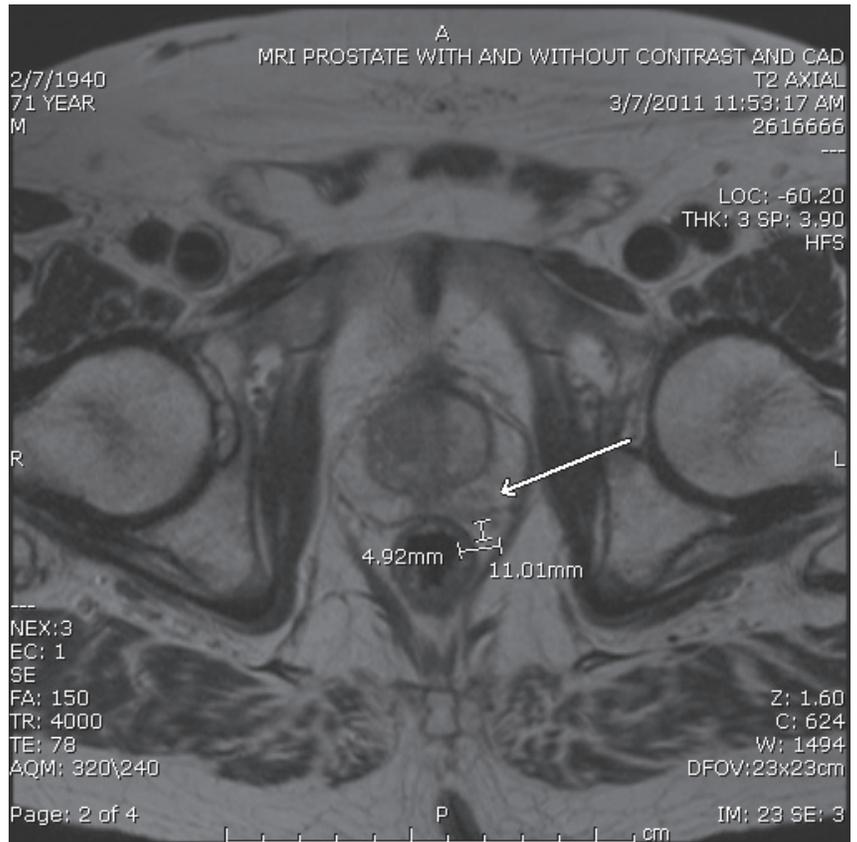


# CASE STUDY: MRI OF THE PROSTATE

*From the teaching files of Radiology Associates of Hartford, P.C.*

*“About 1 million prostate biopsies are done annually. Studies show that these biopsies miss about 20% of all malignancies and generally underestimate the disease.”*

- Radiology Today January 2009



*Axial T2 weighted image demonstrates abnormality on conventional imaging and serves to aid in anatomic localization of the tumor.*

**RAH**

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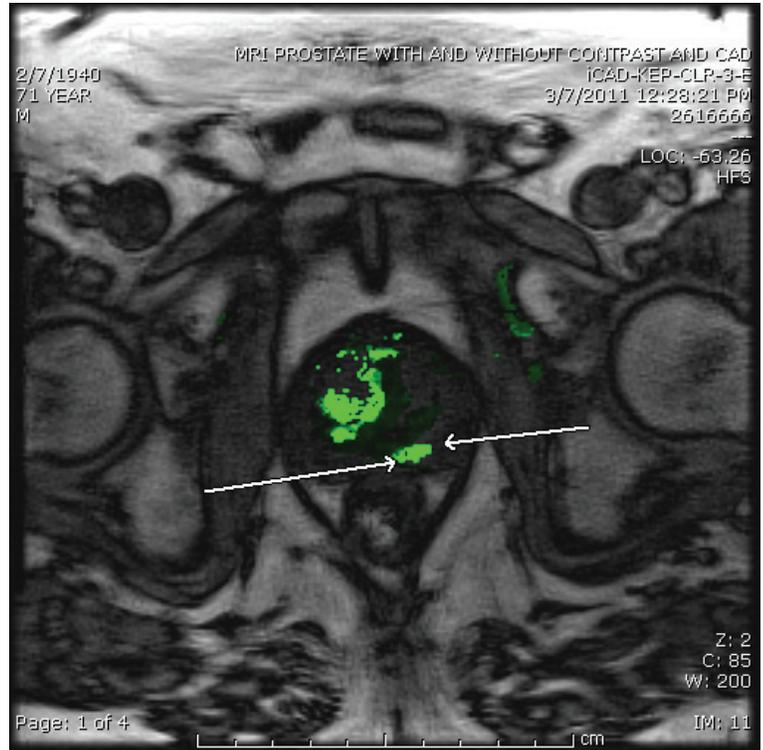
# CASE STUDY: MRI OF THE PROSTATE

Many clinicians have encountered patients with multiple negative sets of biopsies, only to have high-volume, high-grade disease diagnosed at some point in the future. During a typical biopsy, only about 1% of the prostate is sampled. Better visualization through endorectal prostate MRI can provide an added measure of assurance by sampling from the most suspicious areas.

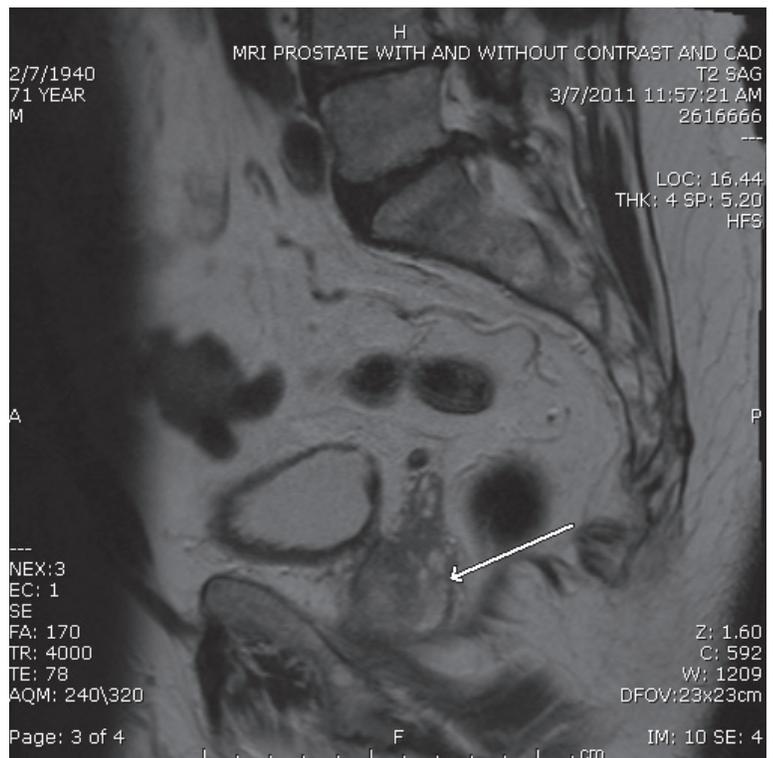
The primary indication for MRI of the prostate is the evaluation of prostate cancer after positive diagnosis, but the test is now also recommended for patients with elevated prostate-specific antigen (PSA) levels or another prostate cancer variable, but who also have repeated negative biopsies.

A study published in the October 2009 British Journal of Urology International concludes: "When repeated biopsy sampling in a worrisome patient does not reveal a tumor, MRI is appropriate because tumors located on the top of the prostate could evade traditional diagnostic procedures, including ultrasound-guided needle biopsy."

MRI provides excellent soft tissue image quality, which allows for a more accurate view of the entire prostate gland. Its superior resolution can determine cancer stage, conclude whether the cancer is contained and help determine the appropriate treatment for the patient. Because lesion morphology is difficult to assess, computer-aided detection helps the radiologist determine which areas of the prostate demonstrate rapid wash-in and wash-out of the contrast agent, an important tool to differentiate benign and malignant lesions.



The green in the dynamic image represents intermediate blood flow, or in this case, IV contrast flow. Tumors are typically found in the periphery of the prostate gland, which coincides with this particular study.



Sagittal image shows tumor to aid in biopsy.

## Background and CT Examination

A 71-year-old male patient received a CT scan at Saint Francis Hospital and Medical Center in March 2008 on the order of his urologist. A low attenuation area was found on the prostate gland. Several subsequent biopsies were performed with no positive pathology. Since 2008, PSA levels have been elevated.

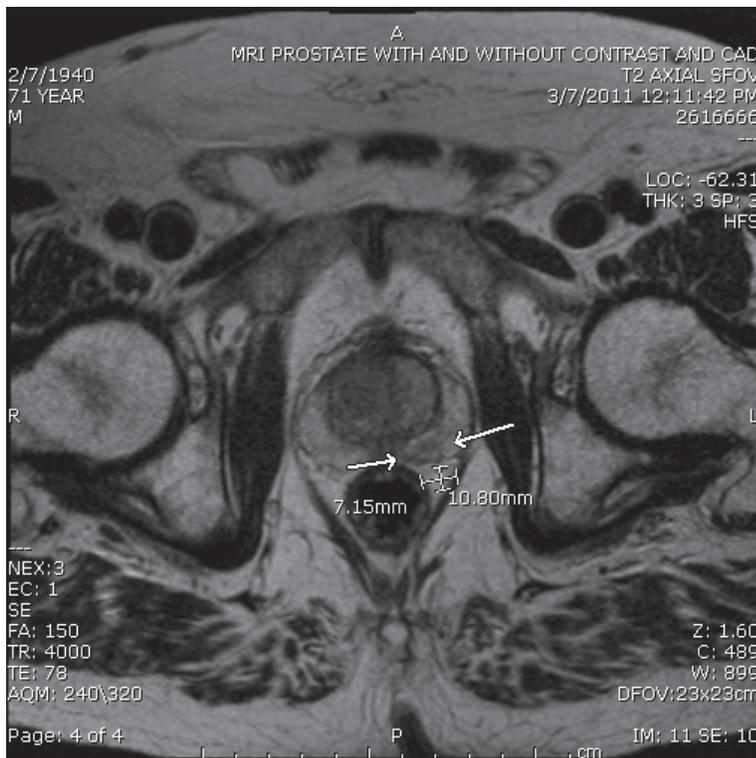
## Prostate MRI Examination

In March 2011, the patient was referred to Radiology Associates of Hartford, P.C. (Enfield location) for an MRI examination of the prostate. Multiplanar T1- and T2-weighted images were acquired before and after contrast administration. Kinetics and permeability analysis were performed using VividLook® advanced image analysis and review technology from iCAD, Inc.

## Diagnosis and Conclusion

A focal ovoid lesion measuring 11x7 millimeters was identified in the peripheral zone of the enlarged prostate gland consistent with malignancy. Had the urologist continued to perform biopsies, the results could have come back negative again. Without the MRI examination, the lesion would not have been found.

January 26, 2009  
Changing View — MRI, CAD, and Diagnosing Prostate Cancer,  
by Beth W. Orenstein  
*Radiology Today*, Vol. 10 No. 2 P. 14



*Axial T-2 weighted image demonstrates abnormality on conventional imaging and serves to aid in anatomic localization of the tumor.*

## When should you consider prostate MRI?

- A patient with increasing PSA levels and a negative biopsy. The detailed information provided by MRI can lead the doctor to the area most suspicious for disease, thereby increasing the chance of obtaining a comprehensive biopsy.
- To determine a patient's cancer stage. MRI can differentiate between a cancer that is within the prostate and a cancer that has spread beyond the prostate.
- A patient who has a local recurrence. As indicated by a high PSA level, or following a radical prostatectomy. MRI can evaluate the entire area for abnormal tissue.
- Prior to planning a patient's radiation treatment therapy. It is important that the radiation be targeted to only the affected area. MRI can provide a clear picture in helping the oncologist guide the therapy that is most appropriate for a particular patient.

Source: ZERO – The Project to End Prostate Cancer

*At RAH, we understand that your choice as to where you refer patients is a direct reflection on you. That is why, in addition to our advanced equipment and top-notch radiology team, we've made exceptional service an important part of the care and treatment of your patients.*

## **About Radiology Associates of Hartford, P.C.**

From timely scheduling to promptly delivering quality reports and images, we want you and your patients to be completely satisfied. Our staff has been selected and trained with customer service being of paramount importance. You can count on RAH for:

- State-of-the-art, digital MRI, CT, mammography, ultrasound, bone density, diagnostic radiology and interventional services, including breast & thyroid biopsies, varicose vein and spider vein treatments
- Board-certified and subspecialty-trained radiologists who are accessible and always available to consult with you
- Fast and convenient report turnaround
- STAT/wet reads as required
- Flexible scheduling options, including Saturday and evening appointments when requested
- Conveniently located, comfortable and aesthetically pleasing facilities
- Exceptional customer service to reflect professionalism and commitment to excellence

You've made a commitment to provide the best health care possible to your patients. You can trust RAH to continuously deliver the higher level of care that you and your patients deserve from a diagnostic imaging center.

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