

With high image quality, great flexibility and reduced coil handling, Multiva 1.5T is the right high-performance MR system for Vijaya.

Vijaya Diagnostics Center makes **high performance standard** in its MR imaging

Multiva 1.5T is a high-performance MR system with comprehensive features. Vijaya Diagnostic Center is using Multiva for a broad range of patients. From comprehensive spine exams to routine imaging, the system provides high quality images and great patient comfort. At the same time it allows scanning up to 4-5 patients per hour.

High image quality or fast scanning – Multiva can do it all

Vijaya Diagnostic Center (Hyderabad, India) was founded by Dr. Surender Reddy in 1981. Today it is a steadily growing chain of diagnostic centers offering radiology, nuclear medicine and lab services. Its 18 centers serve over 2,500 patients per day. Vijaya has nine Philips MR scanners: three Multiva systems, five Achieva systems and a recently installed Ingenia 3.0T.

Radiologist Rammohan Vadapalli, MD, is using Multiva 1.5T in one of the centers. The Multiva system was acquired to expand the MR services of Vijaya. “We

have an Ingenia 3.0T and a Multiva 1.5T in the same building. During the time that Ingenia 3.0T was installed to replace our old Achieva 3.0T, we used the Multiva 1.5T to scan the patients who came for high-end 3.0T exams. Physicians who used to think that only a 3.0T system could produce high image quality were pleased when they viewed the Multiva 1.5T image quality.”

“However, when we have patients we need to scan quickly, like stroke patients for example, we focus on speed over image quality. The basic driver of an MR system is image quality, but Multiva is capable of quick scanning too.”

Reliable protocols and standardization

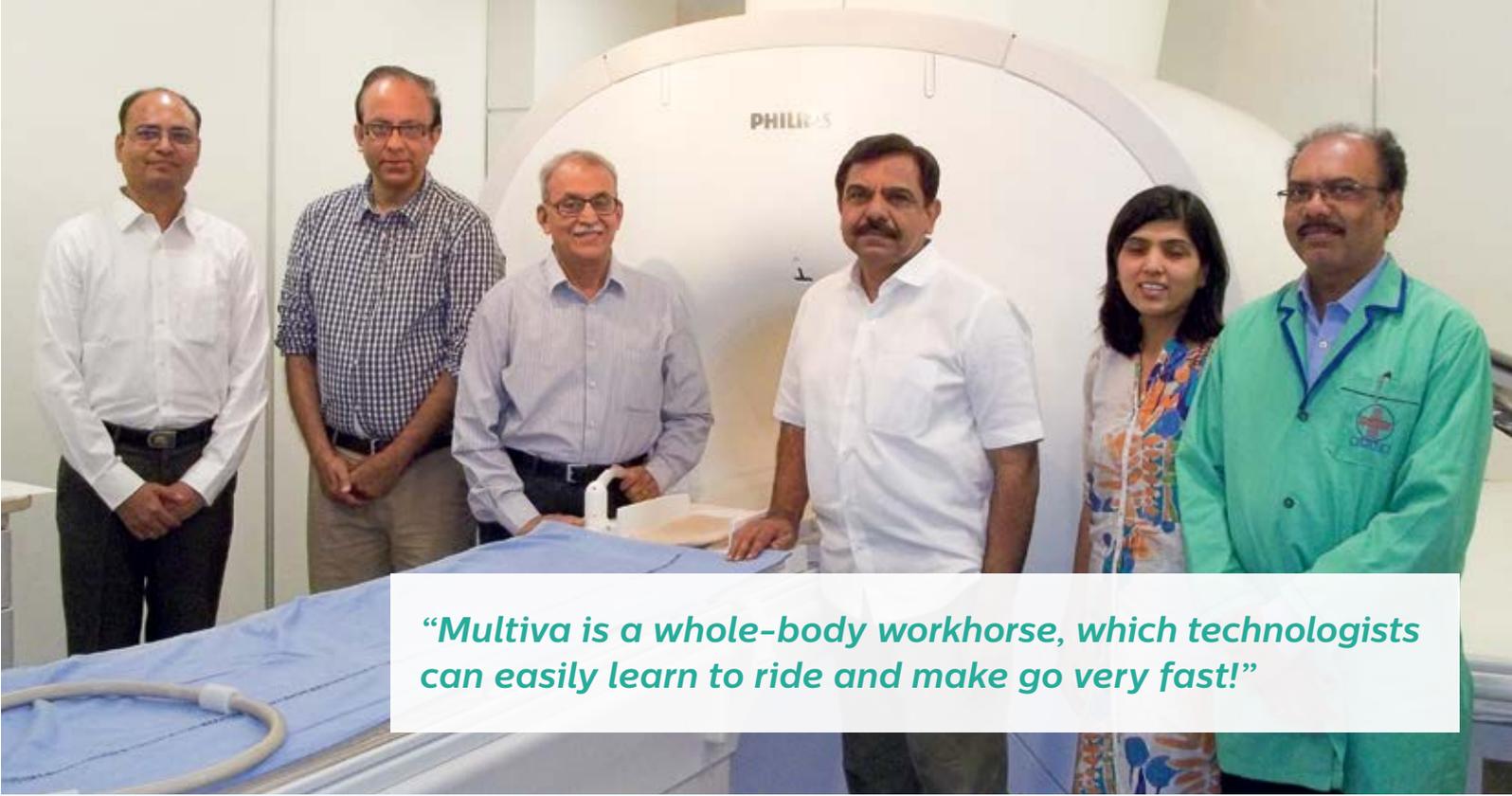
According to Dr. Rammohan, spine MR is the largest proportion in the center’s MR imaging mix, but they also perform other neuro, MSK and body MR, including cardiac exams. “In general, we like to use the factory scan protocols without changing too much. This helps maintain standardization and enhances robustness. The fact is, we have clinical requirements and we need clinical exactness, and the factory protocols which were optimized by Philips experts working closely with us give us that.”

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Rammohan Vadapalli, MD, is Consultant Radiologist at Vijaya Diagnostics at Hyderabad, specializing in 1.5T MRI, 3.0T MRI, and PET 128-slice CT. He is Advisor of Imaging to the Asiri Group of Hospitals (Colombo, Sri Lanka) and Advisor to Telemedicine and Medical Imaging Division (HMRI) Project 104. He also founded COBRA (Clinical Out of Box Radiology).

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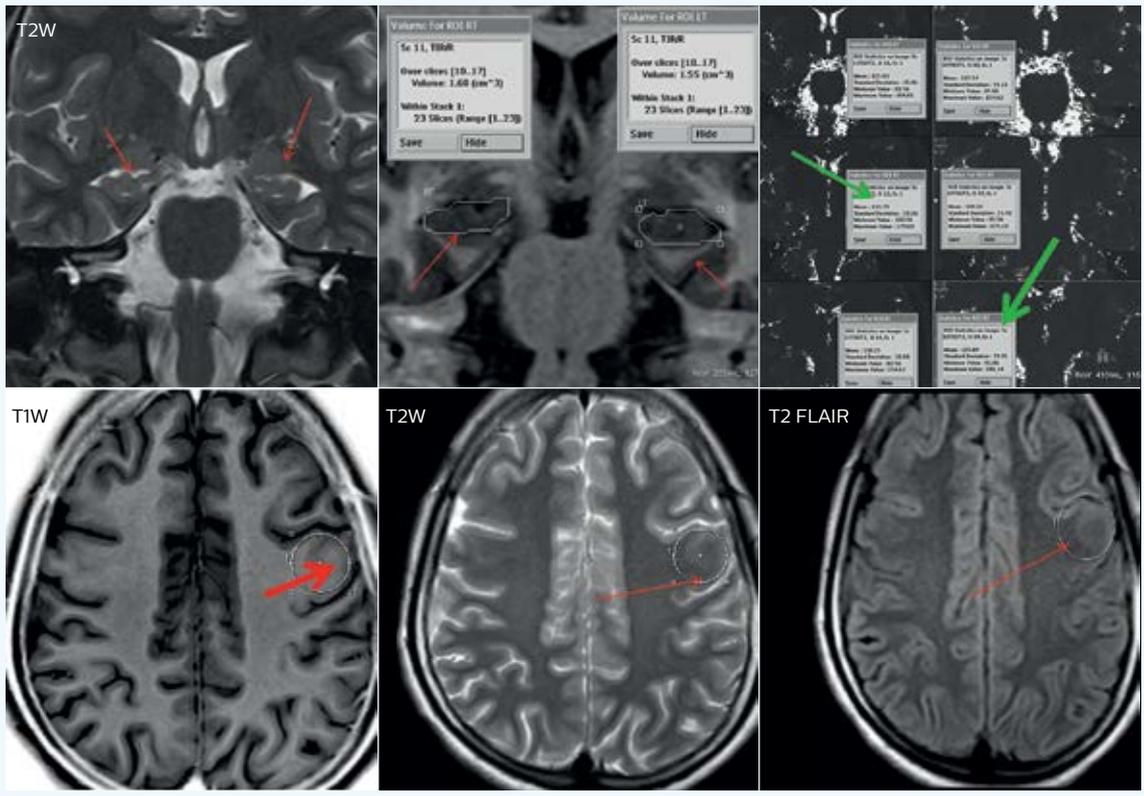
“Multiva is a whole-body workhorse, which technologists can easily learn to ride and make go very fast!”

Focal cortical dysplasia in 15yo with epilepsy

This 15-year-old girl with refractory epilepsy underwent MRI to visualize occult structural lesions like gliosis or focal cortical dysplasia. A comprehensive epilepsy scan protocol was performed on Multiva 1.5T.

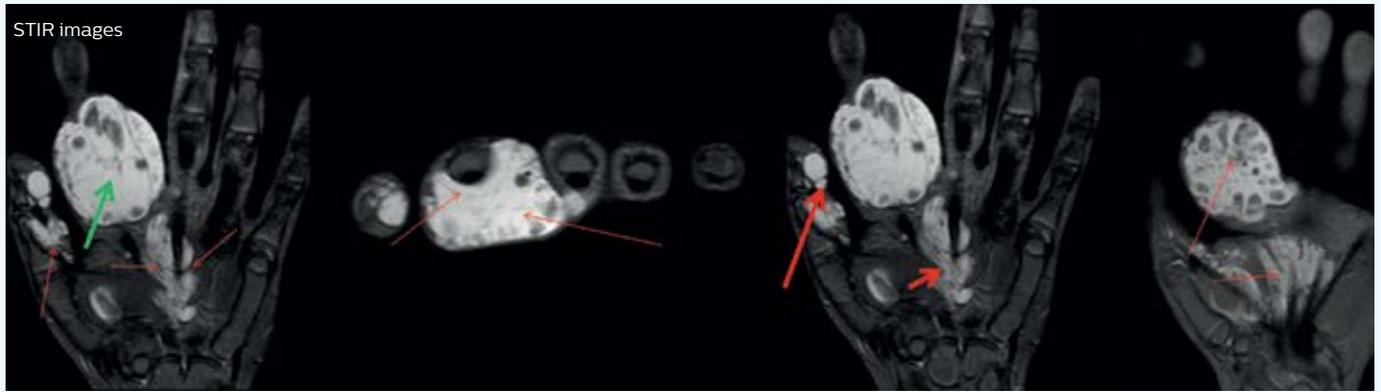
Bilateral hippocampal volume reduction (left>right) is seen, with normal morphology and inter digitations (red arrows). T2 relaxometry values in the head, body and tail of the hippocampi on either side are prolonged with a mean value of 125 ms (green arrows). Findings are indicative of secondary MTS (mesial temporal sclerosis).

T1, T2 and FLAIR T2 axial images show subtle left-central gyral lateral cortical laminar focal cortical laminar architectural abnormality with blurring of gray/white matter interface, thinning of subcortical white matter with no transmantel sign (red arrows), suggesting focal cortical dysplasia Type IIA/IB. No foci of gliosis or encephalomalacia and no heterotopias seen.



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Palmar tendon sheath and soft tissue multifocal hemangiomas



Multi-focal lobulated well defined soft tissue and flexor tendon sheath mass lesions with T2 STIR hyperintensity with multiple matrix T2 hypointense phleboliths involving thumb, index finger and palmar region around III metacarpal.

Haemangiomas of palmar tendon sheath of thumb and thenar soft tissues around III Metacarpal

Flexor tendon sheath mass lesions with T2 STIR hyperintensity with multiple matrix T2 hypointense phleboliths involving thumb, index finger and palmar region around III metacarpal.

Multiva 1.5T, coronal STIR in 3:49 min, voxels 0.5 x 0.82 x 2.5 mm, recon 0.58 mm.

“The exam protocol depends on the information needed. Our protocols are symptom specific or organ specific or disease specific. For example, the headache protocol contains five or six sequences to capture a range of different causes for headache.”

“We have a dedicated epilepsy protocol on Multiva and all our epilepsy patients are sent there. It produces good images, especially when we go to a high matrix, say 1024, for imaging the hippocampus. This is a complex anatomical structure and if there’s any dysfunction, either structurally or functionally, it may cause epilepsy. Checking the volumes of the right and left hippocampus has now become part of our epilepsy study. I think Multiva handles this quite well.”

“In spine imaging, the Multiva Head/Spine/Torso coil is exceptional in allowing us to perform great spine studies in optimal scan time, including comprehensive protocols with contrast, diffusion and perfusion.”

The “magic three” in brain imaging

“The basic sequences in our brain studies are diffusion (DWI), FLAIR and

T2. We call these the magic three,” Dr. Rammohan says. “If a patient is uncooperative or claustrophobic, we do these three sequences – first the diffusion, next FLAIR, and then the T2-weighted scan. In this way, if the patient cannot complete the examination, we have already captured the most important information. So we always start with these three.”

Workflow strengths of Multiva

Across its nine MRI systems Vijaya scans about 300 patients a day. The largest MR workflow challenges are in patient preparation and managing the different patients that present in the department. “If patient delays are minimized, we can easily scan 4–5 patients in an hour. Multiva’s FlexStream workflow keeps the scanning efficiency high with lightweight, easy-to-handle coils.”

“The easy coil handling on Multiva really saves time,” says Dr. Rammohan. “In our spine exams, we don’t have any additional coil handling as we can use the built-in Posterior coil. For our MSK and body exams, we put the Anterior coil on the top and that’s all. So the coil handling is the biggest mantra in our workflow management.”

“Our patients are quite comfortable on Multiva.”

Patient perspective

“Multiva is used for all types of patients at Vijaya Diagnostic Center,” Dr. Rammohan says. “We often take difficult patients such as obese or claustrophobic patients to Multiva, because the 60 cm bore is quite adequate, patient setup is simple and the noise level can be adjusted with SoftTone acoustic noise reduction. We also prefer to scan our patients who have metallic devices or stents on Multiva, not our 3.0T system; they are quite comfortable and the image quality is still quite good.”

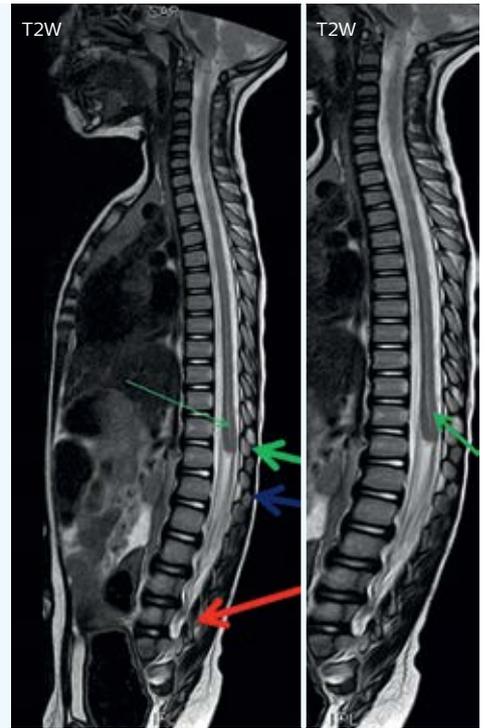
“Because the coils are easy to handle the patient can be positioned quickly and efficiently, which adds up to patient satisfaction,” says Dr. Rammohan. “Many patients who were scanned on Multiva said it was a pleasant experience.”

In conclusion Dr. Rammohan says, “Multiva is a whole-body workhorse, which technologists can easily learn to ride and make go very fast!”

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Child with caudal regression syndrome

In this 5-year-old child with urinary and fecal incontinence the MR images demonstrate abrupt termination of the cord at D12-L1 (green arrow). A bulbous wedge-shaped conus (green arrow) and sacral dysgenesis (blue arrow) are seen, as well as posterior element deficiency from L2 distally (red arrow). Findings are compatible with caudal regression syndrome. Multiva provides uniform image quality in the whole spine. According to the surgeon this pediatric spine study shows excellent image quality allowing him to see the important interfaces well, including the cord-CSF interface, vertebral body - epidural interface and CSF - nerve root interfaces. The study beautifully highlights the imaging findings.



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MR neurography for back pain

31-year-old woman with low back pain underwent a symptom and disease specific exam to visualize intra neural pathology and to look for intrinsic pelvic pathology contributing to lumbosacral plexus and sciatic nerve compression.

Sagittal T2-weighted spine images don't reveal any thecal sac or root compression or any significant discogenic pathology. Coronal STIR images show congested pelvic veins in sacroiliac region (green arrows) mimicking sacroiliitis and in the pelvis with broad ligament and ovarian ligament varices (red arrows) impinging on the lumbosacral plexus at the

greater sciatic foramen on either side. Bilateral ovariomegaly is evident with multiple T2 hyperintense peripherally situated sub-cm cysts (blue arrow).

Pelvic MR Neurography using DWIBS with 3D MIP visualizes both lumbosacral trunks and sciatic nerves (red arrows). Sciatic nerves on both sides show a mild degree enlargement with edema (thick red arrow). ProSet MR Neurography post contrast demonstrates excellent vessel nerve interfaces with pelvic varices (green arrows) impinging on the lumbosacral trunks and sciatic nerves in greater sciatic foramina (red arrows) with subtle fascicular thickening on the left larger than right.

