

SAR DFP PROSTATE CASE OF THE WEEK: *Use of MRI in Persistent/Recurrent Prostate Cancer After Systemic and Ablative Treatments*



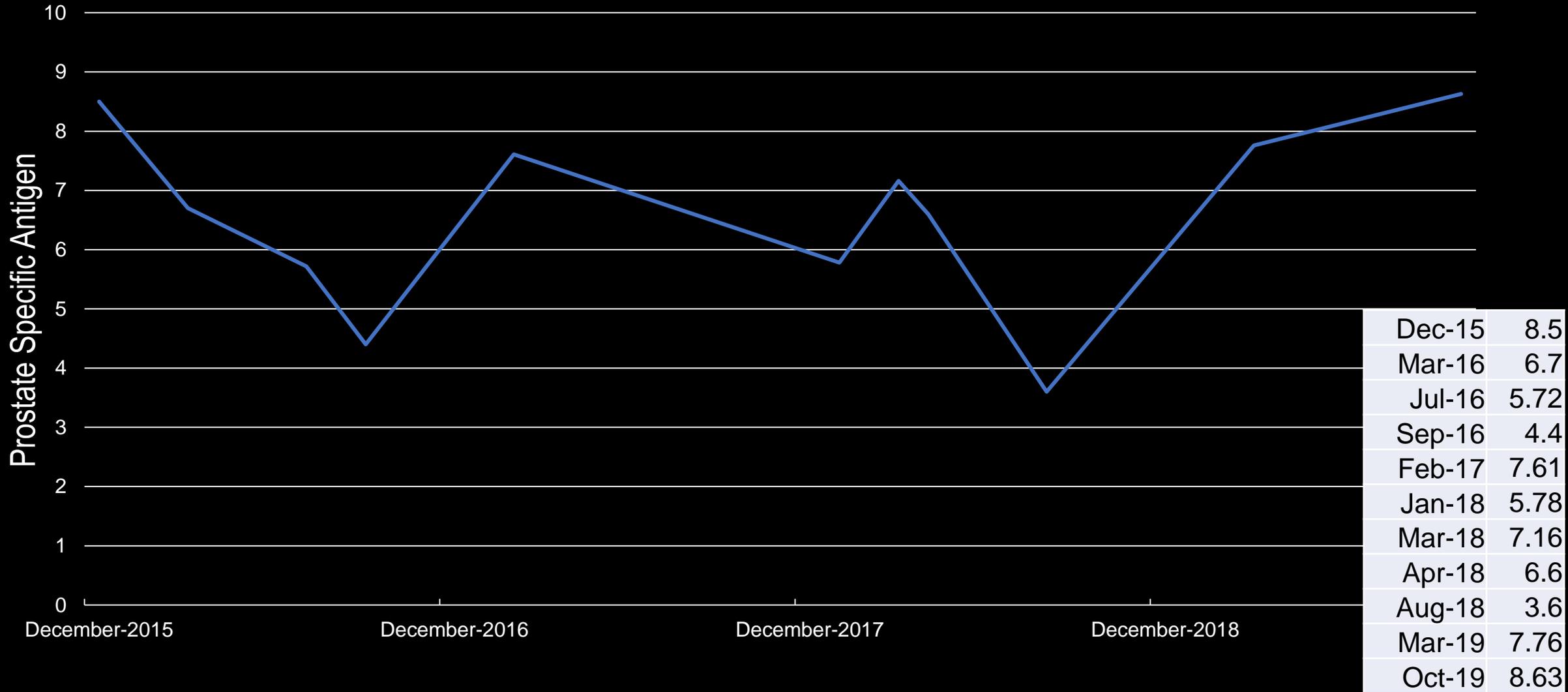
Katie L. Gardner, DO
Steven C. Eberhardt, MD
Department of Radiology
University of New Mexico Hospital



History

- Approx. 55 yo Caucasian M w/hx of Gleason 4+4=8 prostate cancer detected by transrectal US-guided biopsy in March 2016
- Bone scan and MRI of the pelvis performed in April 2016 without evidence of metastatic disease or adenopathy (images not available)
- Pt elected to proceed with upfront immunotherapy with Provenge in August 2016 instead of definitive or common localized therapy
- Pt went to Europe in November 2016 and underwent multiple episodes of transurethral hyperthermia (of which details are not available)
- Pt also underwent MR guided laser ablations in 2017 & 2018
- As PSA levels began to rise, pt underwent a transrectal US-guided biopsy in March 2018, which showed Gleason 3+4=7 in cores from the left base
- Fluciclovine PET/CT performed in August 2019 (not shown here) demonstrated increased radiotracer uptake in the prostate, consistent with prior MR imaging, without any definitive evidence of metastatic disease

PSA TREND



Feb 2017- PSA rise after immunotherapy & transurethral hyperthermia



Outside MRI data set Feb 2017:

- No convincing focal site of restricted diffusion in the peripheral zone
- No indeterminate or suspect site in the transition zone

This axial T2 weighted image demonstrates vague L>R T2 hypointensity in the posterolateral peripheral zone that was more pronounced in some other slices & did not correspond to site of restricted diffusion

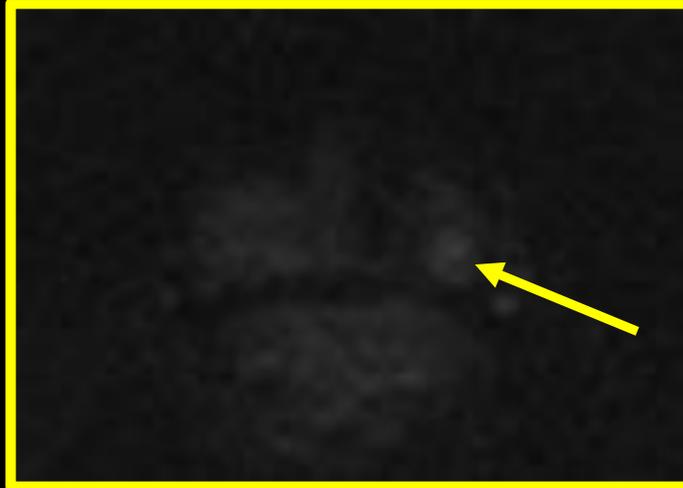
T2 hypointensities may reflect treatment effect

**Note that as all provided imaging was performed post treatment, PI-RADS classification is not applicable*

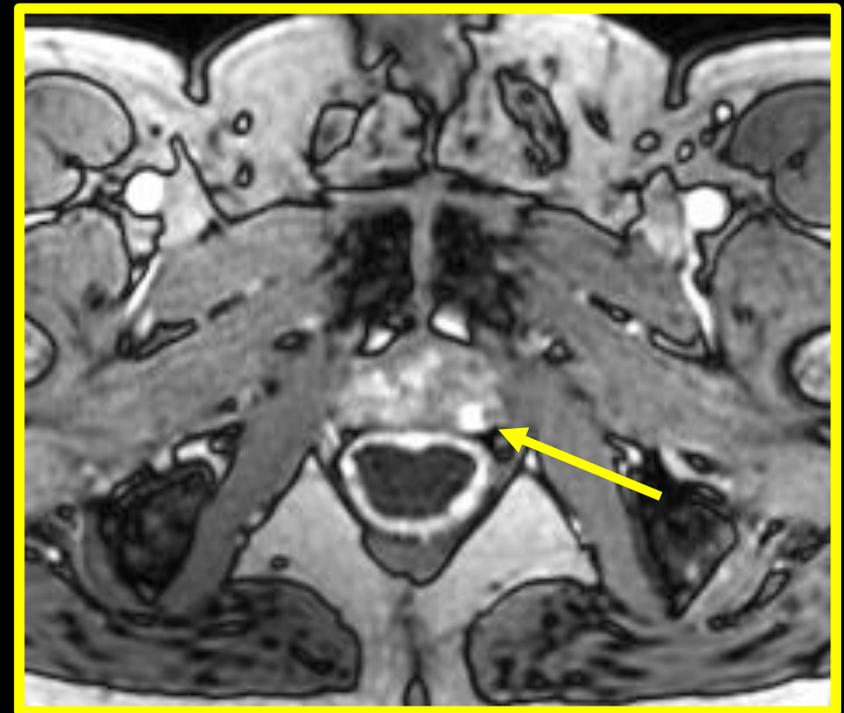


T2 weighted image demonstrates focal T2 hypointensity in the posterolateral left peripheral zone

MRI 3/2018
(about 1 yr later)



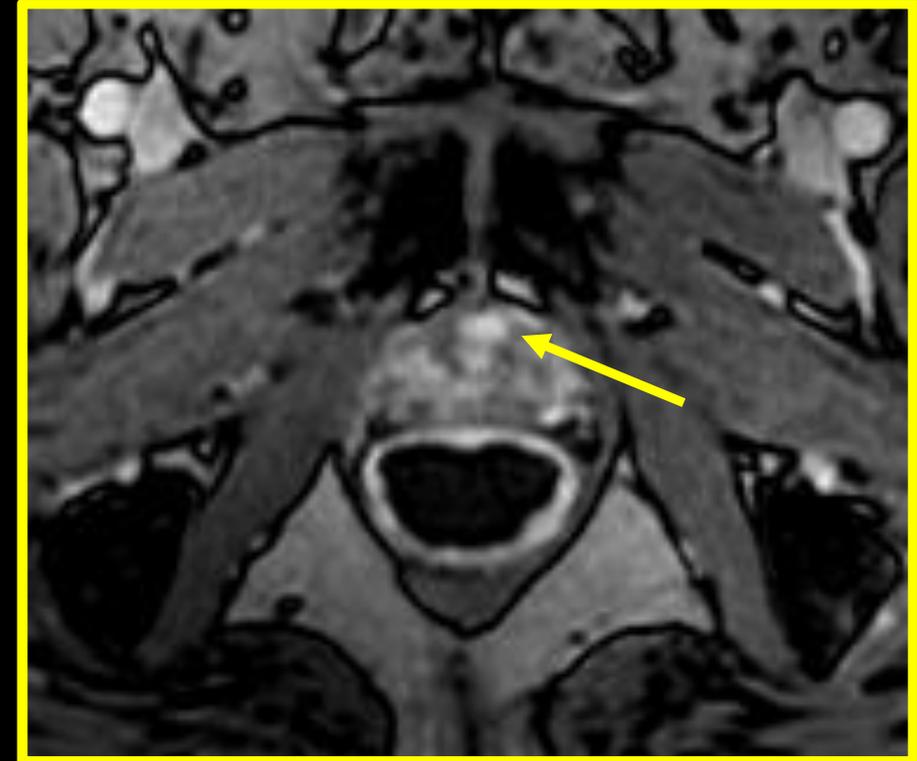
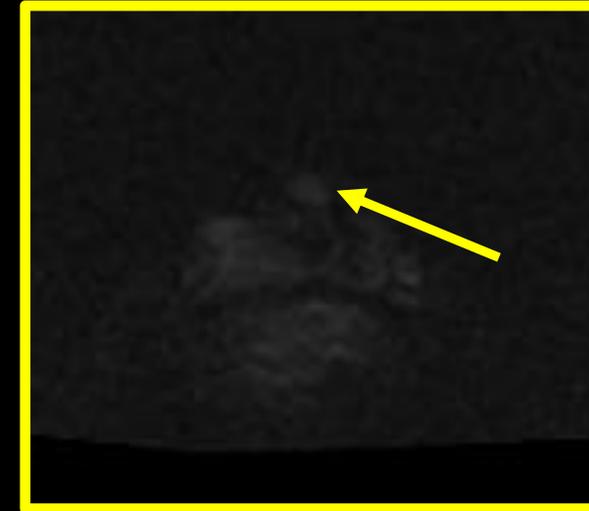
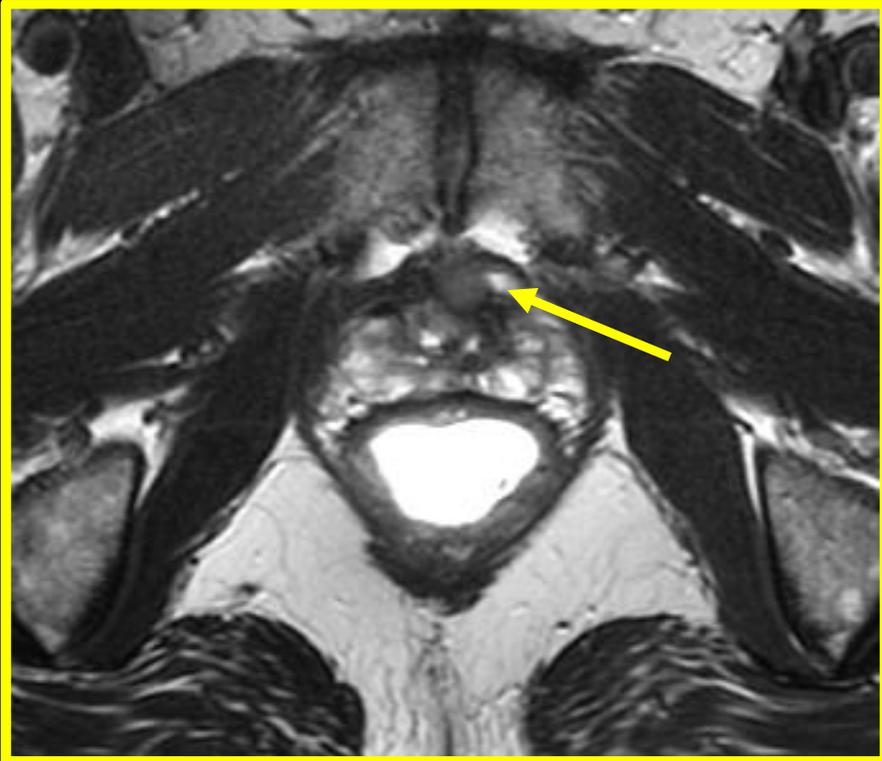
DWI (parameters not specified, outside exam) demonstrates mild corresponding diffusion restriction



Dynamic contrast enhanced image demonstrates corresponding early focal enhancement

With PSA levels rising, pt underwent MRI directed TRUS bx of the left PZ, which showed Gleason 3+4=7 cores

Also on MRI 3/2018, another focal site with features suspect for significant cancer



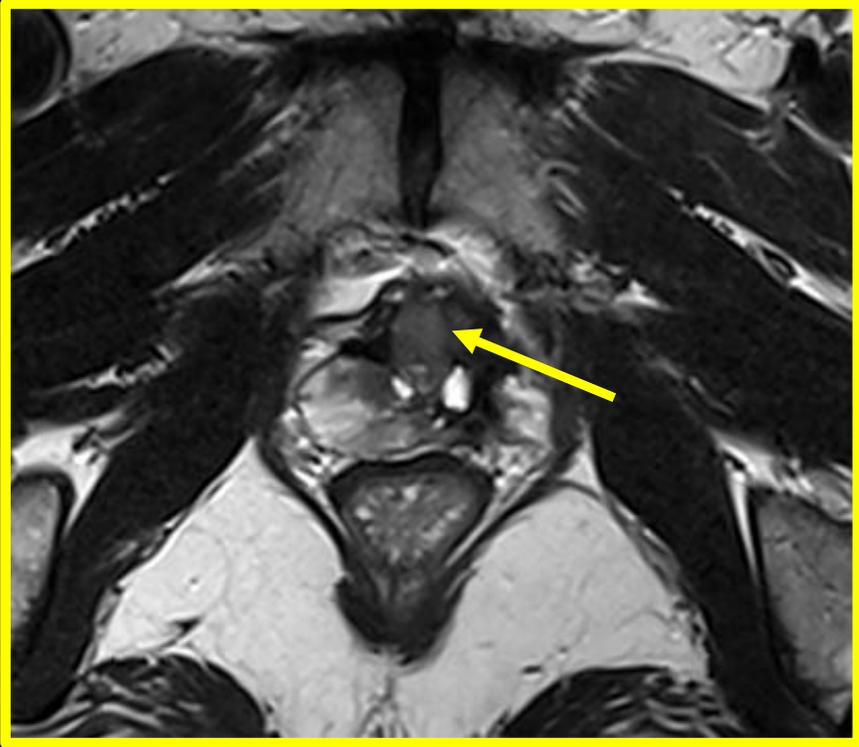
T2 weighted image demonstrates focal T2 hypointensity abutting & within the fibromuscular stroma in the in the anterior apical gland

DWI demonstrates mild corresponding diffusion restriction

Dynamic contrast enhanced image demonstrates corresponding enhancement

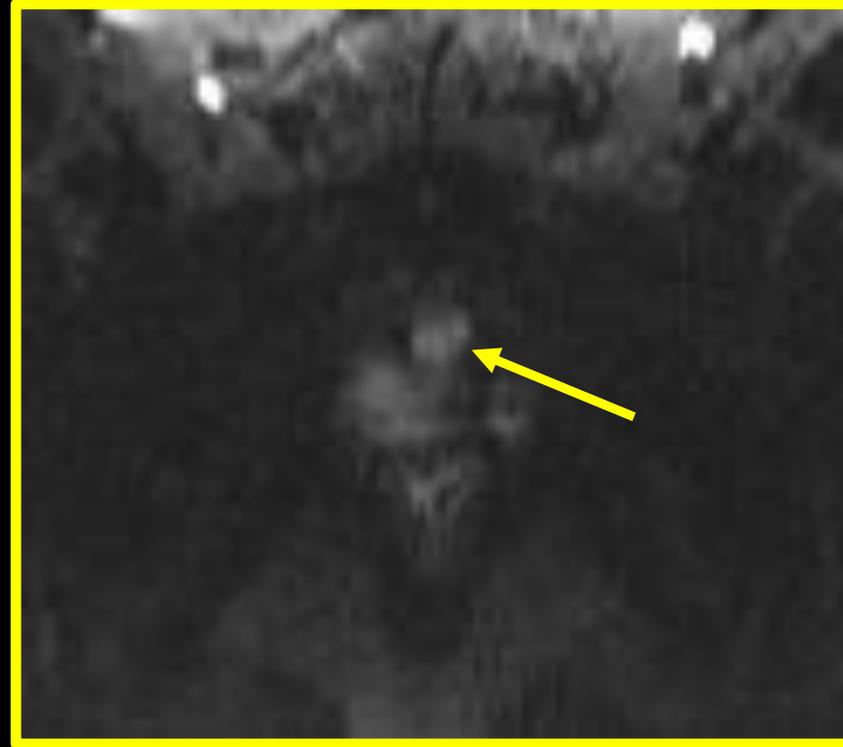
**This suspect site may not have been sampled.*

Follow up MRI 6/2019 – Enlarging lesion in the anterior gland with PSA rising to 8.6
Patient has undergone MR guided laser ablations of the left hemigland for the PZ lesion



T2 weighted image demonstrates increased size of the T2 hypointense lesion in the anterior apical gland

Also, note absence of the majority of the left gland, which underwent ablation in the interval



DWI (b=1400) demonstrates increased size of corresponding mild diffusion restriction

Contrast was not used for this examination, by request of the ordering provider

Subsequently patient underwent salvage radiotherapy treatment late 2019, no PSA yet after Tx

Teaching Points

- There is risk of persistent cancer in focal or limited therapies, as cancer sites are frequently multifocal.
- MRI can help detect untreated or recurrent or persistent sites of cancer
- Salvage therapies are possible after failed localized/limited ablative approaches.

If interested in additional reference material on topics related to this case:

De Visschere PJ, De Meerleer GO, Futterer JJ, Villeirs GM. Role of MRI in follow-up after focal therapy for prostate carcinoma. *American Journal of Roentgenology*. 2010 Jun;194(6):1427-33.

Marra G, Gontero P, Walz JC, Sivaraman A, Tourinho-Barbosa R, Cathelineau X, Sanchez-Salas R. Complications, oncological and functional outcomes of salvage treatment options following focal therapy for localized prostate cancer: a systematic review and a comprehensive narrative review. *World journal of urology*. 2019 Aug 1;37(8):1517-34.