

At work with a new generation 1.2-T MRI scanner

Value in an open platform

As Hitachi deploys its new generation of Oasis 1.2-T MRI scanners throughout Europe, our Madrid correspondent asked Dr Manuela Jorquera Moya about her experiences with the new scanner over the past few months

Report: Mélanie Rouger

Musculoskeletal- and neuro-radiologist Dr Moya works at San Carlos Hospital, a public facility, and at the Advanced Surgery Centre of Virgén de la Paloma Hospital, a private institution where an Oasis 1.2-T MRI Scanner was recently installed. Open from 8am to 10pm her department scans 20 to 24 patients a day, mainly for ambulatory care.

Dr Moya: 'A high percentage of the patients suffer from claustro-

phobia, and a significant number of patients prefer to be examined in an open-platform, probably because they feel more comfortable here than in a confined scanner.

'The Oasis platform offers high field imaging, so we mainly perform MSK and nervous system examinations. Most of our patients come from traumatology and neurology. We also perform abdomen and mammography examinations, mainly in patients with claustrophobia. We rarely image obese patients;

this population is still low in our country.'

Why did the Centre choose Hitachi's equipment?

'Ours is the first Oasis system installed at a private facility in Madrid. Only one public hospital had previously been equipped in the capital. This means we can now also offer this service to patients coming from the private sector, who represent a large number of patients in Spain.'

What is specifically good about working with Oasis?

'Oasis is useful for any study that requires high field imaging. The



wide open-platform enables us to perform high field studies in patients with claustrophobia who otherwise would never be able to benefit from, for instance, specific abdomen, liver or whole-body MR examinations, unless they are sedated.

'The open-platform is very convenient. I have been working with the system since last September, and I find it very good not only for patients with claustrophobia but also for children. Young patients who undergo an examination in a confined bore tend to move because they are nervous. If one of their parents can sit and chat with them during the examination, it helps them relax. Putting them at ease definitely reduces the risk of repeated scans, decreases scan time and provides higher quality diagnostic images.'

Oasis 1.2-T features susceptibility weighted imaging (SWI), spectroscopy and perfusion, which all play an important role in neurological exams.

For MSK examinations, the open platform architecture helps to acquire an image radially. Many patients will voluntarily or involuntarily move during an examination. The flow and motion compensation

technique of radial acquisition significantly improves image quality and expedites interpretation without having to sedate patients.

What could be changed in the future?

'I am not sure how Oasis is going to develop further, but I think technology will soon enable the magnet power to increase to 1.5 or 2-T, which would definitely improve the offer for open high-field equipment. However, for the moment, I believe developments will rather focus on short bore MR equipment.'



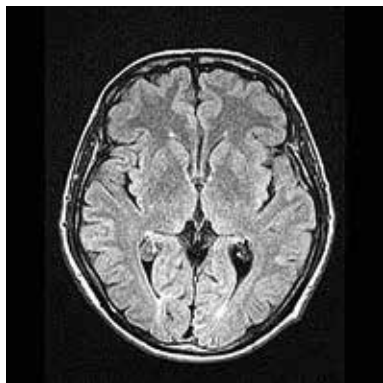
Hips coronal arthrography



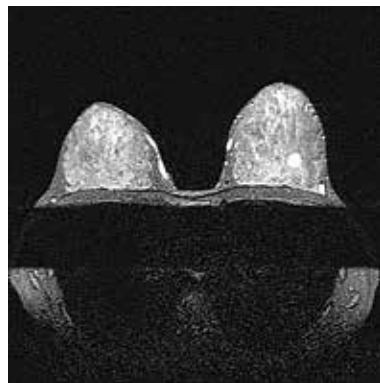
Knee magnetic resonance arthrography



Wrist magnetic resonance arthrography



Skull FLAIR axial



Breasts STIR axial



Orbits STIR axial

Clinical images by courtesy of Dr Jorquera Moya



Dr Manuela Jorquera Moya works at San Carlos Hospital, one of Madrid's largest healthcare facilities, and at the Advanced Surgery Centre of the Virgén de la Paloma Hospital

Cardiac CT scanner drops radiation d



Consultant radiologist Russell Bull joined the Royal Bournemouth Hospital in 2000, where a year later the UK's first Toshiba Aquilion multi-slice CT was installed. The hospital has been the main UK reference site for Toshiba ever since. In 2009, the hospital again became the first in the UK to install the Aquilion One single rotation, single heartbeat cardiac CT scanner. Then, in 2012, a 128 slice Aquilion CxL was installed which also incorporates AIDR 3D technology. Dr Bull initially worked as a general cross sectional radiologist and started a cardiac CT service at Bournemouth in 2004, using a Toshiba Aquilion 16. For the past four years he has worked almost exclusively as a cardiothoracic radiologist, splitting his time between cardiac CT and MRI.

Further big plus: Even patients with AF and high heart rates can be scanned

A British Society of Cardiac Imaging (BSCI) survey has confirmed that Toshiba's Aquilion One scanner not only delivers exceptionally low radiation doses for cardiac CT, but also widens the scope of diagnostics in Cardiac CT because even patients with conditions eliminating them from a CT exam before this machine arrived can now be scanned.

An incredible 40% lower radiation dose

'This data is possibly the most powerful I can show about the Aquilion One with the PureVision detector,' said Russell Bull MD, Consultant Radiologist at the Royal Bournemouth Hospital, Dorset, United Kingdom, where the study data was collected. Over a one-month period at the hospital, an unselected patient population was surveyed. The group included all patients, as well as those with atrial fibrillation and high body mass index.

The radiation dose of around 1mSv for an unselected population is amongst the lowest ever recorded for cardiac CT. 'I would have been

happy with 20% reduction in radiation dose compared to the previous survey,' Dr Bull said, when presenting the BSCI findings. 'In fact, there was a 40% reduction in dose. This is extraordinary as the Aquilion One was already a low dose scanner in the previous survey.'

Better imaging with high contrast

Adaptive Iterative Dose Reduction in 3D (AIDR 3D) is integrated in the Aquilion Vision. This not only minimises image noise, thereby enabling radiologists to lower the radiation dose, but also assures high diagnostic quality images.

Combined with the wide detector array of 16 cm., this CT scanner enables volumetric scanning, where entire organs can be captured with perfect temporal uniformity and completely free from z-axis misregistration at a rotation speed of 0.275 seconds. As a result Dr Bull said: 'The image

quality is actually much better, which has to do with the combination of the PureVision detector and the AIDR 3-D processing. We are seeing better images for 40% less radiation dose. With Aquilion One we can scan patients we wouldn't even consider scanning on a conventional scanner.'

4-D imaging and more

With this Toshiba CT scanner time can be

added as the fourth dimension paving the way for high-quality dynamic volume applications, or 4-D dynamic volume imaging,' the manufacturer reports. 'Each individual set of data, acquired in a dynamic volume, shows an exact moment in time, or the exact phase of contrast enhancement.

Dr Bull also added that, the ability to change the table speed on the fly with Variable Helical Pitch (vHP) is unique to Toshiba.

This, for example, makes it easier for the technician to do a TAVI scan,

