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## Easy upgrade to 3.0T yields improvements in imaging

CDR moves from Achieva 1.5T XR to Achieva 3.0T TX when ready to step up

At [Centro de Diagnostico Dr. Enrique Rossi](#) (CDR, Buenos Aires, Argentina) clinicians are seeing the clinical and economic benefits of ramping up their [Achieva 1.5T XR](#) systems to [Achieva 3.0T TX](#) with MultiTransmit. The upgrade requires no magnet swap and facilitates a quick and easy transition from 1.5T to 3.0T TX.

“My father Enrique Rossi opened the clinic in 1980 with a small office,” says CDR Chairman Santiago Rossi, MD, “and together with my mother Eugenia they continued to grow. Now we have almost 120 physicians and 550 employees.” In addition to the upgraded Achieva 3.0T TX, CDR is now using three Philips 1.5T systems, Intera 1.0T and Panorama 0.23T.

### Clinical improvements for high-end studies

“We bought the Achieva 1.5T XR because of its smart option to upgrade to 3.0T without the expense of taking out the magnet and all the main hardware,” says Dr. Rossi. “That was important because we wanted to start working at 1.5T but keep the option open to move to the advantages of 3.0T in the future. The introduction of MultiTransmit convinced us that the time was there. We are primarily an outpatient diagnostic imaging center with lots of premium referrals so we knew we were getting the referrals to do very high-end studies.”

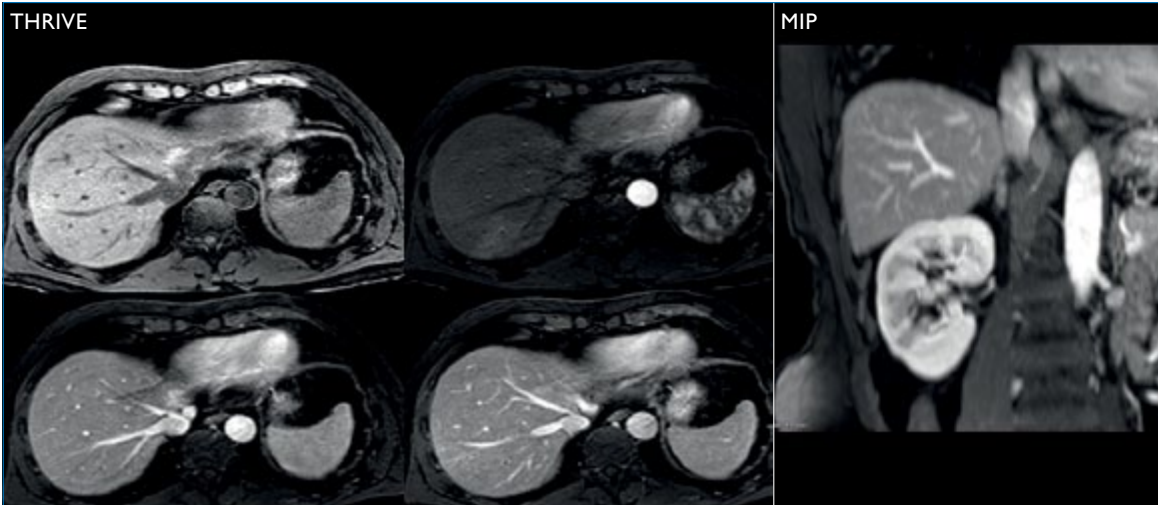
The Achieva 1.5T XR was installed in 2009 and the upgrade to Achieva 3.0T TX was performed in October 2010 as a part of CDR’s 30th anniversary celebration. “When it really started, the upgrade took just two weeks, so there was very little down time,” says Dr. Rossi. “Our institution now performs approximately 5000-6000 studies per month, and about 1200 of these are on the 3.0T TX.”

Dr. Rossi has found that neuro, vascular and abdominal studies benefit the most from the upgrade. “These have much higher spatial resolution now. In body we really like the 3.0T TX performance of certain sequences such as eTHRIVE and 4D dynamic studies to evaluate perfusion. In terms of study times, we actually maintained the same productivity as we had with the 1.5, but our image quality and resolution has been improved.”

### MultiTransmit increases homogeneity, resolution

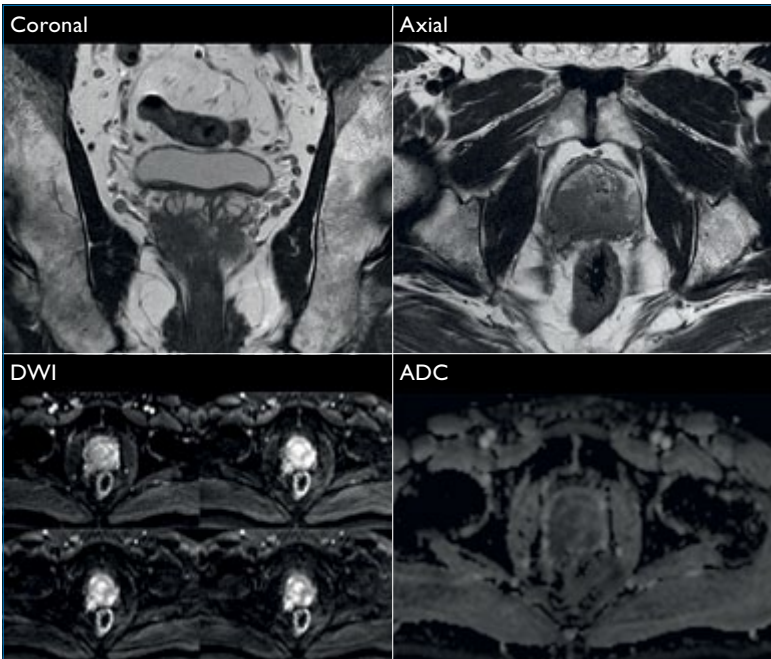
“Areas in which we highly appreciate the 3.0T TX are neuro, breast, abdomen and pelvis, including prostate and liver,” explains Mariano Volpacchio, MD, Head of Body MRI-CT. “We have excellent image quality, and particularly in neurovascular structures we’re seeing much higher resolution. In our liver patients, we are doing a lot of spectroscopic studies; these were possible on the 1.5T but we are achieving higher signal and better separation of the peaks at 3.0T. In these high-end studies, we often don’t want to exchange the quality or resolution for time. We also started to work with the mDIXON technique, to see how we can integrate that.”

“We have a very good and competitive diagnostic imaging medical team, and technologists that push the system to the limit,” says Dr. Rossi. “The 3.0T TX system enables the high-end studies that can help us do better diagnostics.”



### Portal venous thrombus

60-year-old male with a history of a resected colon carcinoma. Follow-up CT (not shown) revealed a hyperattenuating area in right lobe of the liver raising concern for metastatic disease. No abnormality was seen on T2-weighted images and DWI. The fat-suppressed 3D gradient echo T1-weighted (THRIVE) reveals an area of early enhancement not seen on subsequent portal venous phase. However, a linear filling defect is detected in a portal venous radicle, consistent with portal venous thrombus. This post-operative finding was deemed to be responsible for the abnormal area of enhancement excluding recurrent disease. Notice abrupt amputation of the portal vein branch on reformatted coronal MIP image and subsegmental venous thrombus on reformatted coronal MIP image. Achieva 3.0T TX with MultiTransmit was used with the SENSE Torso XL coil. Images with superb resolution were acquired with the patient supine using respiratory-triggered and breath-hold sequences.



### 3.0T TX prostate without contrast agent

A 60-year-old male patient with a palpable prostatic nodule and elevated PSA level presented for MRI. Axial and coronal T2-weighted gradient echo images demonstrate an infiltrating low-signal intensity lesion in the left peripheral zone. Homolateral extracapsular extension as well as neurovascular bundle involvement is evident. The coronal image reveals seminal vesicle invasion. DWI images reveal diffuse water restriction and the corresponding ADC map confirms restriction and extracapsular extension. A diagnosis of prostatic carcinoma with extracapsular and seminal vesicle invasion was confirmed by histology.

Dedicated Achieva 3.0T TX MRI with the SENSE Cardiac coil allowed for a high resolution evaluation. Images were acquired with the patient in supine position with a partially empty bladder prior muscular relaxant injection. Respiratory-triggered and breath-hold sequences were used.

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