Canon

Vantage Orian

Advanced Confidence

Vantage Orian
Canon

Advanced Confidence
High Productivity
Patient Comfort

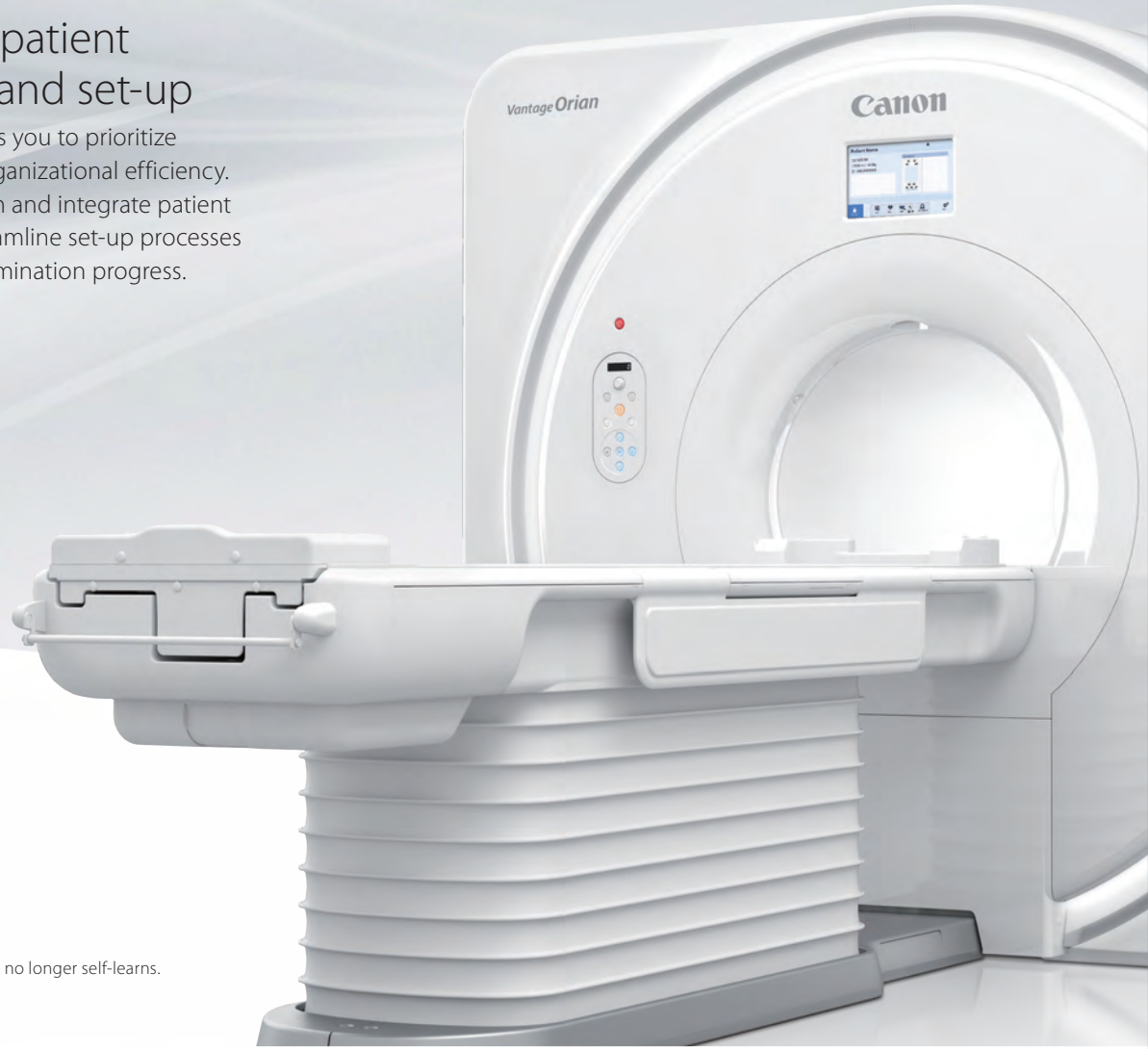
Vantage Orian utilizes intelligent MR technology, powered by Altivity, to deliver advanced confidence to the 1.5T MRI suite. Combining outstanding workflow solutions, patient friendly features and the ability to manage routine and complex exams, Vantage Orian is the perfect balance for your 1.5T MRI business and clinical requirements.

Vantage Orian

AI-boosted imaging capability combined with intelligent workflow creates advanced productivity.

Seamless patient handling and set-up

Tablet UX enables you to prioritize workflow and organizational efficiency. Remotely confirm and integrate patient information, streamline set-up processes and monitor examination progress.

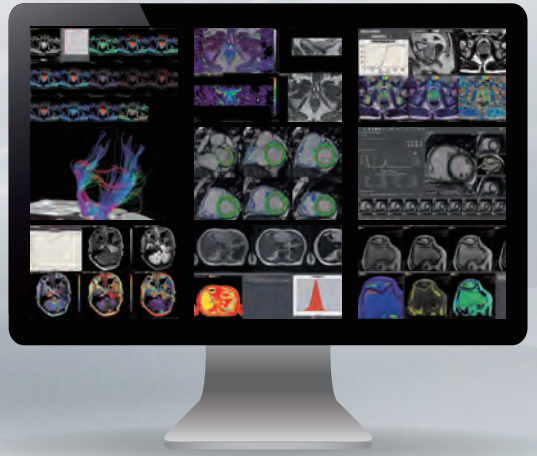


Scan room assistance with intelligent Ceiling Camera

Make efficiency a reality with the intelligent Ceiling Camera solution that confirms key information and assists patient positioning.

Ceiling Camera

The AI technology was trained during the development phase. When implemented into the product, the AI function no longer self-learns.



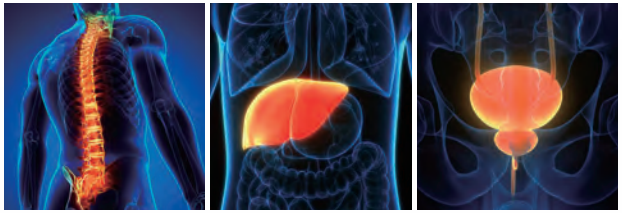
Advanced Post Processing

Advanced post processing through Olea and Vitrea solutions provides the opportunity for expanded MRI diagnostic services.

Advanced intelligent Clear-IQ Engine (AiCE)

AiCE intelligently removes noise to produce stunning MR images that are exceptionally detailed, and with the low-noise properties of a high SNR* image.

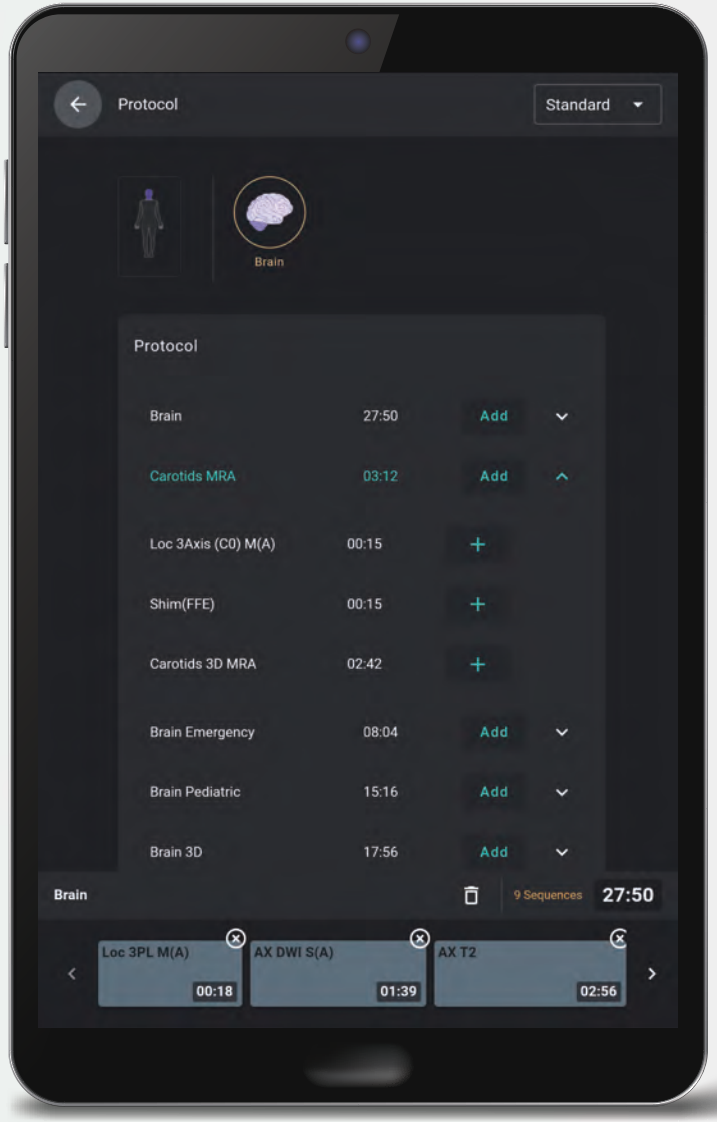
* AiCE provides higher SNR compared to typical low pass filters



Auto Scan Assist

Auto Scan Assist standardizes your workflow with automated slice alignment to reduce variability for a range of standard exams across the whole body.

Productivity at your fingertips



Prioritize workflow and organizational efficiency

Access to:

- Patient worklist
- Protocol management
- Study management
- Patient identity
- Exam monitoring
- Image Auto View
- Customizable menus

Remote scan monitoring

Real-time monitoring of examination progress and acquired images on the tablet

Optimize efficiency with Ceiling Camera and Intelligent Monitor

Automated Landmark Setting

- Display the image from Ceiling Camera on the intelligent monitor
- Automated Landmark Setting
- Detect Patient Position (head first/ feet first)
- Display the coil center guideline at the imaging site selected by PAS
- Assist correct patient positioning and coil set-up

powered by **Altivity**

Ceiling Camera

Our Ceiling Camera solution transmits key information which is displayed on the Intelligent Monitor, confirms coil set-up and assists patient positioning.

Auto Scan Assist

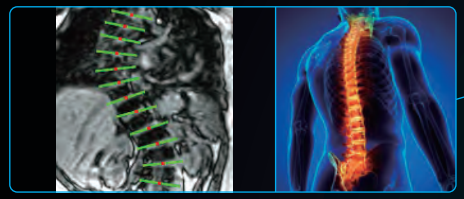
Auto Scan Assist standardizes your workflow with automated slice alignment for a range of exams including liver, prostate and whole spine. Utilizing Deep Learning* and Machine Learning** based automatic recognition, productivity is advanced to enhance procedural efficiency.

* Deep Learning is applicable to SUREVOI Liver.

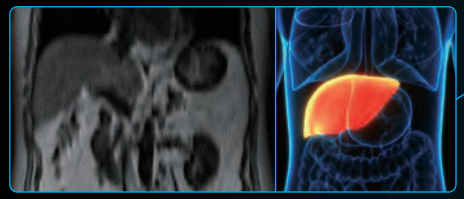
** Machine Learning is applicable to ProstateLine+, LiverLine+, W-SpineLine+, and SpineLine+ applications.

powered by **Altivity**

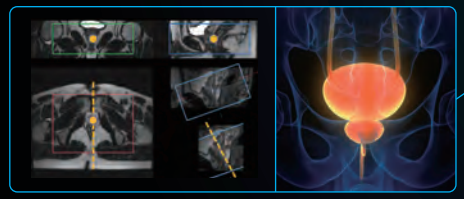
W-SpineLine+



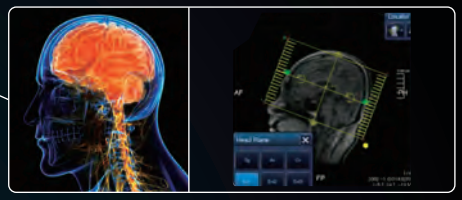
LiverLine+ and SUREVOI Liver



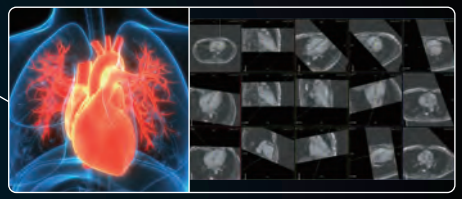
ProstateLine+



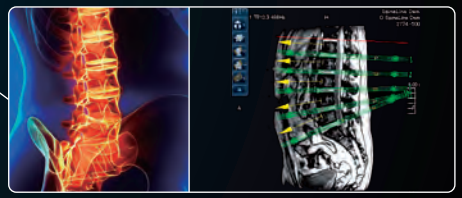
NeuroLine+



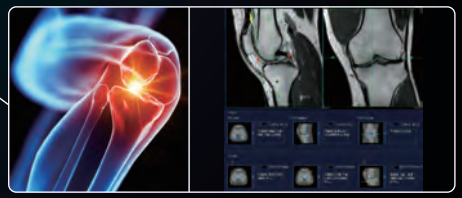
CardioLine+ and SUREVOI Cardiac



SpineLine+



KneeLine+ and SUREVOI Knee



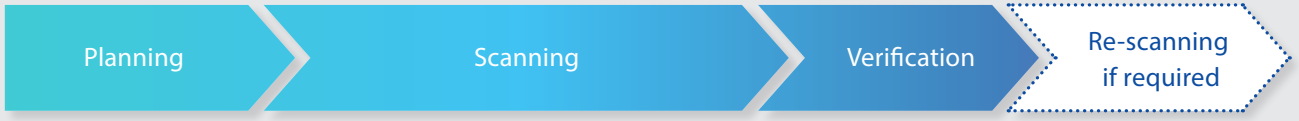
Auto Scan Assist AI technology is trained in the factory. It does not continue to learn once installed at the facility.

Productivity focused technology for prioritizing workflow and image consistency

ForeSee View

ForeSee View is an essential scan planning tool allowing you to preview slice planning in real time to help avoid time consuming re-scans. Enabling planning from edge to edge in the region you wish to image, ForeSee View is particularly useful in anatomies that can be difficult to plan such as the pancreas, the heart, orthopedic joints, tortuous vessels and ligaments, and complex post-surgery vessels and arteries.

Normal



ForeSee View

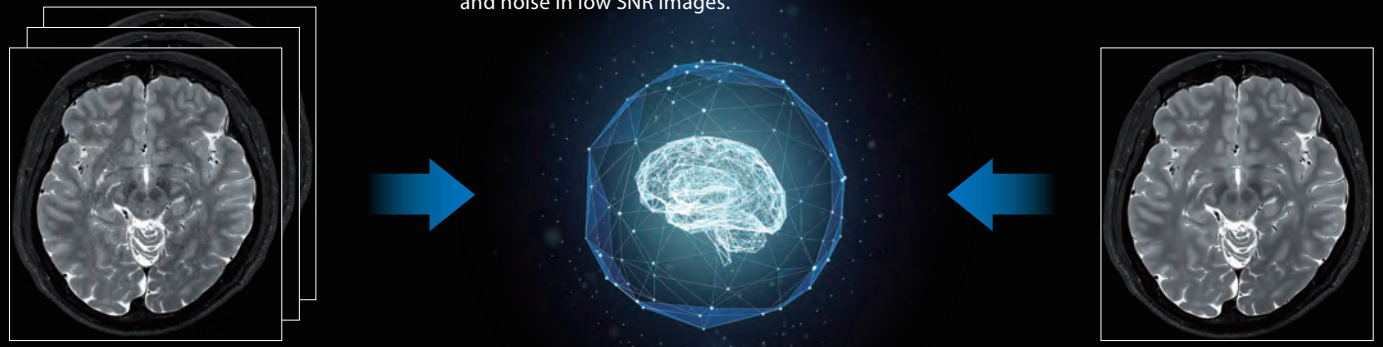
The desired cross section is displayed in real time in conjunction with slice positioning.

See through the noise. This is intelligence.

Advanced intelligent Clear-IQ Engine (AiCE) is the world's first fully integrated Deep Learning Reconstruction technology for MRI, producing stunning MR images that are exceptionally detailed. Harnessing the enormous computational power of a Deep Convolutional Neural Network (DCNN), AiCE is trained to restore low SNR MR data to match the properties of high SNR* images.

Training Phase in factory

Using high SNR images, Advanced intelligent Clear-IQ Engine (AiCE) learns to differentiate between signal and noise in low SNR images.



Low SNR | Deep Learning | High SNR

Operational Phase

Using the intelligence from the Training Phase, AiCE removes noise from images which results in higher SNR.

Data Acquisition | Deep Convolutional Neural Network | High SNR

* AiCE provides higher SNR compared to typical low pass filters

Achieve the ideal balance between resolution and speed utilizing Deep Learning Reconstruction

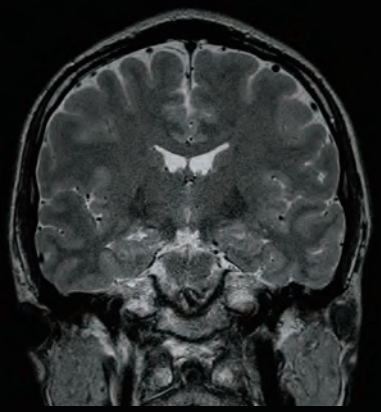
Original image

Co PDw, 0.4×0.4 mm resolution, 2 mm, 1:26

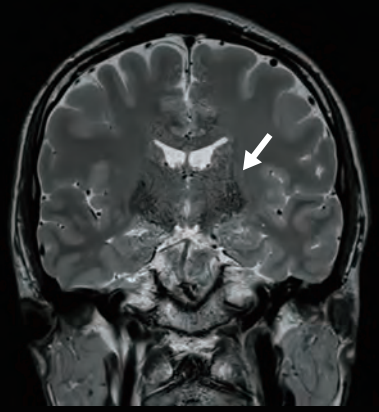
AiCE enhances parallel imaging robustness

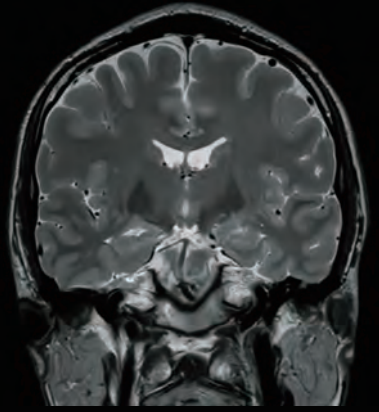
In recent versions, AiCE noise estimation has been enhanced to allow noise to be removed from the section where g-factor was considered (white arrow).

Original image



Conventional





Harness the power of Deep Learning to enable enhanced resolution and achieve fast imaging

AiCE intelligently removes noise from images which results in higher SNR* and enhanced resolution, and can also help save time when used in combination with many accelerated scan applications.

AiCE combines with rapid scanning techniques

In combination with unique Canon scan acceleration technologies like Compressed SPEEDER and Fast 3D mode, you have the ability to focus on faster scans and restore SNR by removing noise during image reconstruction.

AiCE combines with Compressed SPEEDER

Intervertebral foramen stenosis

Compressed SPEEDER

Compressed SPEEDER + AiCE Integrated Intelligence

1:48
Sg T2w, 0.58×0.58 mm resolution, 3 mm, CS ×1.8

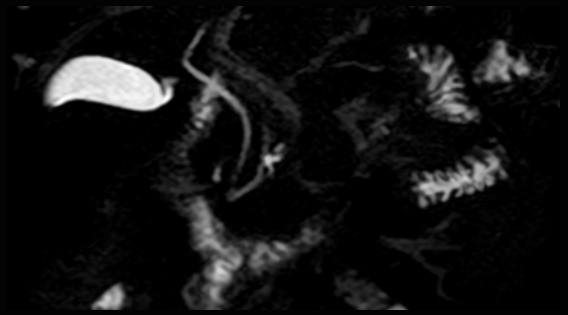
* AiCE provides higher SNR compared to typical low pass filters
Actual scan times vary by case

Courtesy of Fujita Health University, Okazaki Medical Center, Japan

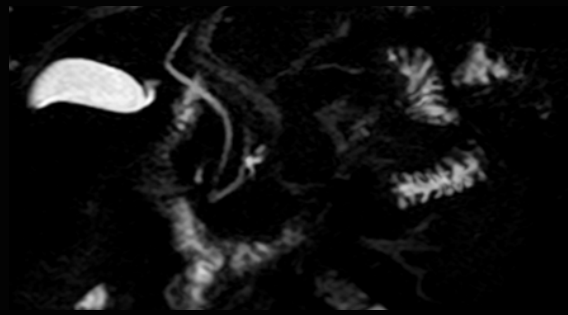
AiCE combines with Fast 3D mode

Gallbladder polyp
Pancreatic cystic lesions

Fast 3D mode



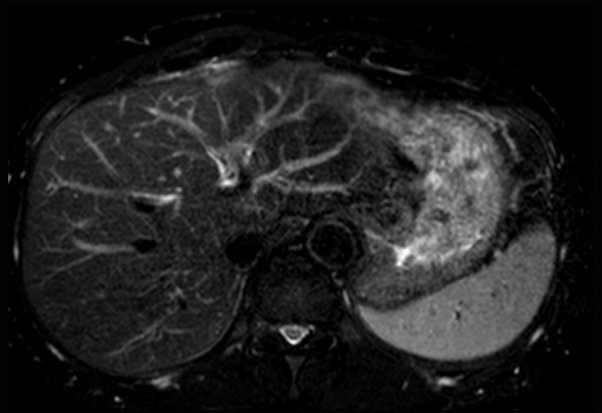
Fast 3D mode + AiCE Integrated Intelligence



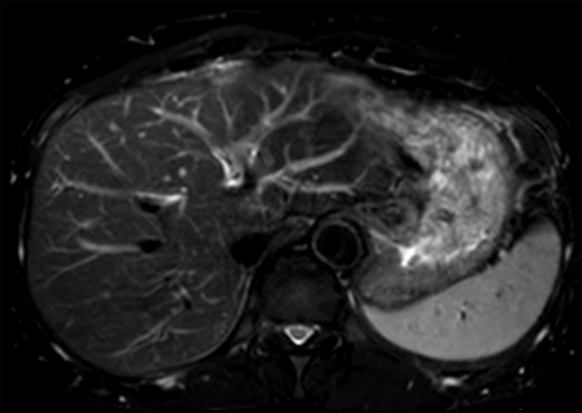
0:20
3D MRCP, 1×1 mm resolution, 3.5 mm, MPR

AiCE combines with SPEEDER

Compressed SPEEDER



Compressed SPEEDER + AiCE Integrated Intelligence



0:18
Ax FS T2w, 1.2×1.2 mm resolution, 5 mm, SPEEDER ×2.0

Minimize image distortion to enhance diagnostic capability

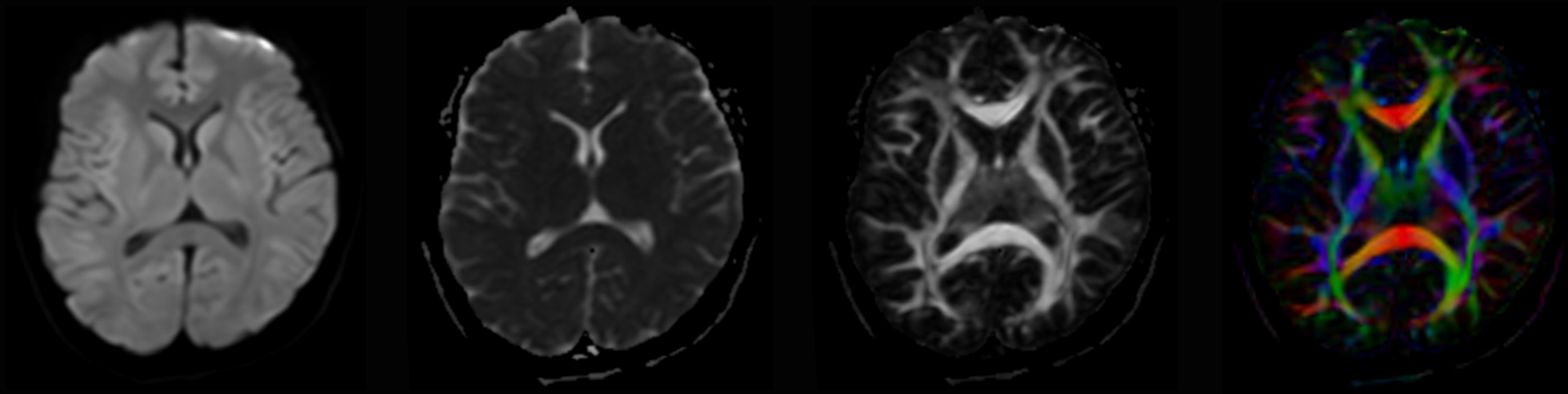
Unnecessary distortion can hide or make lesions difficult to detect, so solutions that reduce distortion are useful for diagnostics. DWI / DTI in particular are sensitive to the effects of magnetic susceptibility, with distortion appearing where the magnetic susceptibility changes. Canon's RDC DWI and DTI minimize distortion which enhances diagnostic performance in these advanced imaging techniques.

powered by Altivity

Diffusion Tensor Imaging (DTI)

DTI is an advanced MRI technique that utilizes the EPI method to visualize continuous white matter tracts running in various directions in the brain.

AiCE Integrated Intelligence



DWI ADC FA Tensor

Ax DWI / b1000, 1.88×1.88 mm resolution, 5 mm, 3:25

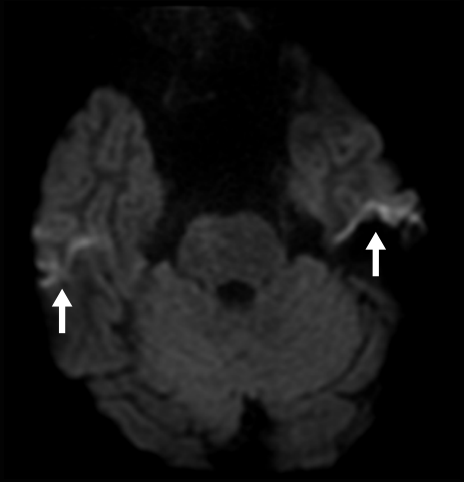
Actual scan times vary by case

powered by Altivity

RDC DWI

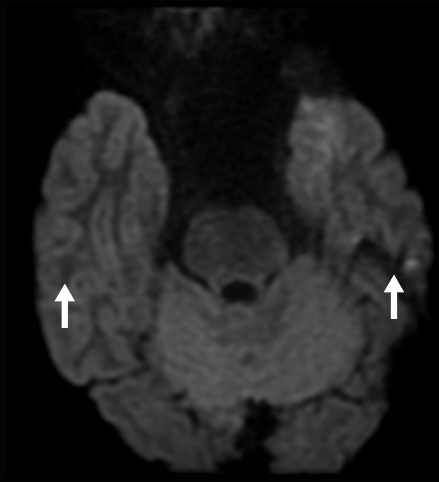
RDC DWI (Reverse encoding Distortion Correction DWI) is intended to reduce distortion in phase encoding direction due to B0 field inhomogeneity or eddy current, in DWI sequence.

Conventional



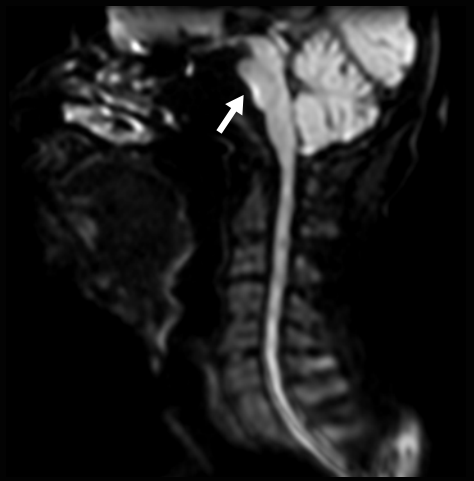
Ax DWI / b 1000, 1.1×1.1 mm resolution, 3 mm, 4:30, Exsper ×2.0

RDC DWI + AiCE Integrated Intelligence



Ax DW I/ b 1000, 1.1×1.1 mm resolution, 3 mm, 4:57, Exsper ×2.0

Conventional



Sg DWI / b 500, 1.8×1.8 mm resolution, 3 mm, 2:09, Exsper ×2.0

RDC DWI + AiCE Integrated Intelligence

Sg DWI / b 500, 1.8×1.8 mm resolution, 3 mm, 2:15, Exsper ×2.0

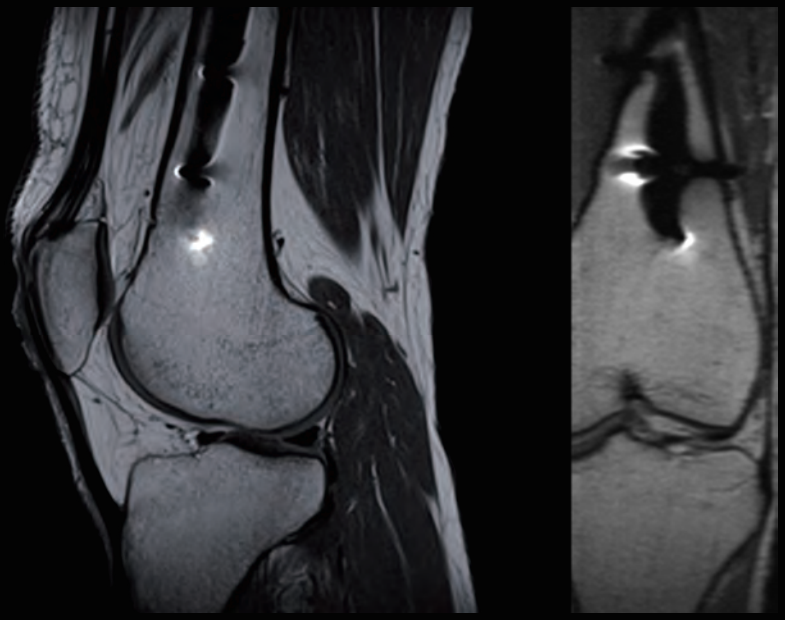
Enhance diagnostic capabilities with imaging robustness

Many scan and patient situations present challenges with motion artifacts and metal distortion. Even amongst these challenges, Canon technology delivers diagnostically relevant images to help you avoid re-scans.

metal Artifact Reduction Technique EXPansion (mART EXP)

mART EXP is 3D method to reduce in-plane and through-plane distortion artifact induced by susceptibility. Compressed SPEEDER can reduce scan time.

Conventional



Sg PDw, 0.7×0.7 mm resolution, 2 mm

MPR Co

mART EXP

Sg PDw, 0.7×0.7 mm resolution, 2 mm

MPR Co

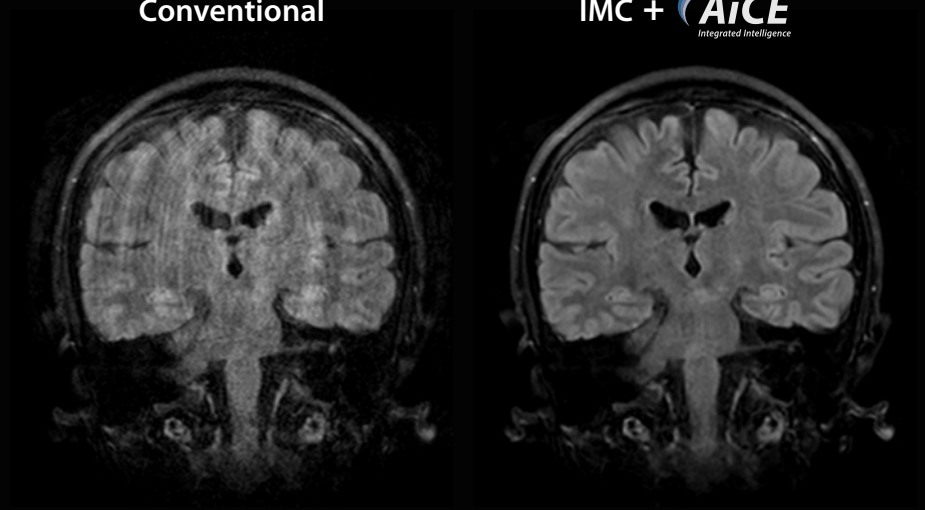
Actual scan times vary by case

powered by Altivity

Iterative Motion Correction (IMC)

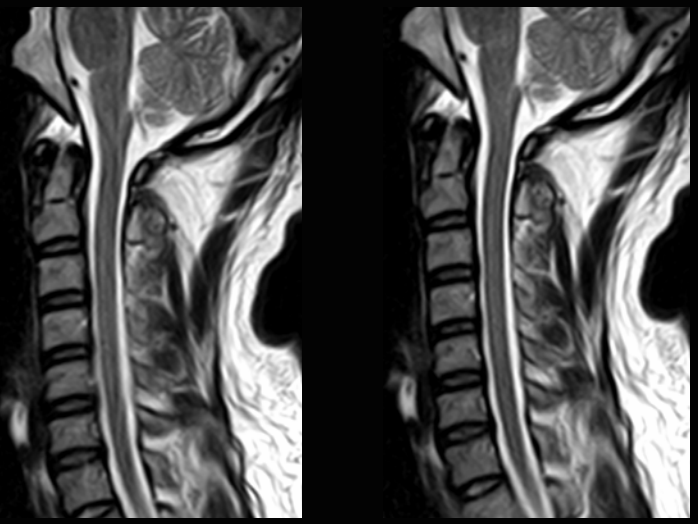
IMC is a motion correction technology for motion artifacts caused by sporadic movements. IMC comprises two main steps: shot rejection and image reconstruction.

Conventional **IMC + AiCE** Integrated Intelligence



Co FLAIR, 1.0×1.0 mm resolution, 4 mm, 3:51

Conventional **IMC + AiCE** Integrated Intelligence



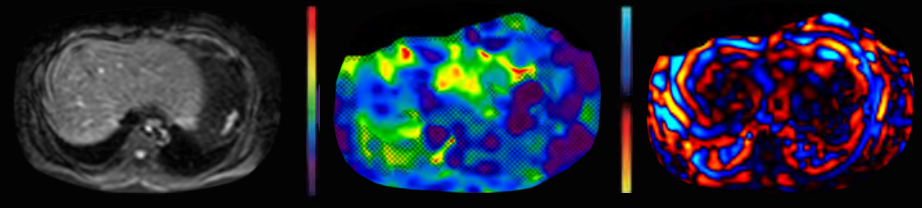
Sg T2w, 0.96×0.96 mm resolution, 3 mm, 3:48

Quantifiable imaging to enhance diagnostic capability

Quantitative imaging techniques provide a wide range of options for referring physicians and staff. New techniques like MR Elastography and Fat Fraction Quantification (FFQ) for liver staging and quantification, and contrast free Arterial Spin Labeling increase the imaging tools available for imaging various disease sets that were previously handled in other imaging modalities.

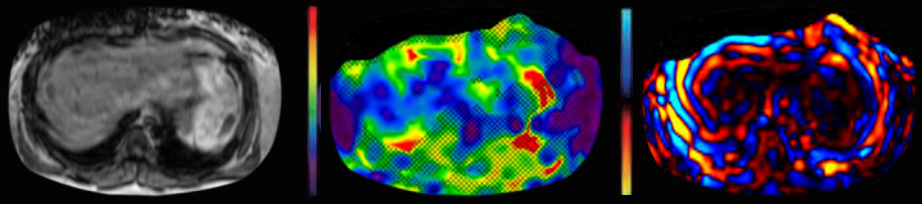
MR Elastography (MRE)

The role of MRE has been increasingly recognized in multidisciplinary clinical guidelines for noninvasive liver fibrosis assessment, particularly in suspected cases of non-alcoholic fatty liver disease (NAFLD).



Magnitude image | Stiffness map | Wave images

SEEPI, 3.6×3.6 mm resolution, 8 mm, 0:11



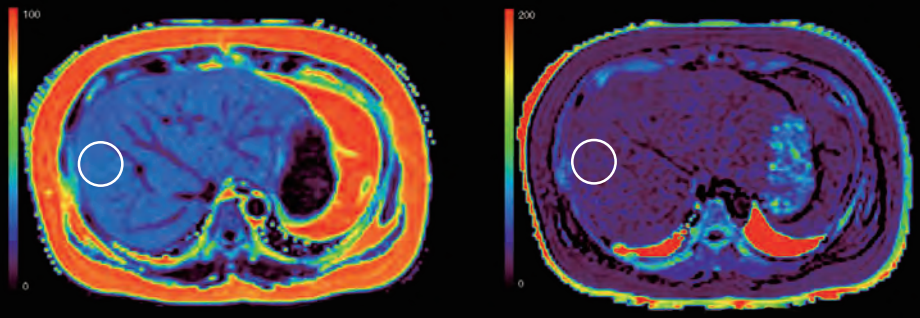
Magnitude image | Stiffness map | Wave images

FE2D, 3.6×3.6 mm resolution, 8 mm, 0:13×4

Non-invasive fat imaging and quantification

Imaging is rapidly becoming the standard for fat quantification. Canon's fat imaging and quantification can simultaneously, in a single breath held exam, provide quantitative maps of the liver to measure proton density fat fraction (PDFF) and R2*.

Fatty liver case

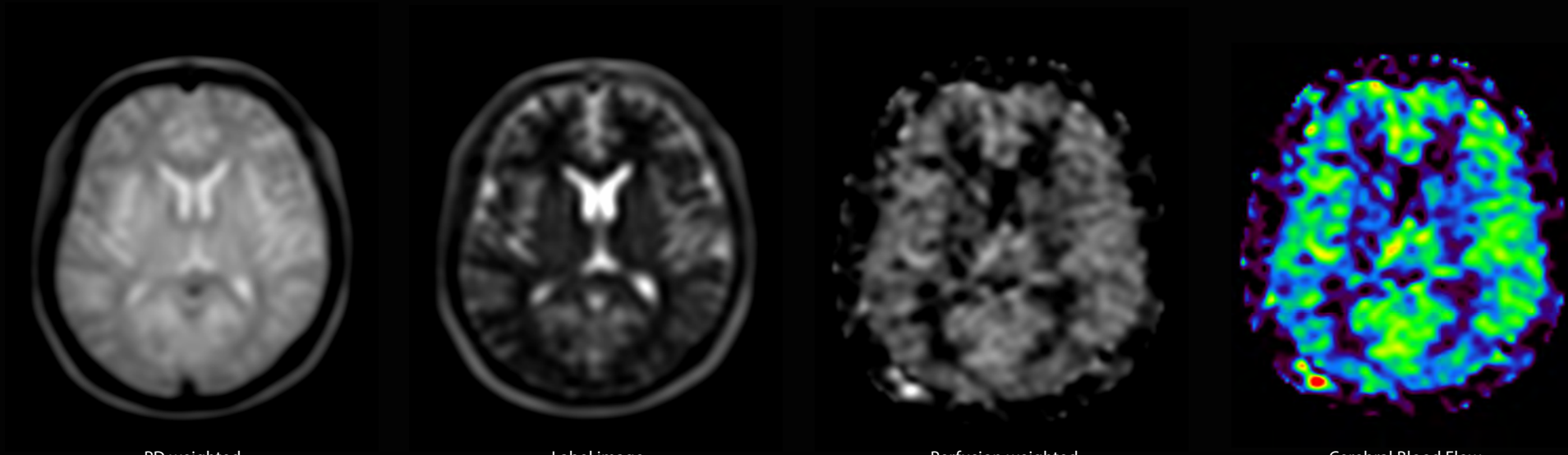


Fat Fraction: 28.42% | R2* value: 25.74Hz

Ax FE3D, 3.3×3.3 mm resolution, 7 mm, 0:22

pseudo-Continuous Arterial Spin Labeling (pCASL)

Arterial Spin Labeling (ASL) MRI provides non-invasive methods to acquire perfusion weighted images without the use of external contrast agents. pCASL utilizes a fast spin echo (FSE) readout which makes it less sensitive to susceptibility artifacts.



PD weighted | Label image | Perfusion weighted | Cerebral Blood Flow

Ax pCASL, 2,0×2.0 mm resolution, 6 mm, TI 1800ms, 4:33

Actual scan times vary by case

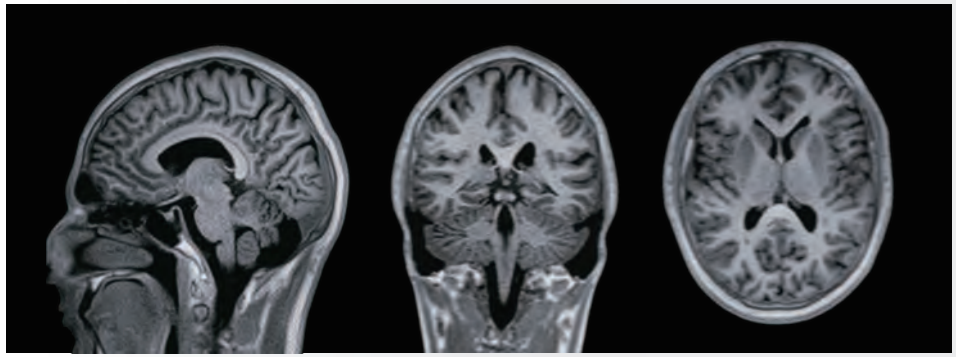
Patient friendly features putting your patients first

Pianissimo, Pianissimo Σ and Pianissimo Zen[1]

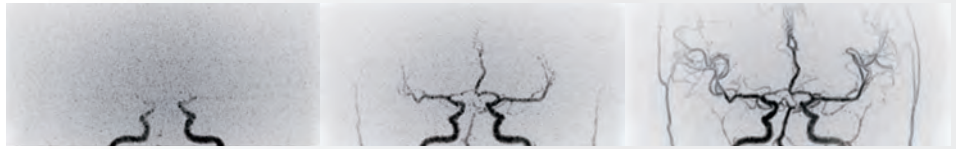
Pianissimo technology significantly reduces the noise in and around the MRI environment for every patient, every sequence, every time. Pianissimo Σ technology dramatically reduces the level of acoustic gradient noise, thus substantially enhancing patient comfort, especially during scanning with fast sequences. And Pianissimo Zen's quiet sequences further reduce noise to just above ambient noise level, making exams even more comfortable and easier to complete.

Quiet examination

Vantage Orian's mUTE[2] application suppresses high-speed gradient field switching, making it possible to provide even quieter scanning.



3D Sg T1w Silent 1 mm isotropic TE = 0.12 ms | Co MPR | Ax MPR



mUTE 4D MRA – Real time, non-contrast flow imaging of the Circle of Willis

1 Pianissimo is available on XGO version only, Pianissimo Σ is available on STD version
2 mUTE : minimized acoustic noise
3 Depending on the condition of usage and examination.

MR Theater and wide bore

The wide bore patient aperture and in-bore immersive virtual experience enhance patient comfort. The MR Theater encourages patients to relax and stay still, enabling clinicians to produce, high-quality imaging.

LED ring is available on XGO version only

Easy to clean surfaces

As procedure numbers increase so does the time required for cleaning. Easy to clean surfaces and reduced system touch points help you to simplify the cleaning process. With easy to clean and comfortable pads for the patient and hands-free table operation you have a modern system. In addition, the convenient utility paper holder makes it quick and easy to change the paper on the table between patients.

Patient pads

Utility paper holder

Foot operation

Canon
Patient Name
11/11/1990
170.0cm / 60.0kg
ID : EM_ID000001
Connected Coil
L1
L2
A1
A2
A3
A4
A5
A6
A7
Patient
Coil
Wave
Table
Environment
Setting
0

Intelligent Monitor

The intelligent gantry interface has been re-designed to enhance workflow, displaying important patient related and coil information, and allowing you to ensure a proper and complete setup without leaving the patient's side.

Dockable Table

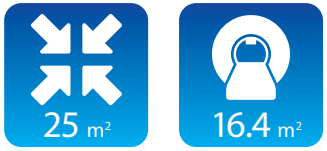
The Dockable Table enhances workflow and provides easy patient handling allowing medical staff to respond to patient requirements quickly and easily.

Vantage Orian – a truly smart investment choice

With outstanding productivity enhanced by high-end migrated 3T technology, Vantage Orian keeps your staff moving. Combining industry leading patient friendly features, low energy consumption, a small footprint and outstanding Canon service offerings, Vantage Orian helps you take care of business.

ECO Space

Minimize investment in valuable floor space with a 25 m^2 footprint that excels in the 1.5T wide bore market.[3]



Total Installation Space

Scan Room Space

ECO Mode

ECO Mode reduces power consumption to minimize system operating costs. ECO Mode can be automatically activated simply by lowering the couch once the procedure is complete.

ECO Mode

Power Requirement

3 The 5 Gauss line is not confined within the Scan Room. Controlled access area should be taken into account by the facility when preparing for installation. The above specifications may not meet the local requirements. Please consult with your architectural and/or electric consultant for coding requirements. Some power equipment may be required to be placed in a dedicated electrical room. The minimum footprint may not be applied to some cases depending on each site.

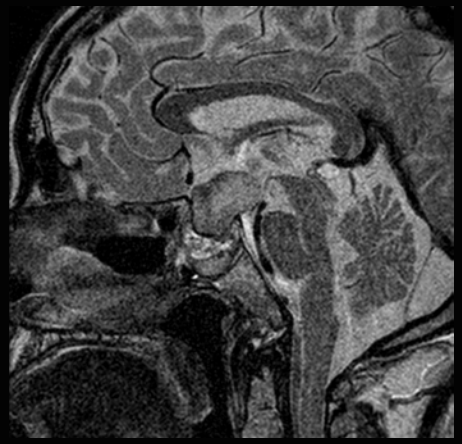
4 For Saturn X Gradient, 80 kVA is required.

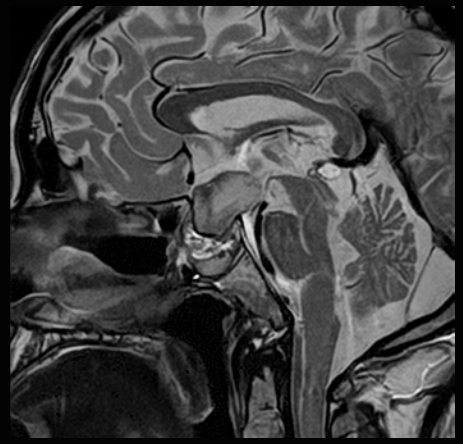
AiCE for Brain

Postoperative follow-up for pituitary adenoma

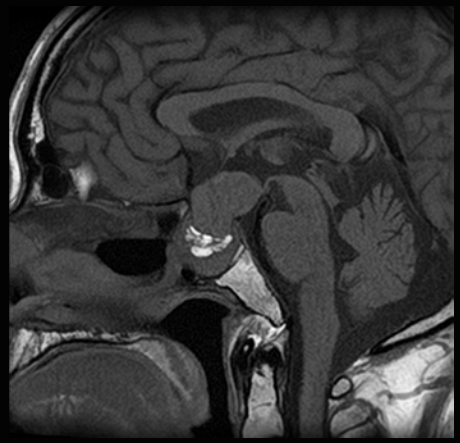
Original

AiCE Integrated Intelligence





Sg T2w, 0.6×0.6 mm resolution, 1.5 mm, 2:18



Sg T1w, 0.6×0.6 mm resolution, 1.5 mm, 2:13

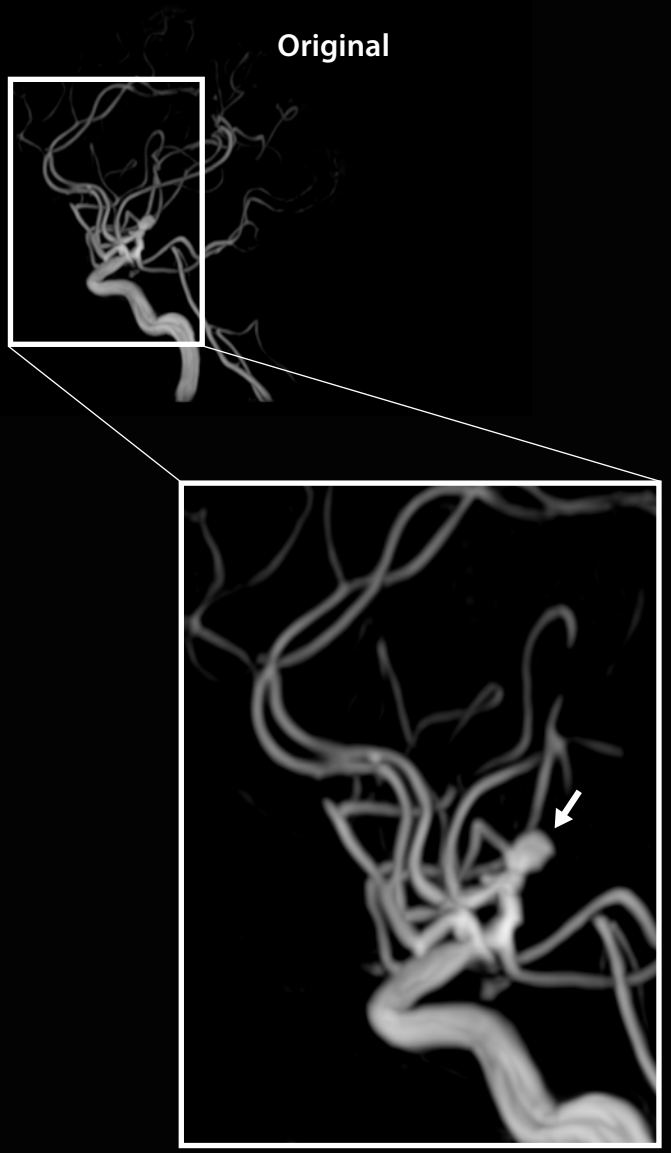
Actual scan times vary by case

Courtesy on file.

Fast 3D for MR Angiography

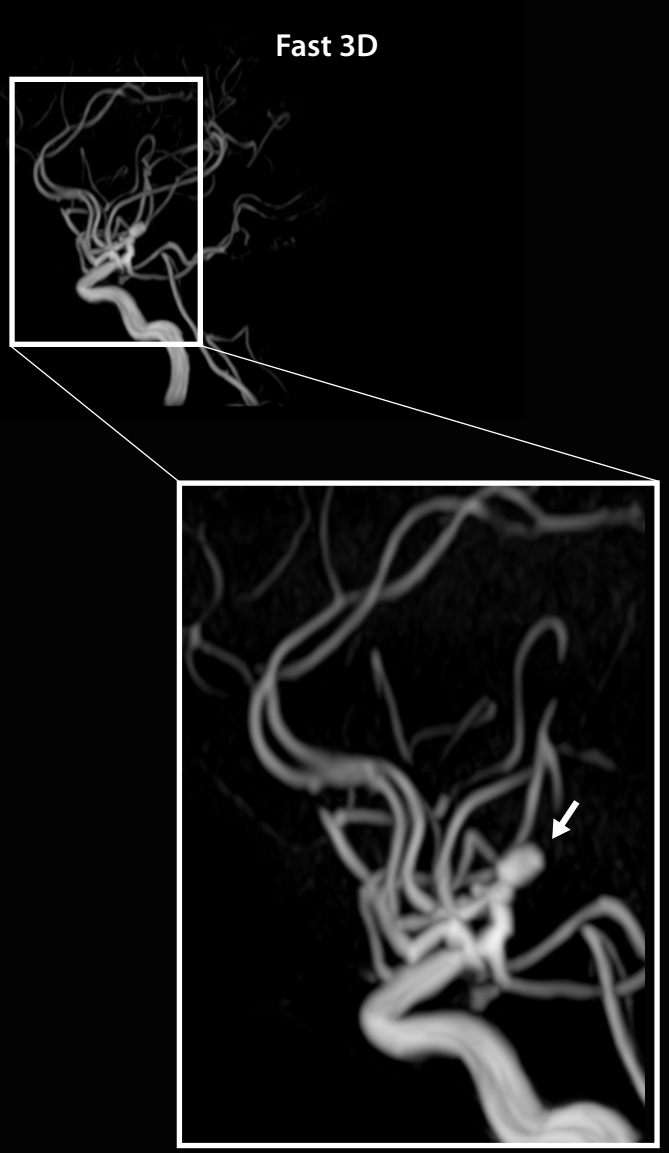
Left MCA aneurysm

Original



MRA3D, 0.64×0.64 mm resolution, 1.2 mm, 4:44

Fast 3D



MRA3D, 0.64×0.64 mm resolution, 1.2 mm, 3:40

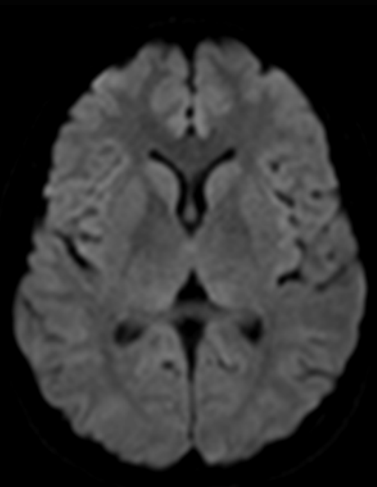
Courtesy on file.

AiCE for Brain

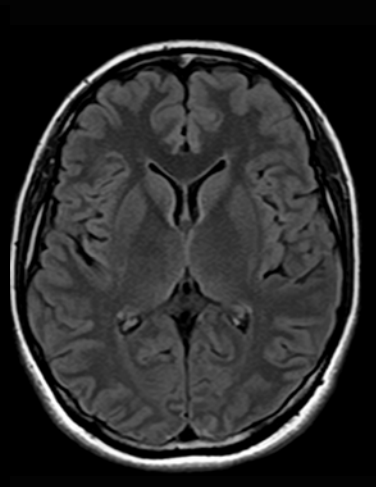
AiCE Integrated Intelligence

Total scan time

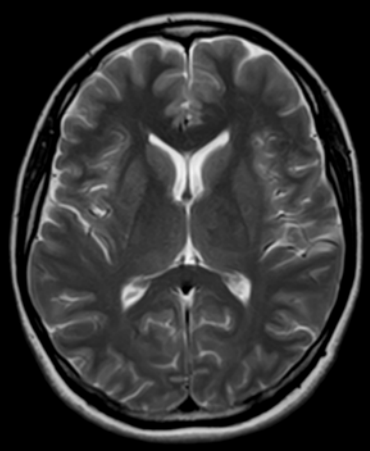
4:30



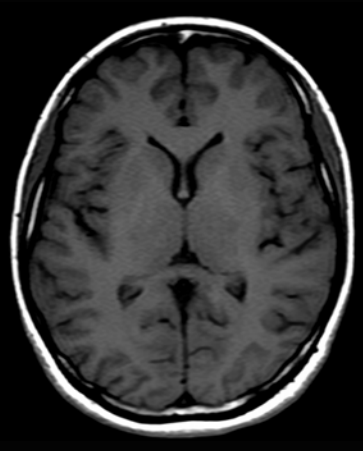
Ax DWI b1000, 1.4×1.4 mm resolution, 5 mm, 0:29



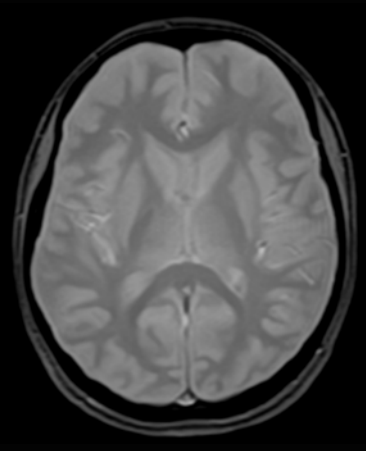
Ax FLAIR, 0.8×0.8 mm resolution, 5 mm, 1:40



Ax T2w, 0.8×0.8 mm resolution, 5 mm, 0:37



Ax T1w, 0.7×0.7 mm resolution, 5 mm, 1:03



Ax T2*w, 1.4×1.4 mm resolution, 5 mm, 0:41

Actual scan times vary by case

Images provided by Japanese facility

AiCE for L-Spine

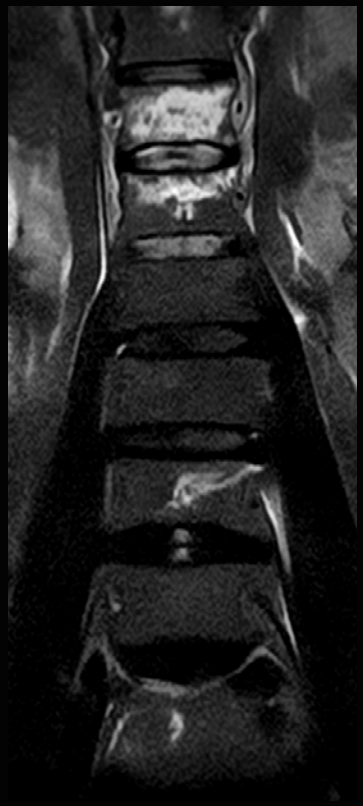
AiCE Integrated Intelligence

Compression fracture

Sg T2w,
0.78×0.78 mm resolution,
3 mm, 1:28, CS ×2

Sg T1w,
0.92×0.92 mm resolution,
3 mm, 2:44, CS ×2

Co T2w,
0.78×0.78 mm resolution,
3 mm, 2:00, CS ×2

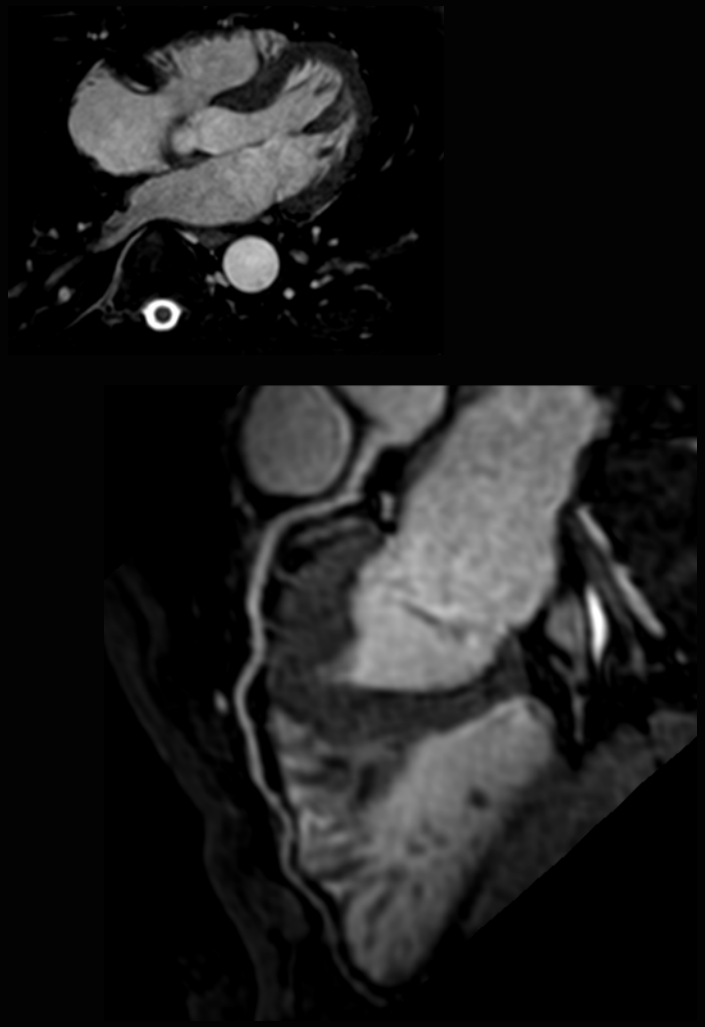


Co STIR,
0.84×0.84 mm resolution,
3 mm, 2:10, CS ×2.4

Courtesy of Fujita Health University, Okazaki Medical Center, Japan

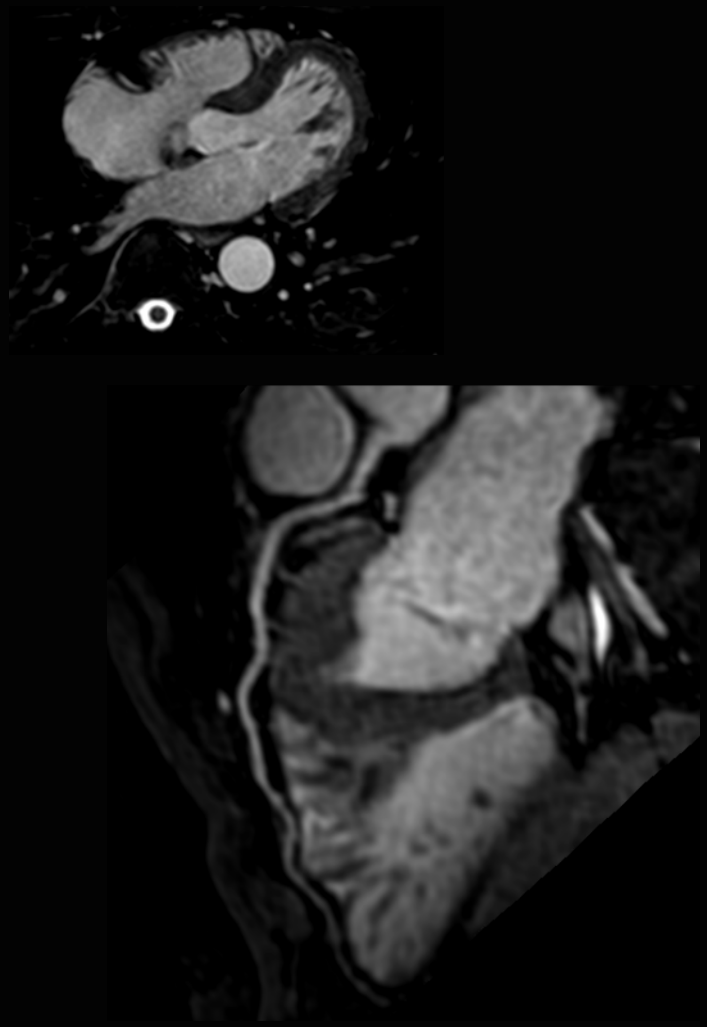
Fast 3D for Coronary Artery

Conventional



SSFP3D, 1.2×1.2 mm resolution, 1.7 mm,
7:13

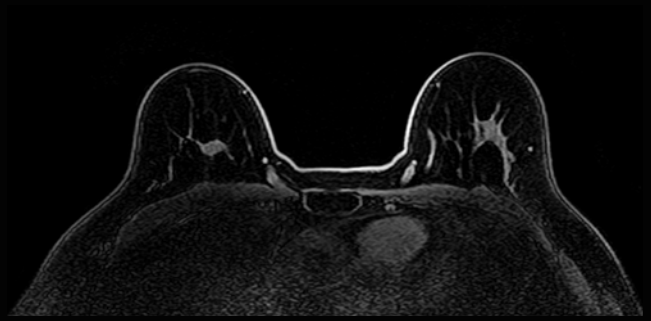
Fast 3D mode



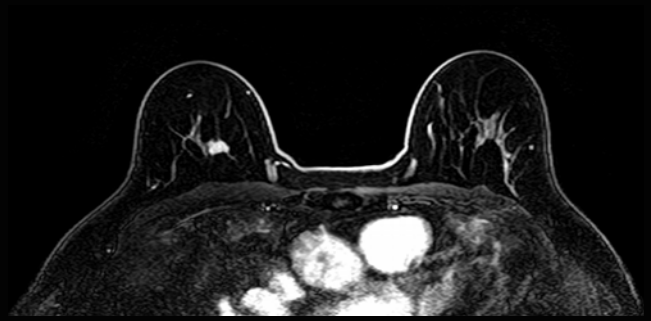
SSFP3D, 1.2×1.2 mm resolution, 1.7 mm,
3:37

AiCE for Breast

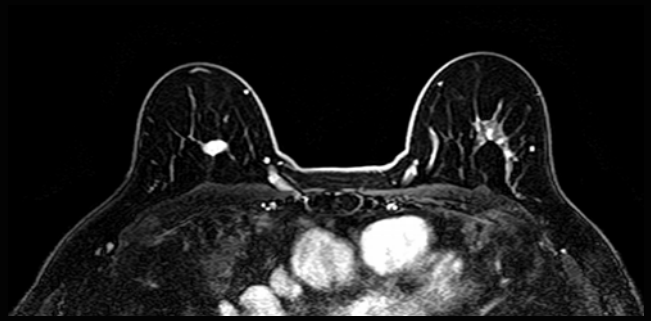
AiCE Integrated Intelligence



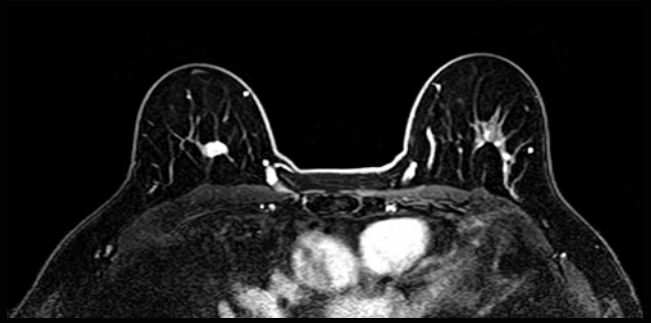
Pre



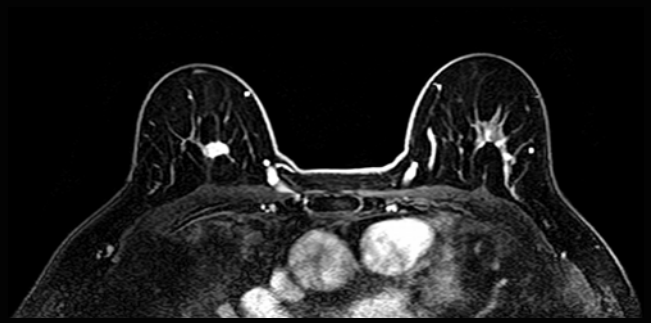
Dyn1



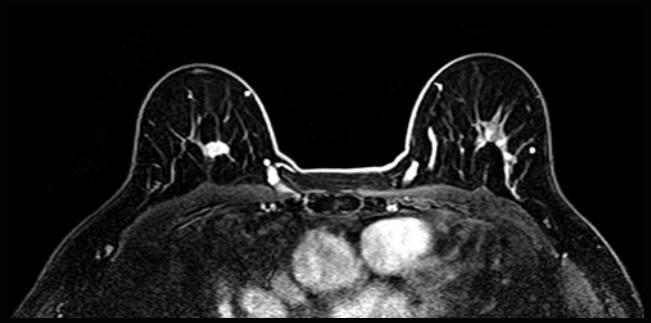
Dyn2



Dyn3



Dyn4



Dyn5

Dynamic Study
FFE3D, 0.6×0.6 mm resolution, 2 mm, 1:02 / phase

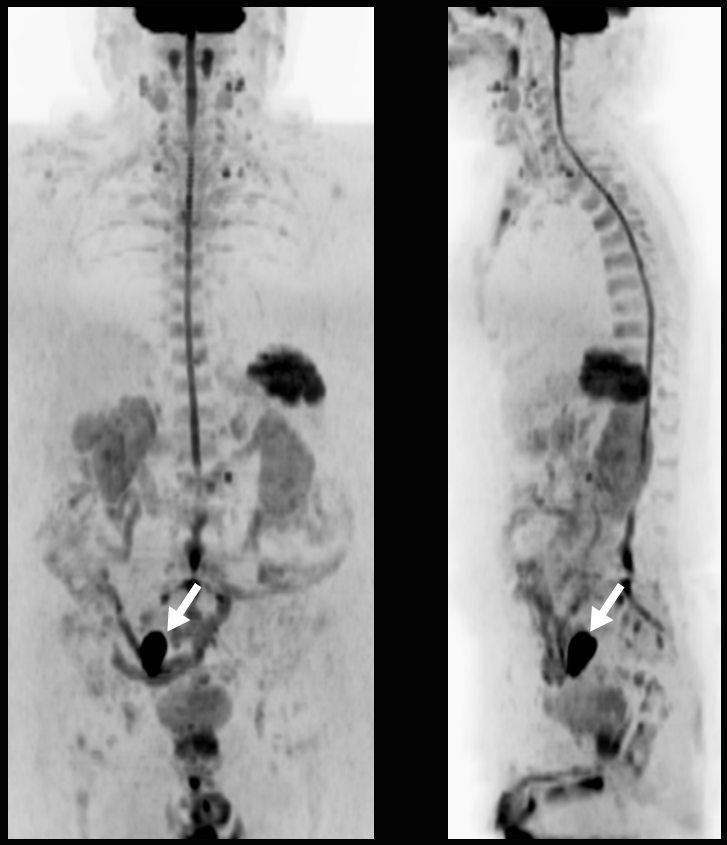
Actual scan times vary by case

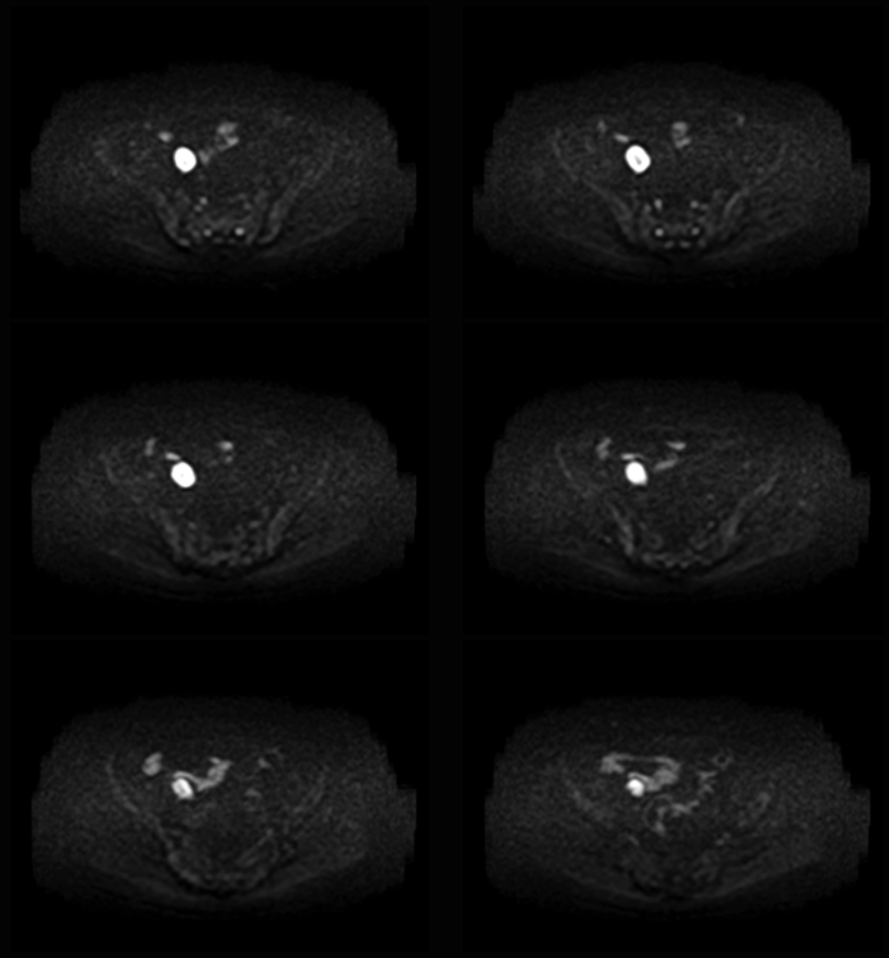
Courtesy of Fraternity Memorial Hospital, Japan

AiCE for Whole body

AiCE Integrated Intelligence

Metastatic lymph node





Ax DWI / b 800, 3.2×3.2 mm resolution, 5 mm,
0.59 × 3 stations

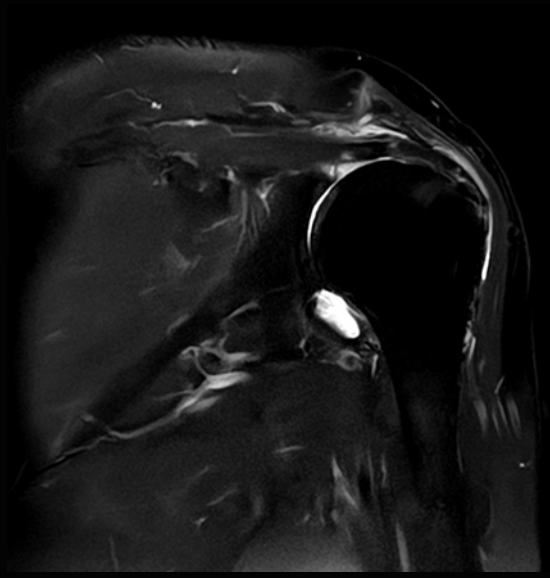
Courtesy on file.

AiCE for Shoulder

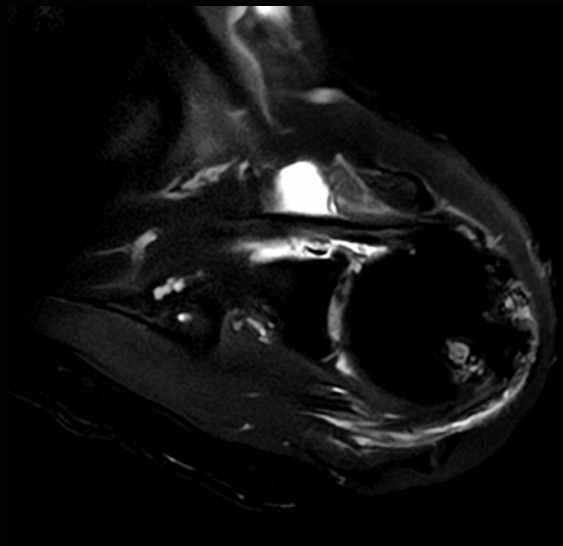
AiCE Integrated Intelligence

Left rotator cuff tear

Co T1w, 0.36×0.36 mm resolution, 3.5 mm,
2:48



Co FS T2w, 0.44×0.44 mm resolution, 3.5 mm,
1:59



Ax FS T2w, 0.44×0.44 mm resolution, 3.5 mm,
2:48

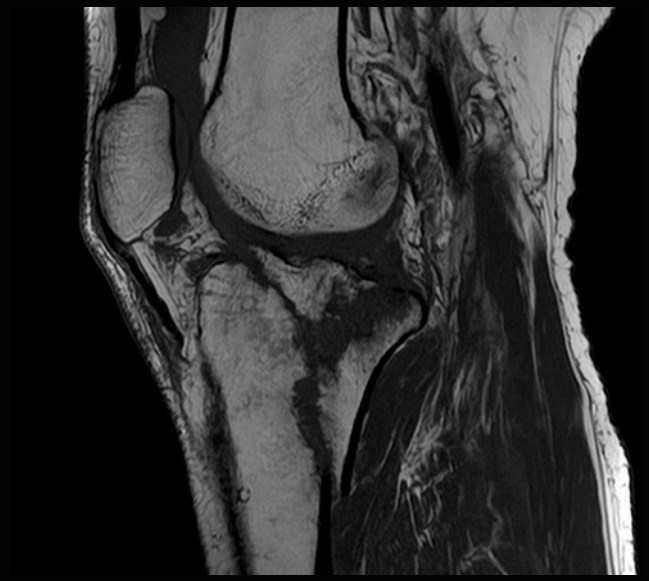
Actual scan times vary by case

Courtesy of Kyoto Shimogamo Hospital, Japan

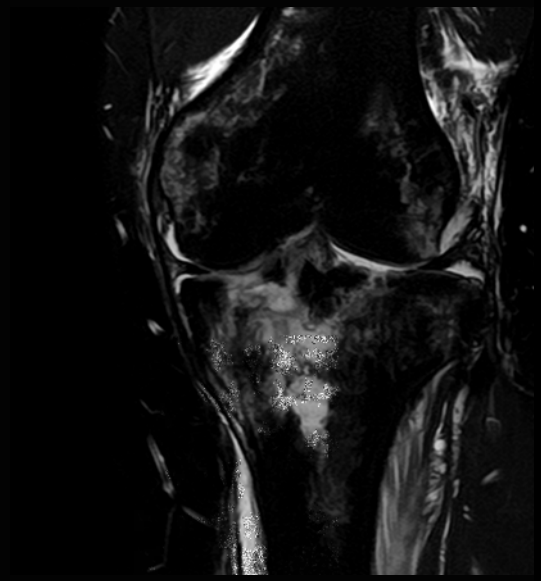
AiCE for Knee

AiCE Integrated Intelligence

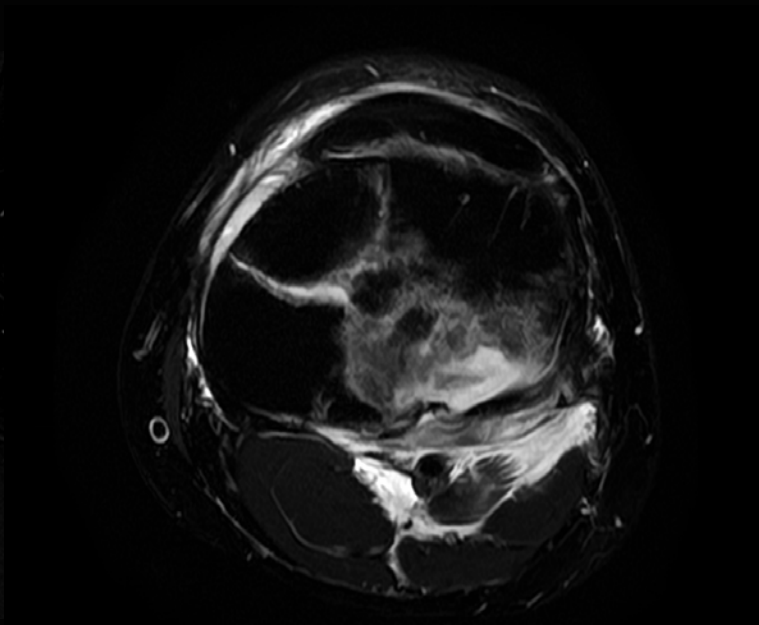
Tibial plateau fracture



Sg T1w, 0.6×0.5 mm resolution, 3.5 mm, 2:44



Co FS T2w, 0.6×0.5 mm resolution, 3 mm, 3:18



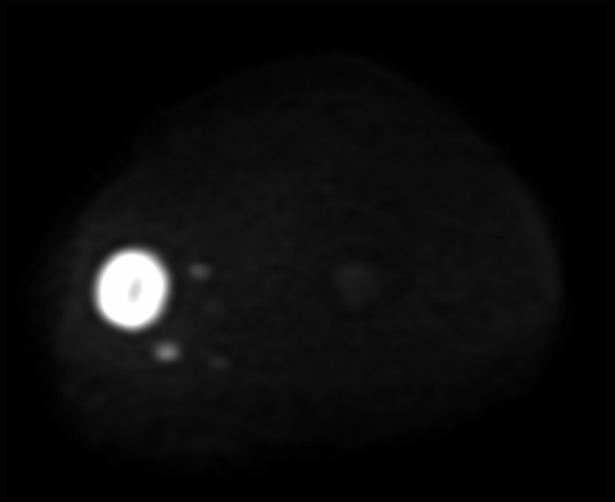
Ax FS T2w, 0.7×0.5 mm resolution, 5 mm, 3:22

Courtesy of Kyoto Shimogamo Hospital, Japan

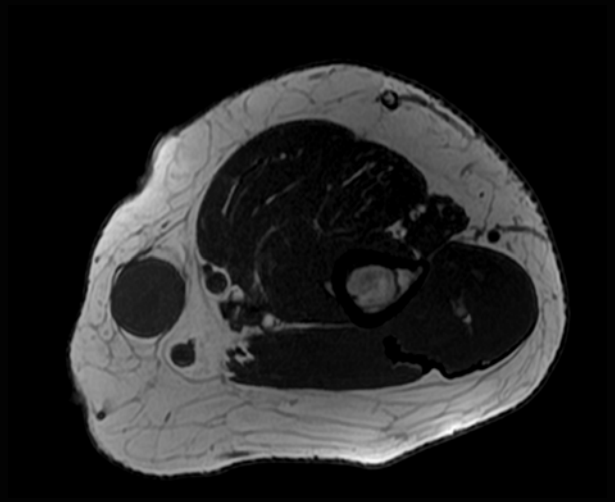
AiCE for Arm

AiCE Integrated Intelligence

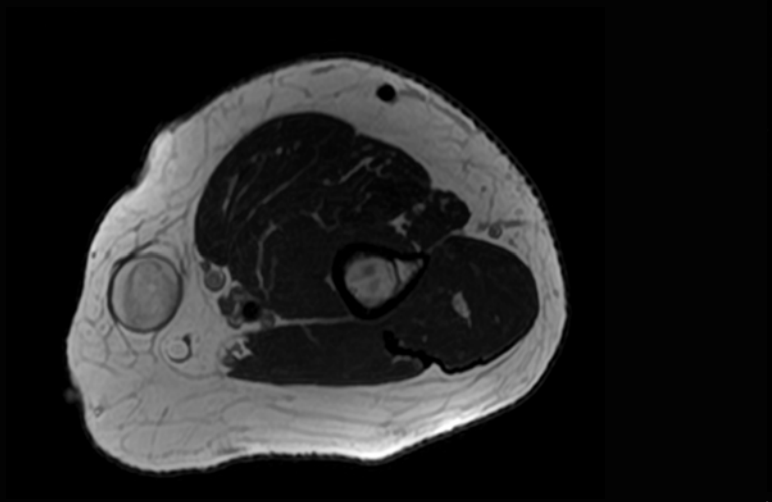
Neurogenic tumor

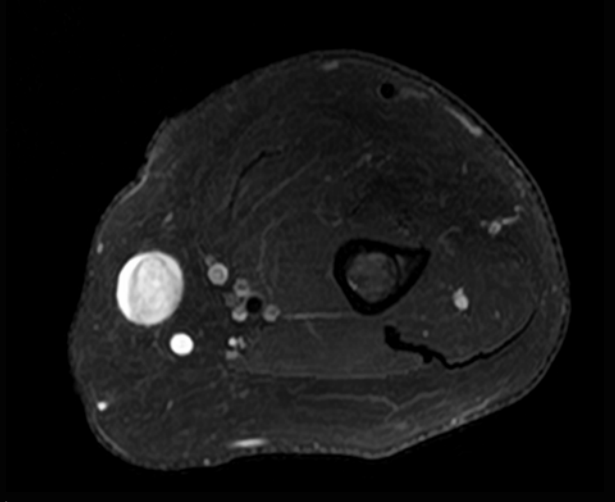


Ax DWI b1000, 1.8×1.8 mm resolution, 3 mm, 3:56
Exsper ×3



Ax T1w, 0.44×0.44 mm resolution, 3 mm, 3:08





Ax T2w WFS, 0.6×0.6 mm resolution, 3 mm, 2:55

Actual scan times vary by case

Courtesy of Moriguchi Keijinkai Hospital, Japan

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while taking care of your patients.
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Delivering advanced confidence, productivity and comfort at 1.5T MRI, powered by Altivity

Since launching in 2018, Vantage Orian has utilized intelligent technologies to deliver advanced confidence and productivity to 1.5T MRI suites globally. With a suite of intelligent technologies like Advanced intelligent Clear-IQ Engine (AiCE) that removes noise to improve SNR[1] and enhance resolution, clinical confidence is advanced with Vantage Orian. Combined with advanced techniques like Fat Fraction Quantification, MR Elastography and Diffusion Tensor Imaging, Vantage Orian allows you to handle routine to complex patient sets with ease.

Productivity is boosted by a portable Tablet UX that makes it easy to handle patients from the waiting room through to completing the scan, and other easy technologies like Ceiling Camera and Auto Scan Assist that help move procedures more efficiently. And with a suite of rapid scan applications including Compressed SPEEDER for 2D and 3D sequences, ForeSee View for enhanced scan planning and Auto Scan Assist to improve workflow, your facilities' imaging performance will meet the needs of staff and patients alike. Hospital administrators will also appreciate Vantage Orian's small footprint, low power consumption, excellent reliability and maintenance programs.

A relaxed patient is key in MRI, and you can be assured that Vantage Orian takes care of this with industry-leading whisper-quiet scan sequences, 71 cm wide bore and MR Theater all designed to put patients at ease. And you can also manage challenging patients with motion correction free breathing and contrast free applications.

Advanced Confidence

- AiCE helps you to see through the noise to deliver clear, sharp and distinct images
- Motion Correction technology stabilizes images and reduces artifacts
- Fat Fraction Quantification, Diffusion Tensor Imaging and MR Elastography provide a suite of advanced imaging options
- Advanced post-processing with Olea/Vitrea

High Productivity

- Remote monitoring and seamless patient handling with mobile Tablet UX
- Enable correct patient positioning and coil set-up with Ceiling Camera and Intelligent Monitor
- Efficiently plan with ForeSee View and automate routine sequences with Auto Scan Assist
- 2D and 3D Compressed SPEEDER and Fast 3D technologies accelerate scan times

Patient Comfort

- MR Theater helps relax patients with a virtual immersive experience
- Pianissimo and Pianissimo Σ technology delivers whisper quiet scanning
- Short magnet and 71 cm wide bore offers an open MRI scanning environment

1 AiCE provides higher SNR compared to typical low pass filters

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