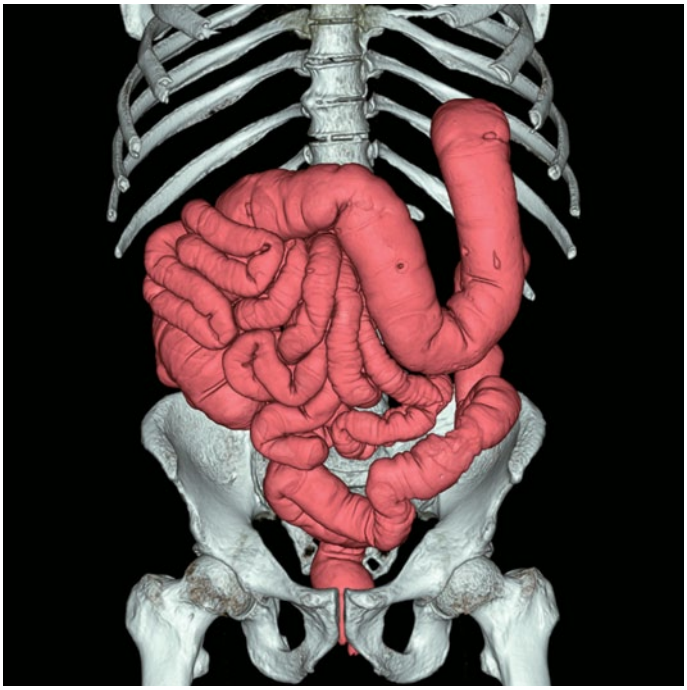


Coronary CTA with SUREcardio.

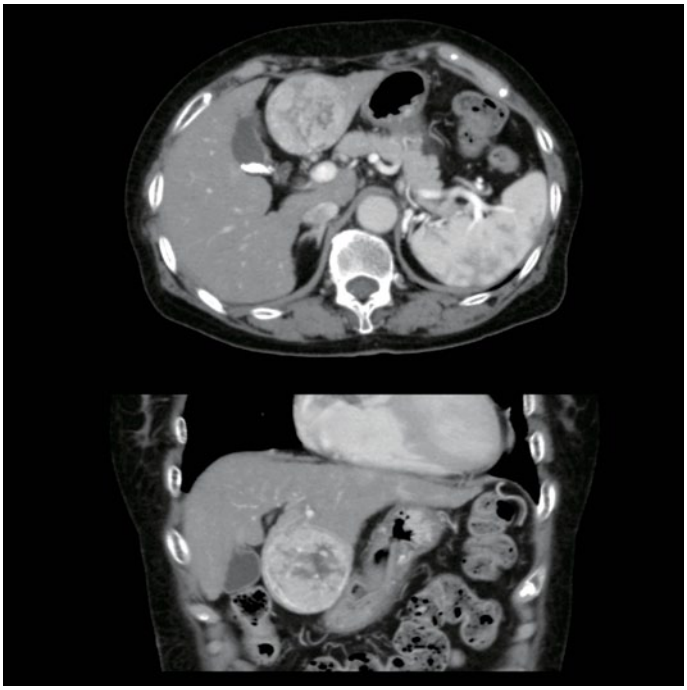


Hydatid cyst seen in axial and 3D images.

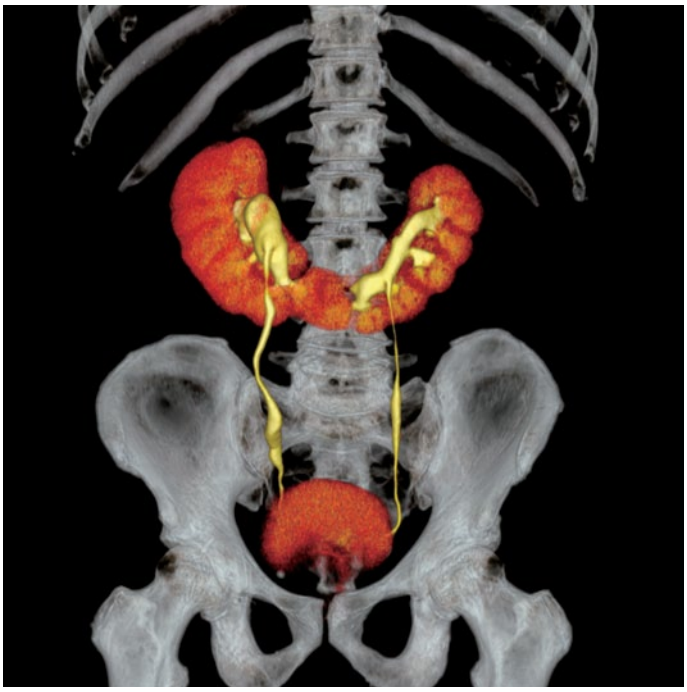
Aquilion /RXL
Clinical Excellence With Minimal Dose



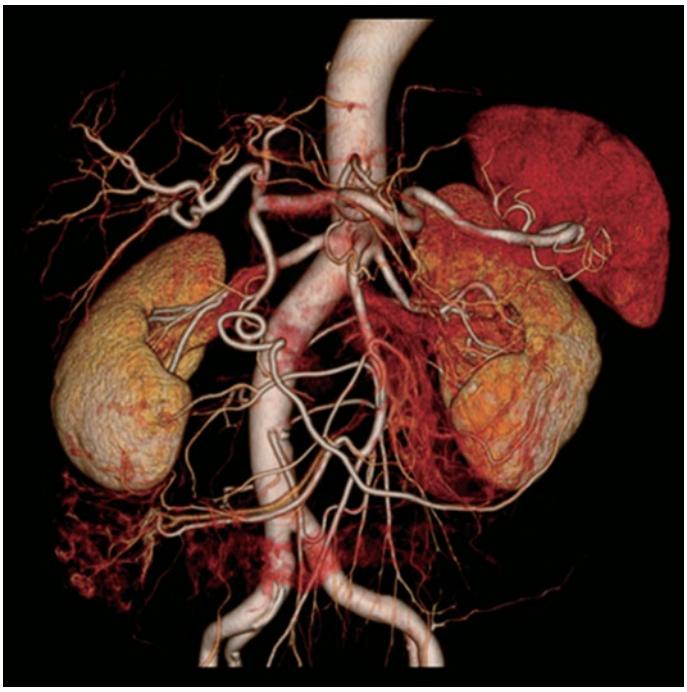
Virtual Colonoscopy rendered using on-console 3D.



Liver tumor with isotropic image quality.

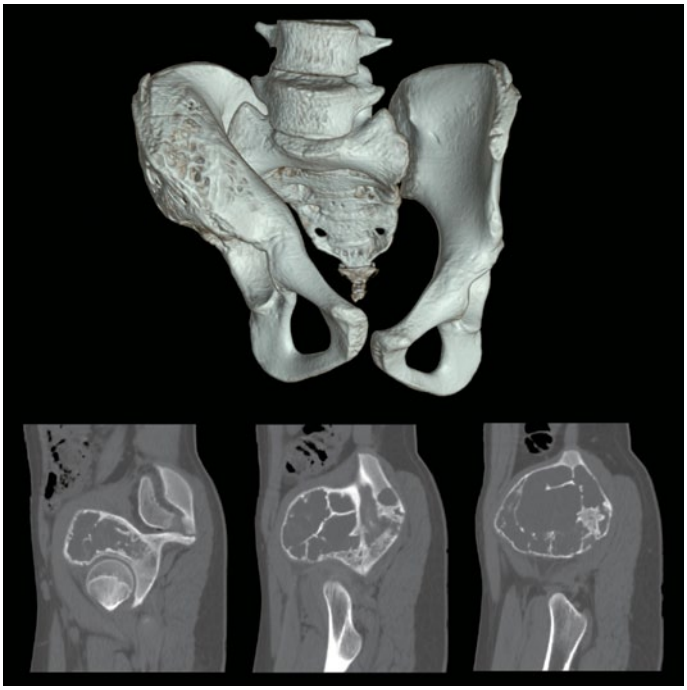


Horseshoe kidney demonstrated in a CT urogram using on-console 3D.



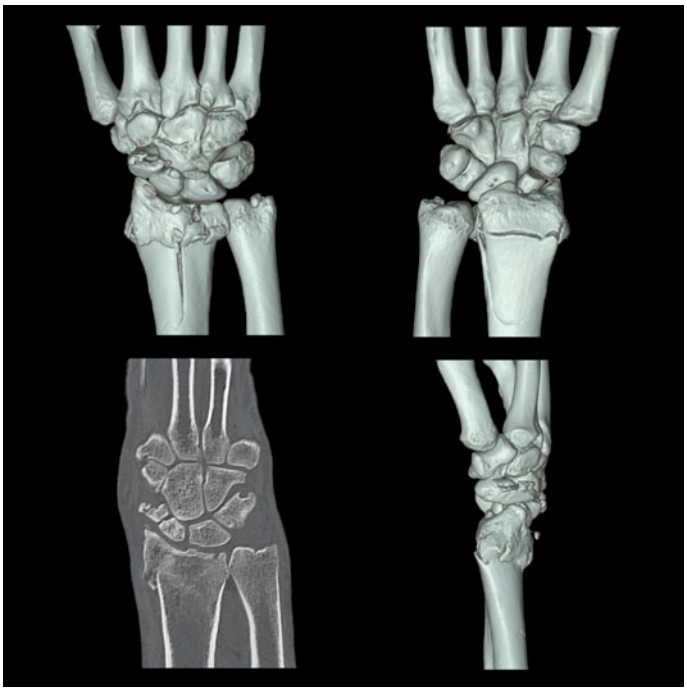
Renal CTA (with SUREStart™) rendered using on-console 3D.

Complex fracture of the proximal humerus rendered using on-console 3D.



Bone cyst with isotropic image quality.

Crush fracture of the spine rendered using on-console 3D.



Wrist fracture rendered using on-console 3D.

TECHNOLOGY HISTORY

For over 130 years, Toshiba has been a world leader in developing technology to improve the quality of life. Our 50,000 global patents demonstrate a long, rich history of leading innovation. It might surprise you to learn about some of the things we've invented.

1915 Japan's first X-ray tube	**1990** First helical CT scanner	**2002** First 400 ms CT scanner
1954 First digital computer	**1993** First real-time CT fluoro	**2004** First Quantum Denoising Software
1977 First cardiac ultrasound scanner	**1995** First DVD	**2007** First **dynamic volume CT** scanner
1985 First slip-ring CT scanner	**1999** First quiet MRI	**2009** First 160-row Helical
1986 First laptop computer	**1999** First 0.5 mm multidetector CT	**2010** First iterative recon technique for 320 Detector Row CT

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