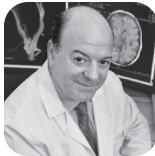




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Deep-learning-based technology improves multiparametric MR imaging in the prostate

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MR is an essential diagnostic and staging tool for prostate cancer. Clinical challenges include the ability to improve the definition of the hypointense halo around adenomatous nodules and enhance spatial resolution while better visualizing the capsule and extraglandular extension.

The use of deep-learning-based tools, such as AIR™ Recon DL in 2D, 3D and PROPELLER acquisitions, provide the ability to gain SNR to improve image quality and facilitate interpretation, as well as shorten scan times to enhance patient comfort.

Patient history

A 172 cm (5 ft., 6 in.) patient weighing 62 kg (137 lbs.) with a history of transurethral resection and progressive increase in PSA levels was referred for a prostate MR exam.

Results

Prostatic hyperplasia with typical adenomatous nodules in the transitional zones and areas of prostatitis in the peripheral zones of both prostatic lobes.

Discussion

Prostate cancer was ruled out and the elevated PSA was found to be secondary to prostatitis, which was treated with antibiotics, reducing the patient's PSA level.

With the 21-channel AIR™ Multi-Purpose Coil, we achieved a strong signal, patient comfort and speed in positioning, reducing the patient's time in the MR system. AIR™ Recon DL has impacted all routine and advanced MR examinations, such as prostate, fetal, cardiac and breast studies. The good image quality we can achieve with these two technologies — AIR™ Recon DL and AIR™ Coils — facilitates the diagnosis of different pathologies and their longitudinal follow-up. [S](#)

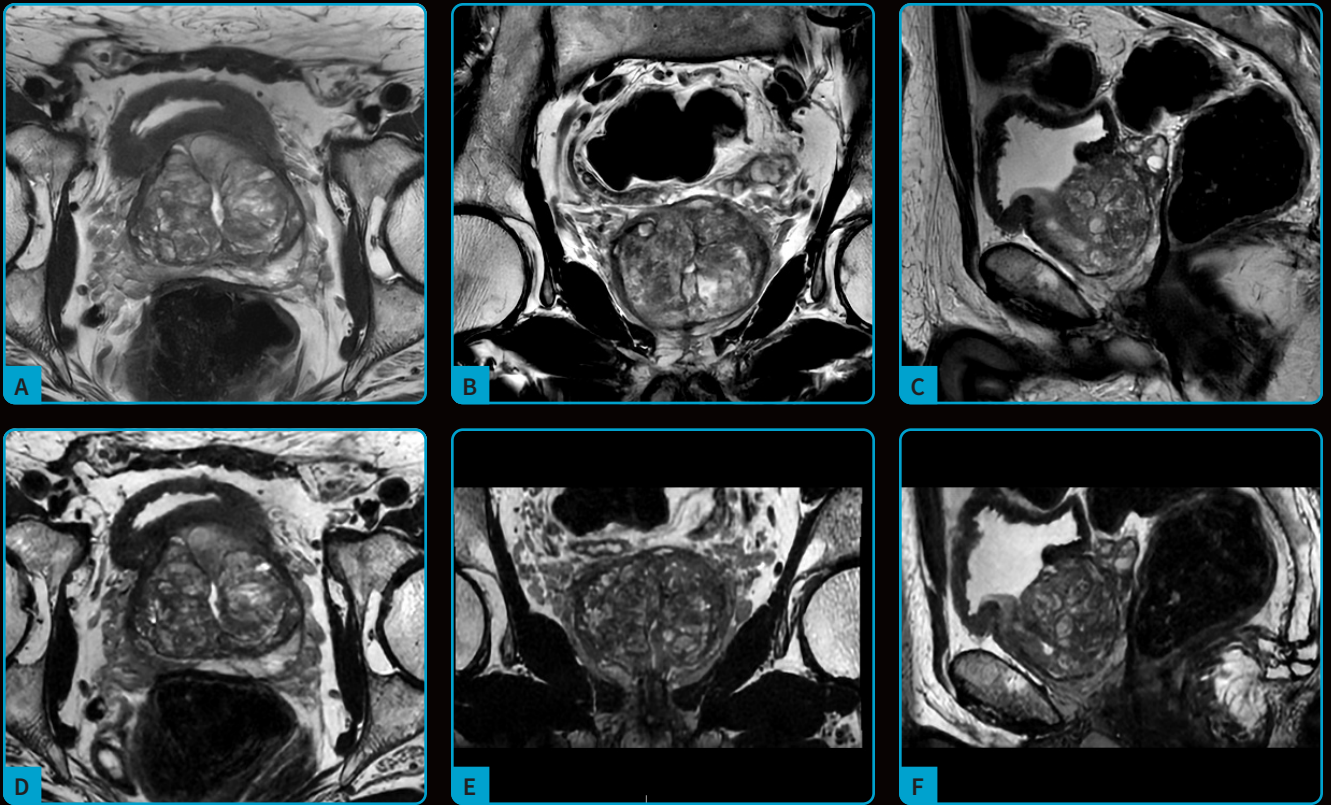


Figure 1. Patient referred for prostate MR exam. AIR™ Recon DL High, the 21-ch AIR™ MP Coil and 60-ch AIR™ PA Coil were used. (A, B) T2 FSE, 0.6 x 0.6 x 3 mm, (A) axial 3:03 min. and (B) coronal 2:39 min.; (C) sagittal T2 PROPELLER, 0.6 x 0.6 x 3 mm, 2:25 min.; and (D-F) T2 Cube, 0.7 x 0.7 x 0.4 mm, 3:42 min., shown in (D) axial, (E) coronal and (F) sagittal planes.

SIGNA™ Premier 3.0T, MR 30 for SIGNA™

	Sagittal T2 PROPELLER	Coronal T2	Axial T2	T2 Cube
TR (ms):	4795	2738	3155	1550
TE (ms):	122	120	117	111
FOV (cm):	20	20	18	22
Slice thickness (mm):	3	3	3	1
Frequency:	320	320	320	300
Phase:	320	320	320	300
NEX:	1.5	2	2	1
Scan time (min.):	2:25	2:39	3:03	3:42
Options/other:	NPW 1.7	1.8	2	FOCUS