

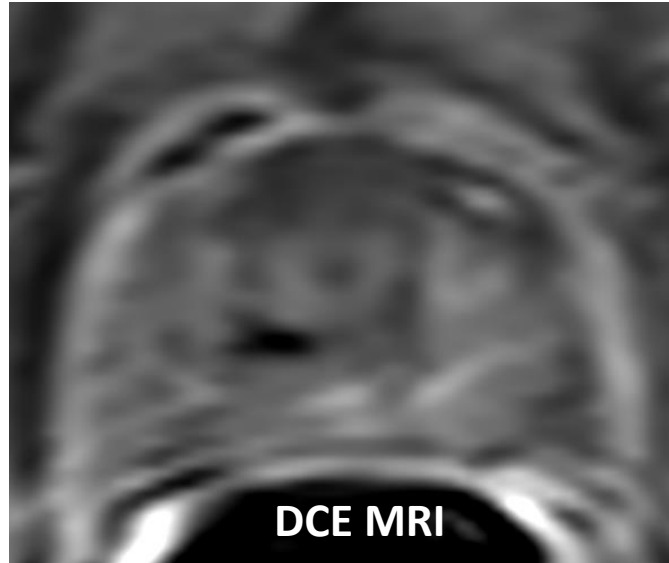
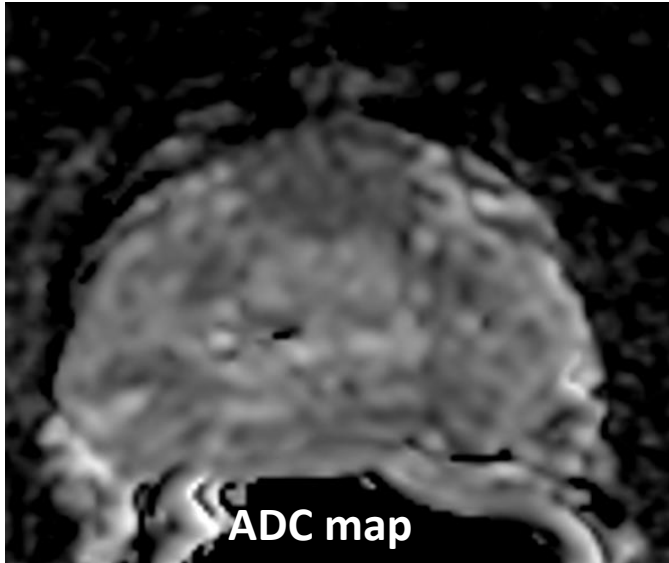
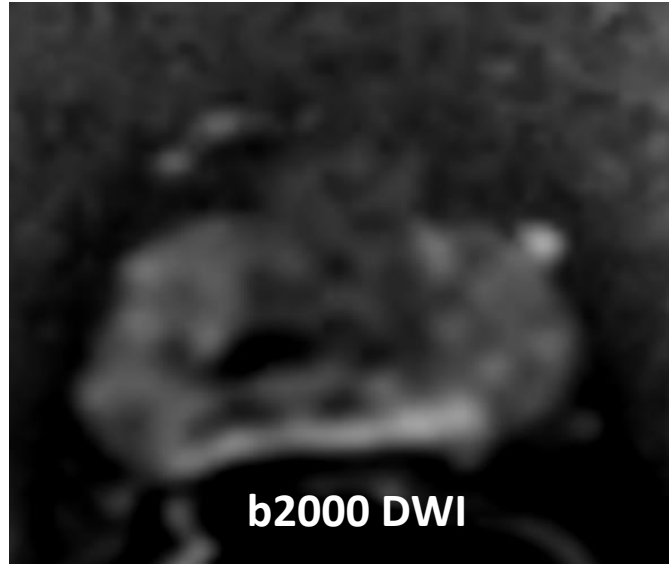
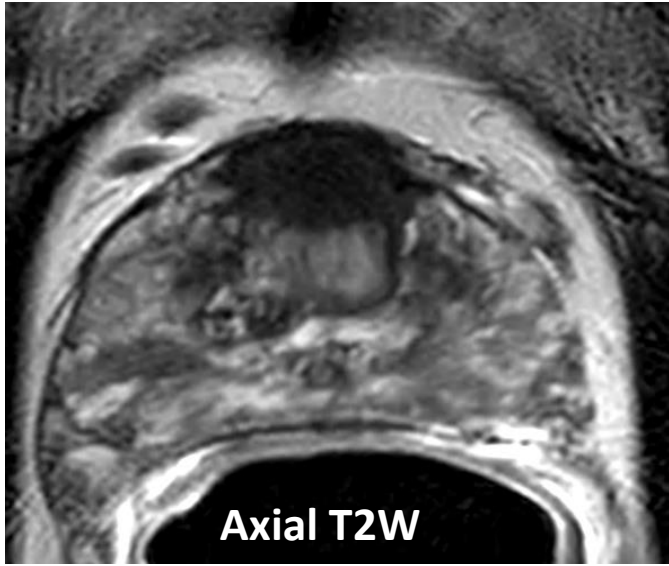
# Common Pitfalls During Prostate MRI Read Outs

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Molecular Imaging Program,

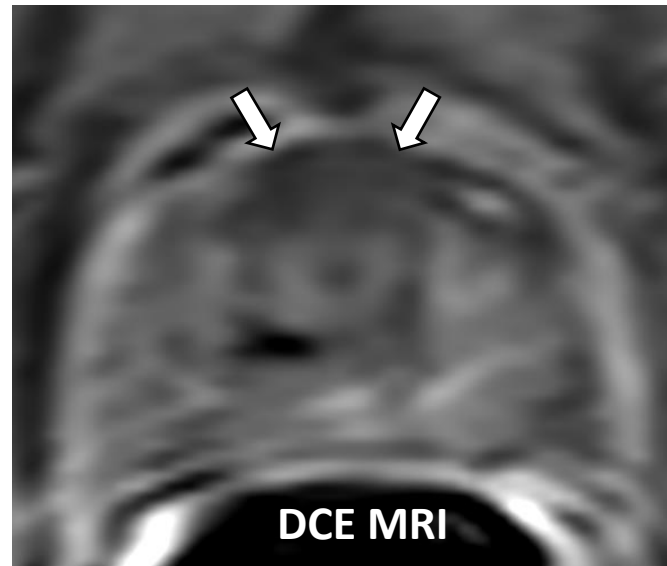
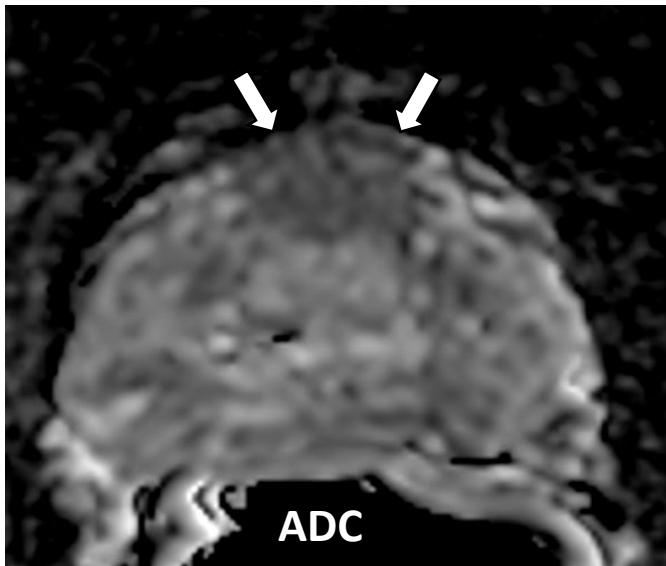
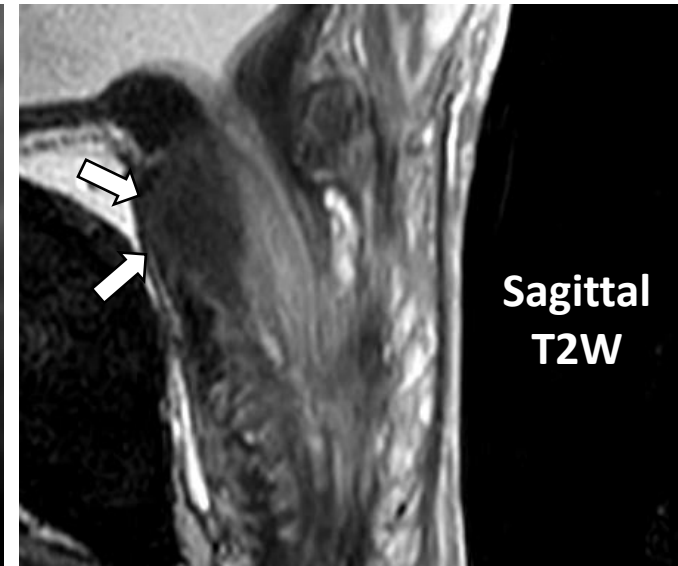
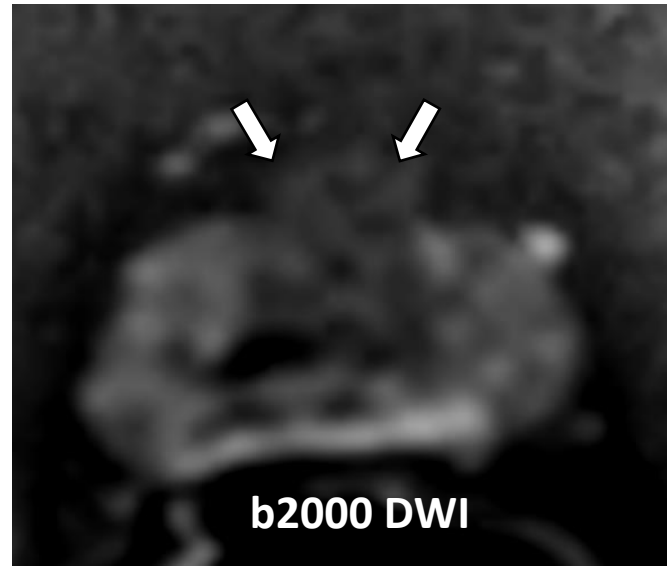
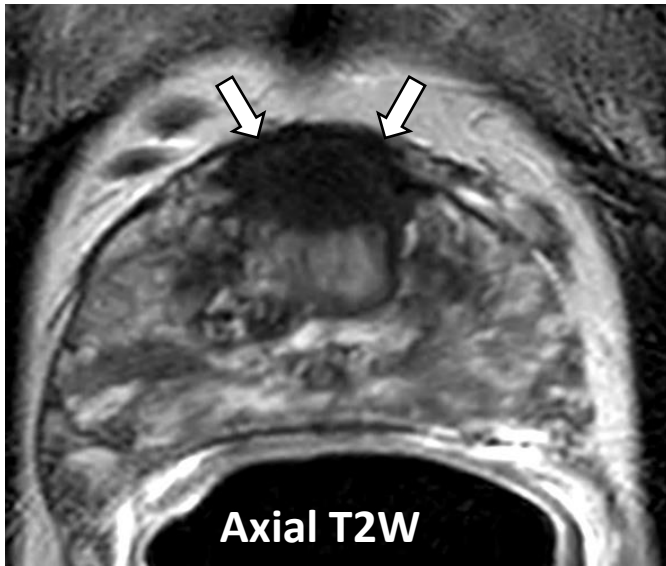
National Cancer Institute, NIH, Bethesda, MD, USA





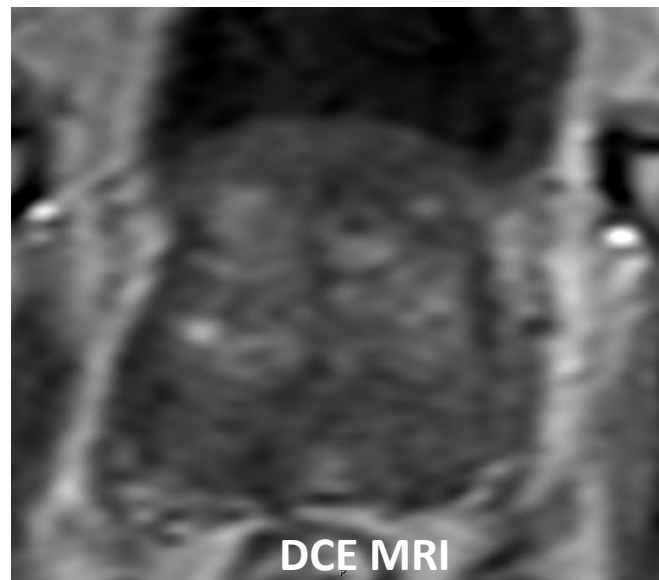
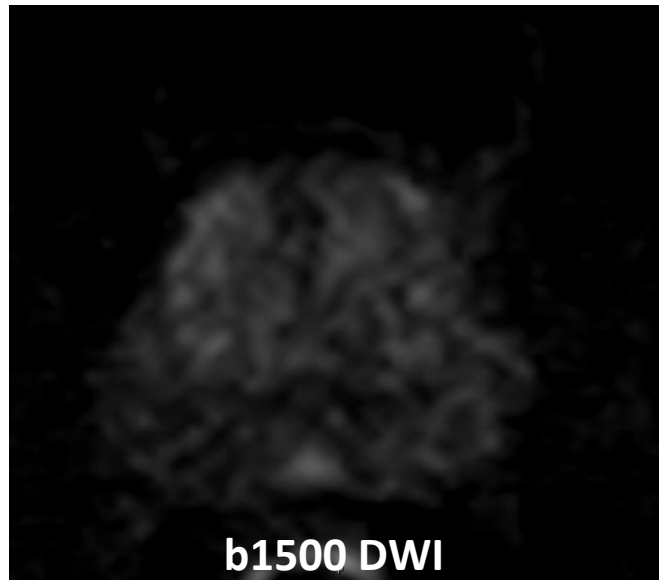
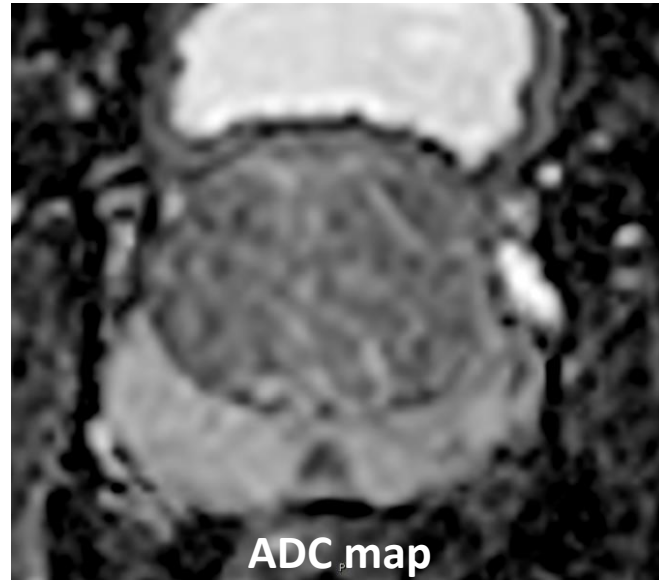
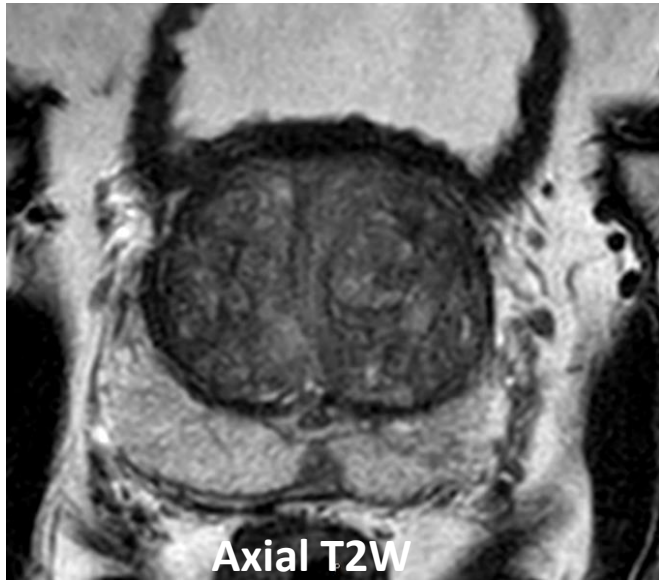
**Where is the focal lesion?**

**67 year old man, serum PSA=17.20ng/ml**



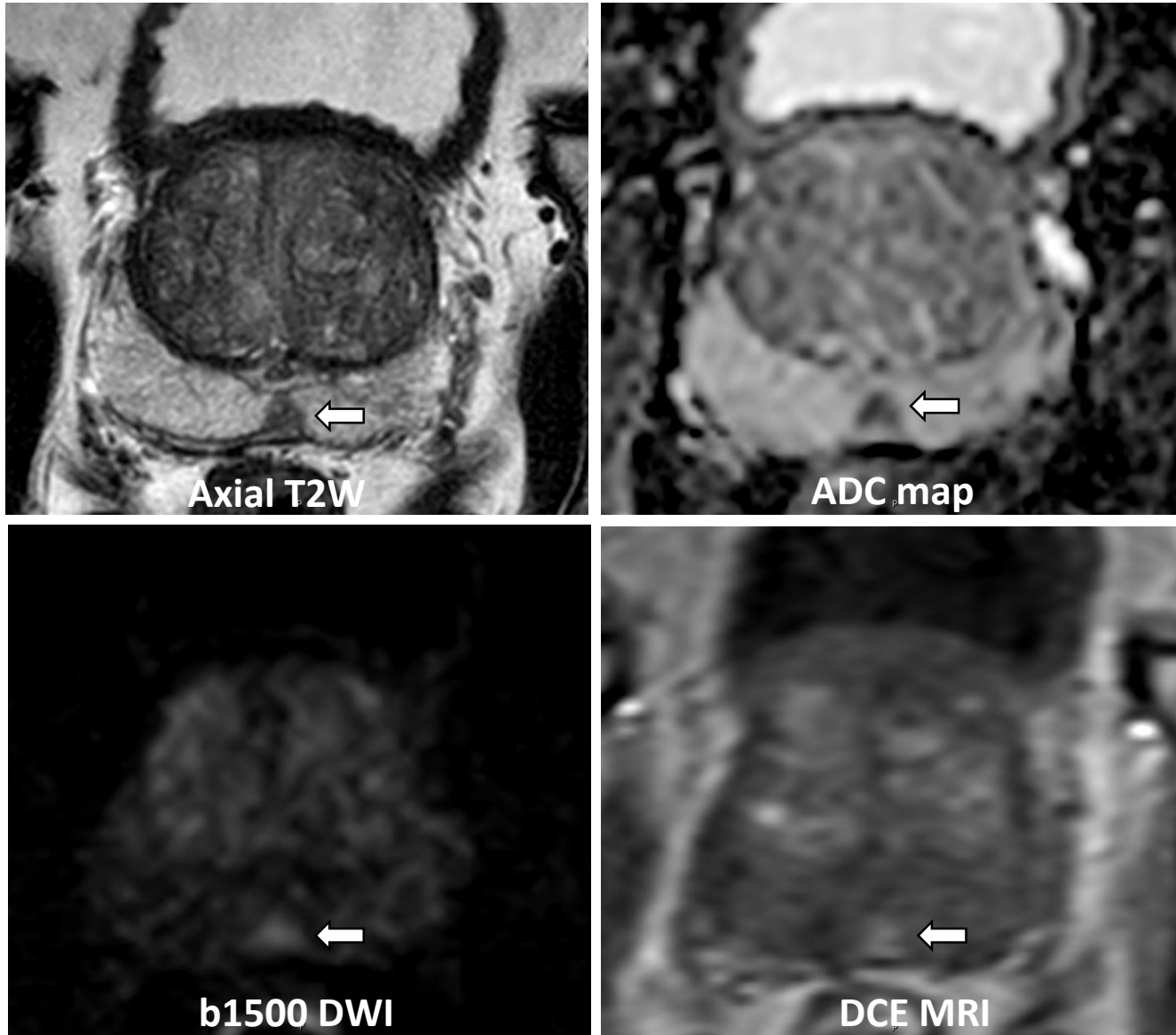
- Homogenous hypointense signal pattern within AFMS on axial and sagittal T2W MRI
- This finding demonstrates:
  - No focal isointense signal on b2000 DWI
  - Slight hypointense signal on ADC map
  - No focal enhancement on DCE MRI
- Findings are consistent with prominent AFMS without evidence of a focal lesion

**67 year old man, serum PSA=17.20ng/ml**



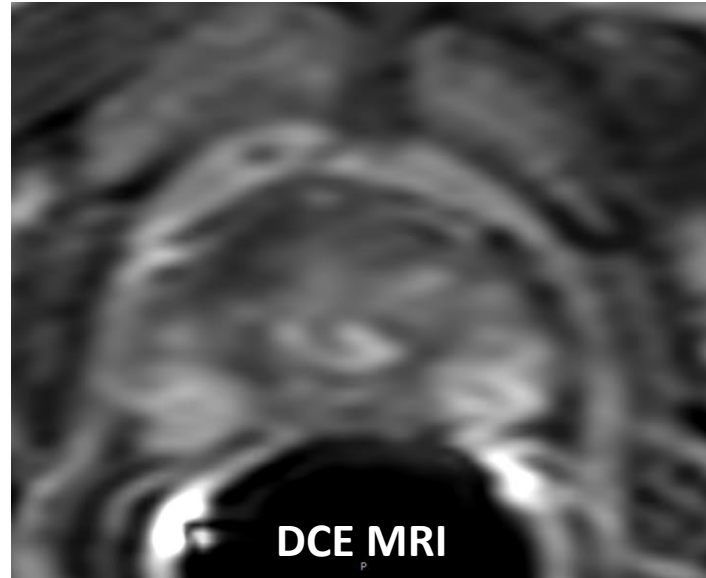
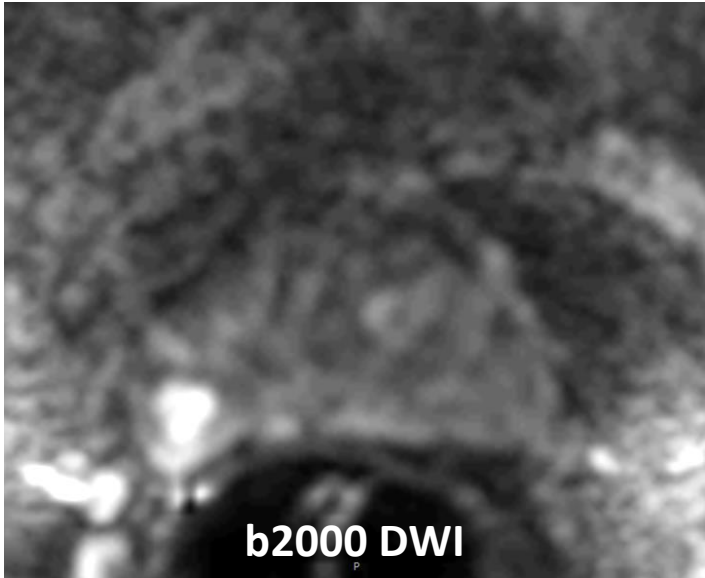
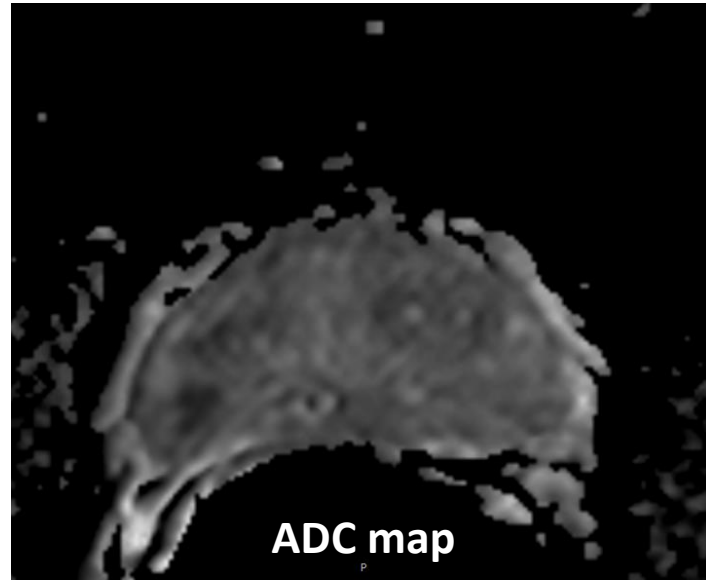
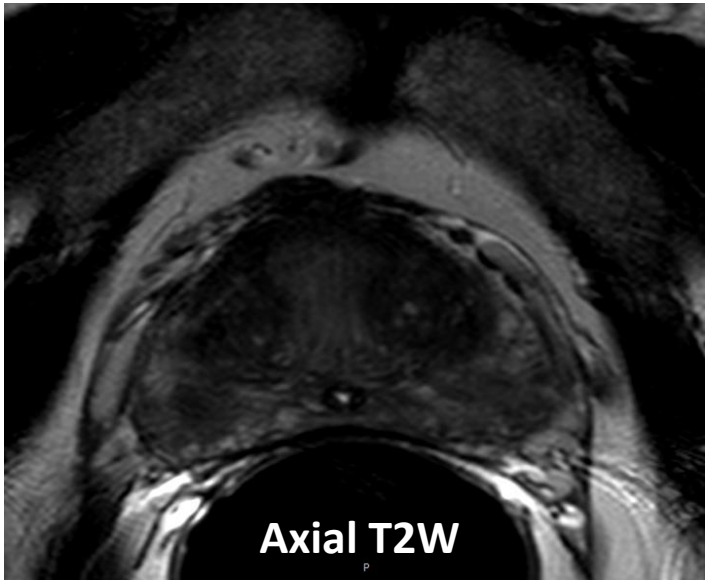
**Where is the focal lesion?**

**67 year old man, serum PSA=6.72ng/ml**



- Hypointense lesion within midline posterior peripheral zone on axial T2W MRI
- Lesion demonstrates:
  - Hypointense signal on ADC map
  - Hyperintense signal on b2000 DWI
  - Focal enhancement on DCE MRI
- Findings can easily suggest a possible PIRADS 4 lesion within the posterior midline peripheral zone
- However, this is a common location where the fusion of the prostate capsule and overlying fascia at the junction of the two prostatic lobes and result in a pseudolesion within the posterior midline PZ

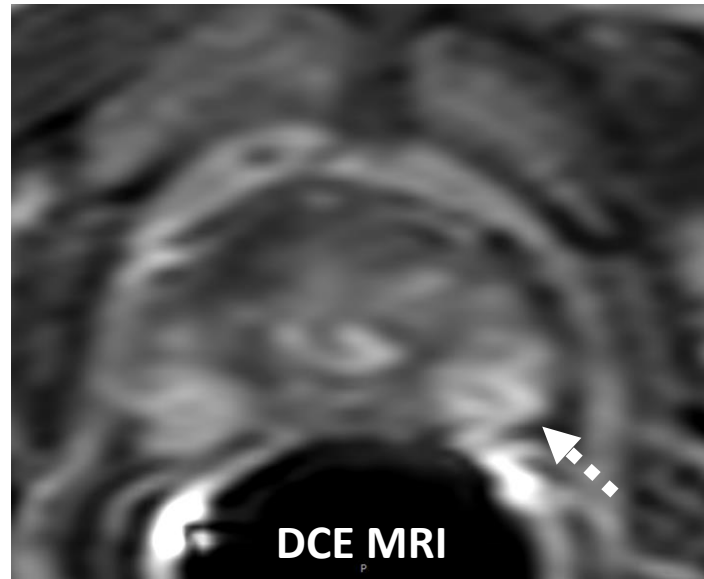
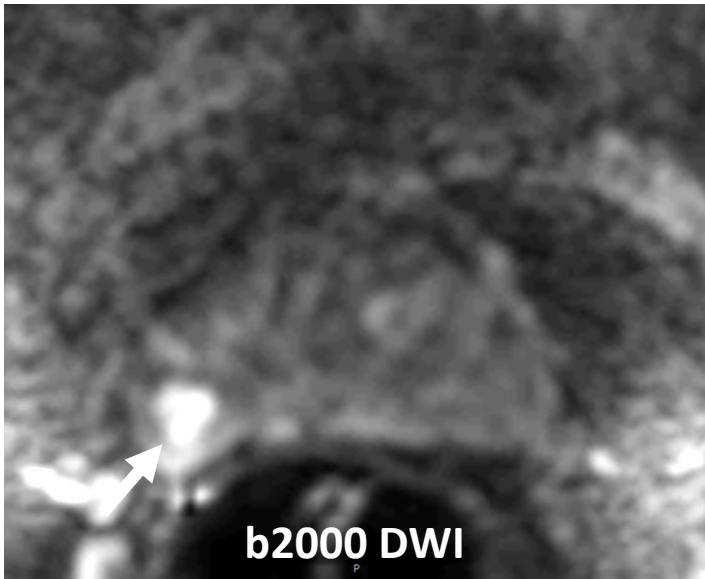
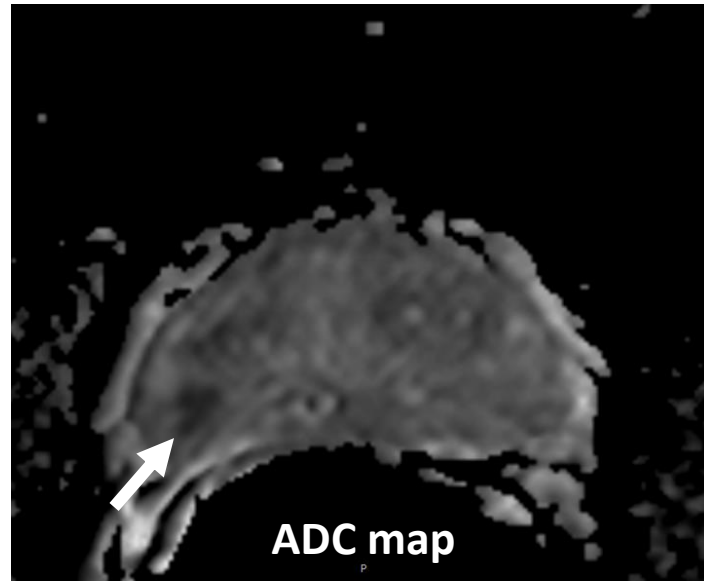
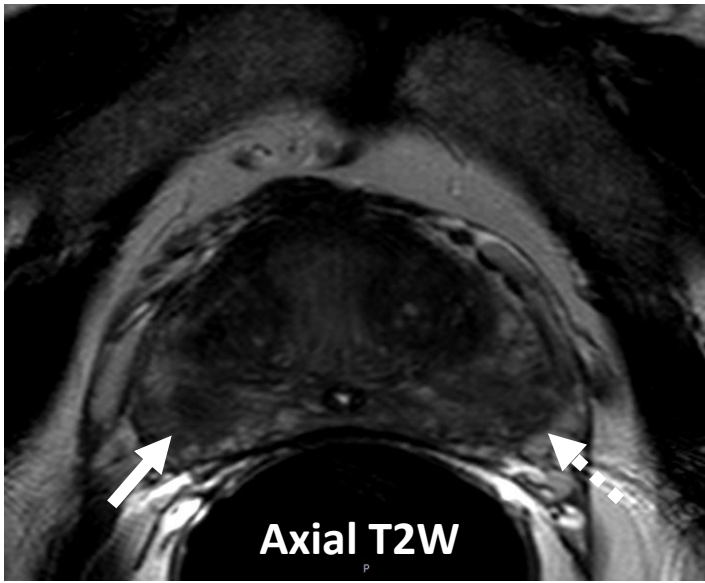
67 year old man, serum PSA=6.72ng/ml



**Where is the focal lesion?**

**55 year old man, serum PSA=2.87ng/ml**





- Hypointense lesion within right peripheral zone on axial T2W MRI; additionally, the left peripheral zone shows a heterogenous hypointense signal pattern
- Right PZ lesion demonstrates:
  - Hypointense signal on ADC map
  - Hyperintense signal on b2000 DWI
  - Diffuse/non-focal enhancement on DCE MRI
  - PIRADS 4 (Targeted biopsy=Gls 3+4)
- Left PZ demonstrates:
  - Isointense signal on ADC map
  - Isointense signal on b2000 DWI
  - Diffuse enhancement on DCE MRI
  - Findings suggest inflammation (prostatitis) (biopsy=benign)

55 year old man, serum PSA=2.87ng/ml

# Teaching Points

- Several pitfalls exist while reading prostate MRI, few examples include:
  - **Prominent anterior fibromuscular stroma**
    - Please make sure there is no abnormal signal pattern on ADC maps, high b value DWI and DCE MRI
    - Please check sagittal plane
  - **Posterior midline pseudolesion**
    - Please check if the lesion is more rounded with a mass-like shape and non-symmetric on T2W MRI and ADC maps with early focal enhancement on DCE MRI; these findings suggest cancer
  - **Inflammation (prostatitis vs. prostate cancer)**
    - Please utilize all pulse sequences for lesion detection and delineation (ADC maps and high b value DWI can be really helpful)
    - If you are unsure about the findings, always explain the background inflammation within the prostate



# References

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- Rosenkrantz AB, Taneja SS. Radiologist, Be Aware: Ten Pitfalls That Confound the Interpretation of Multiparametric Prostate MRI. *American Journal of Roentgenology* 2013; 202:109-120.
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# Thank You

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