

# “A Dog Can Have Ticks and Fleas” –Alex Megibow

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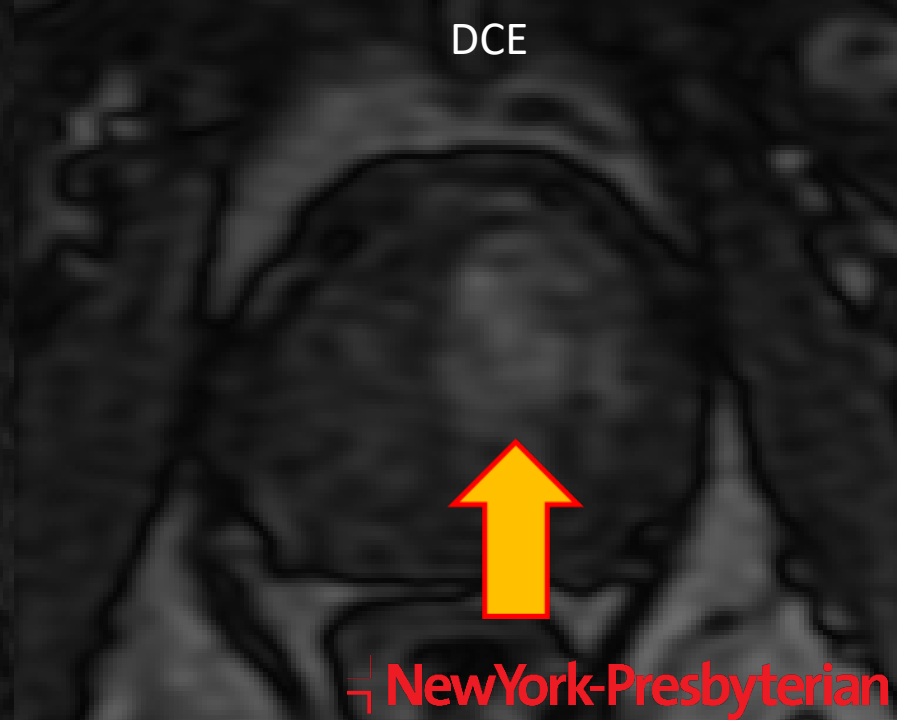
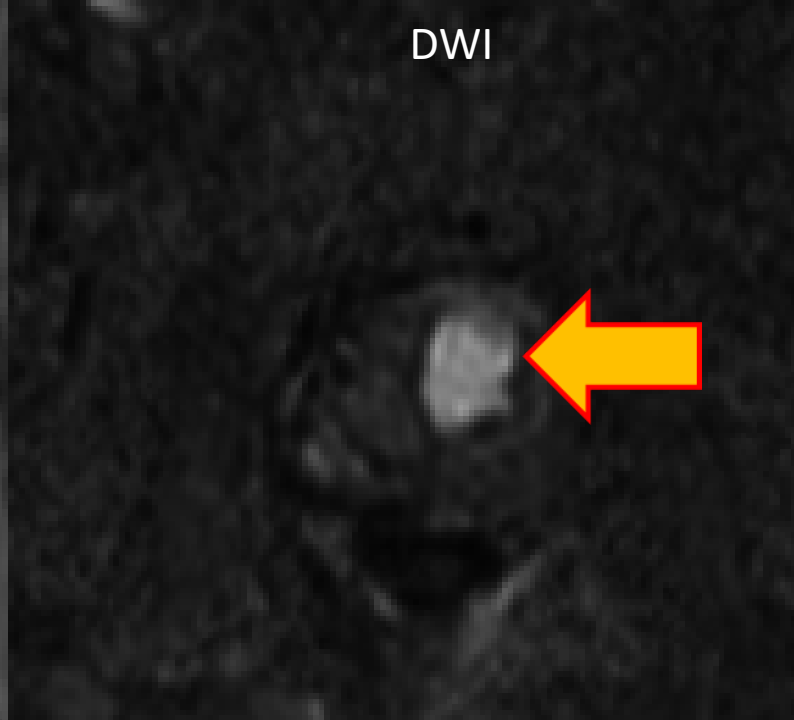
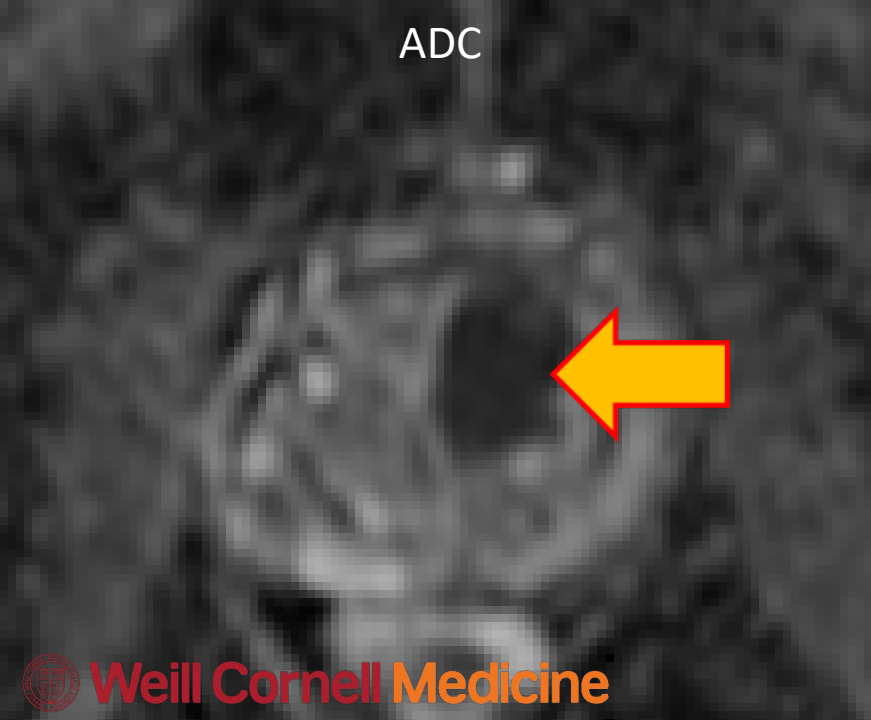
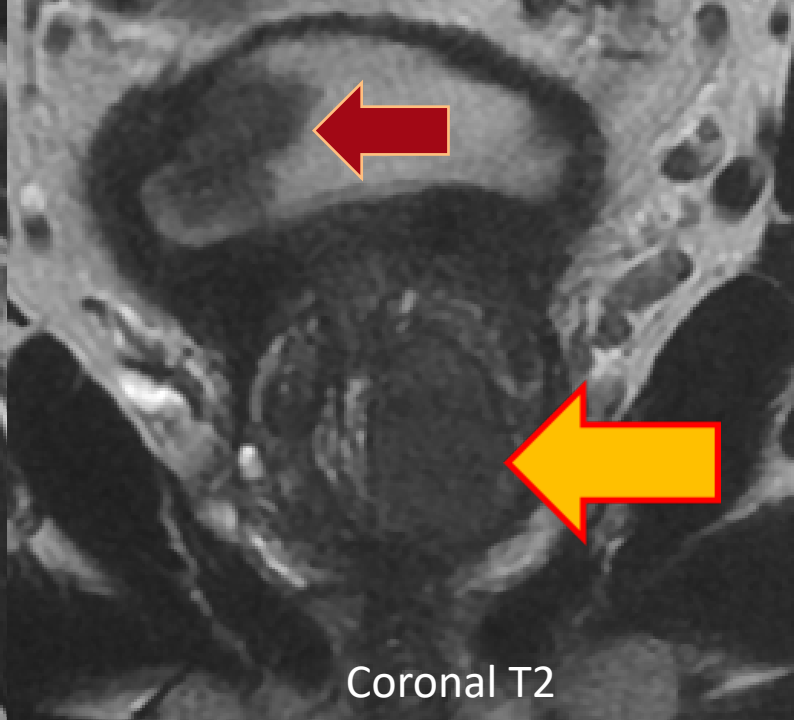
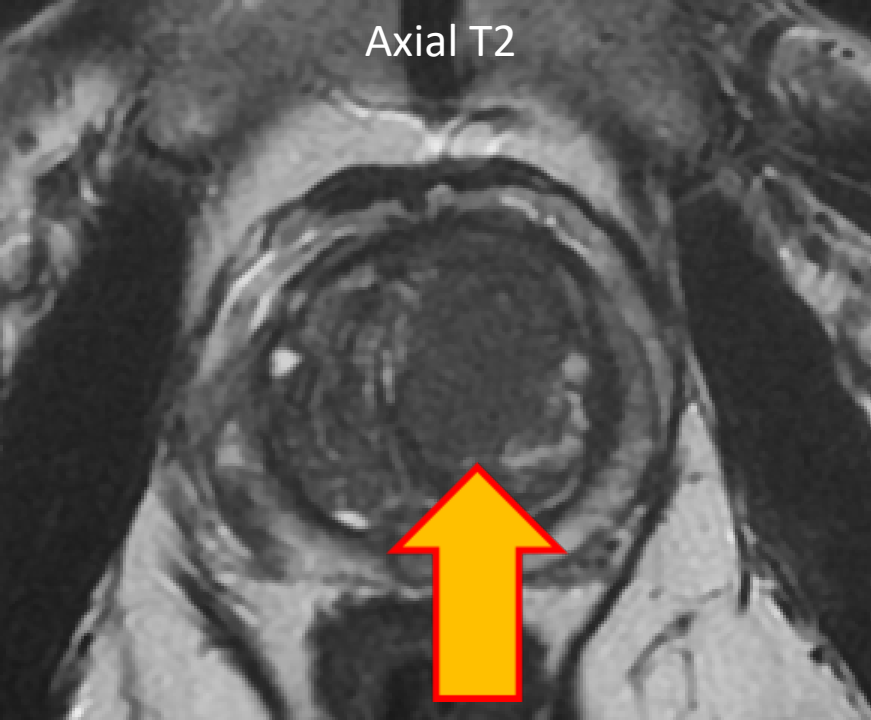
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# 70 year-old man

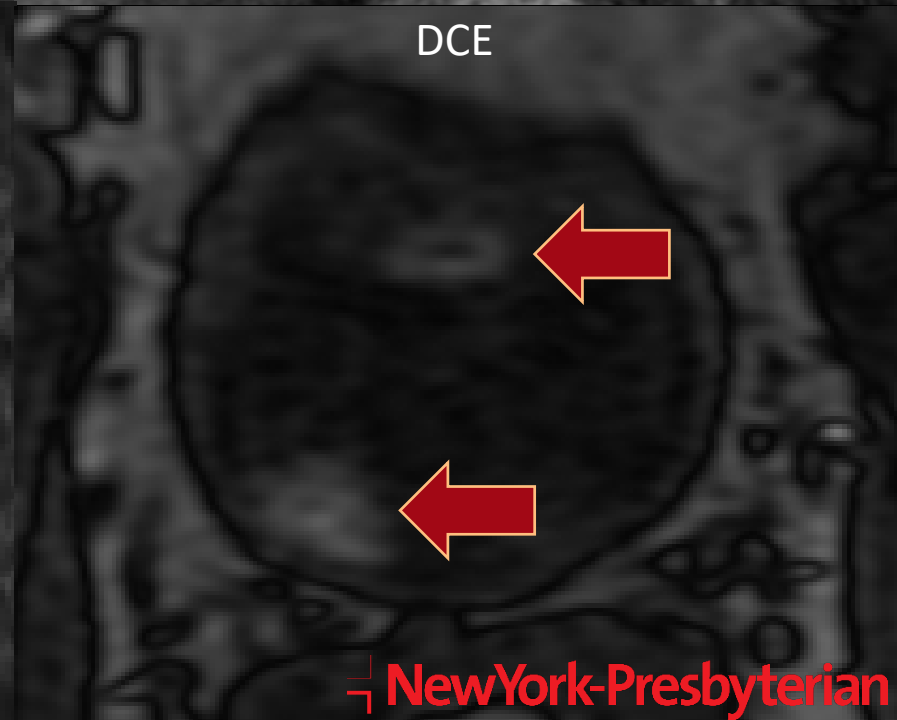
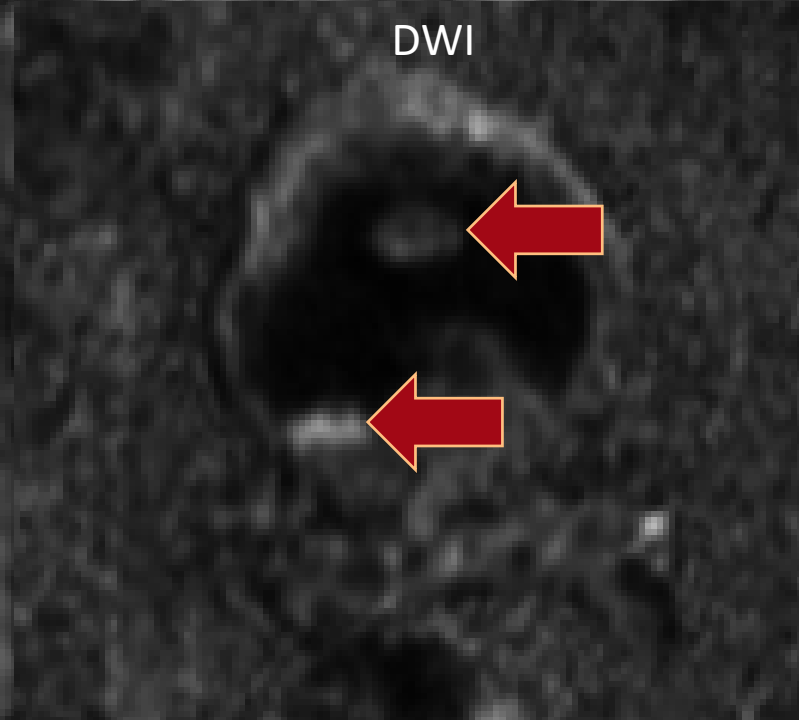
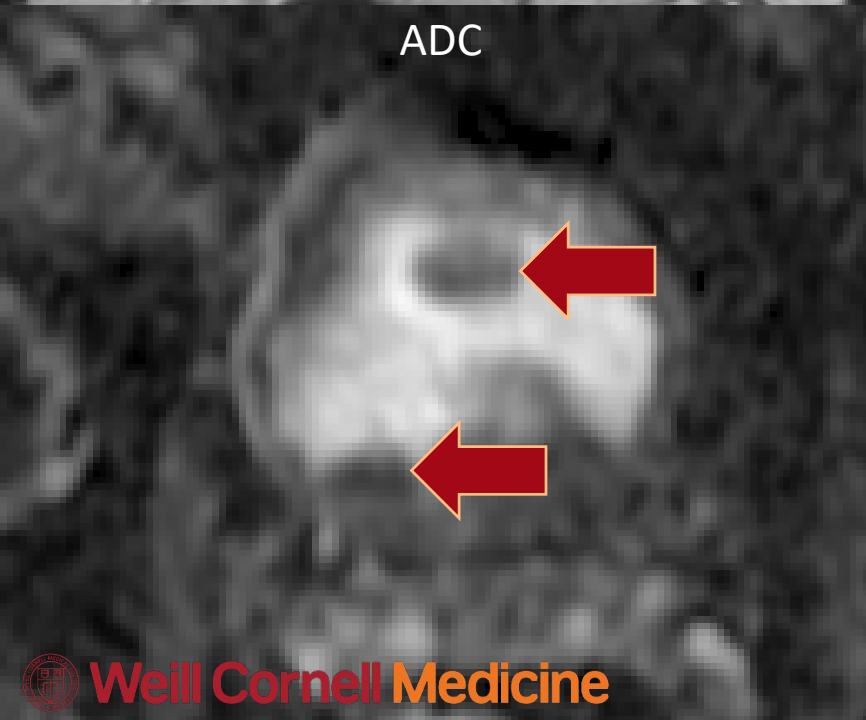
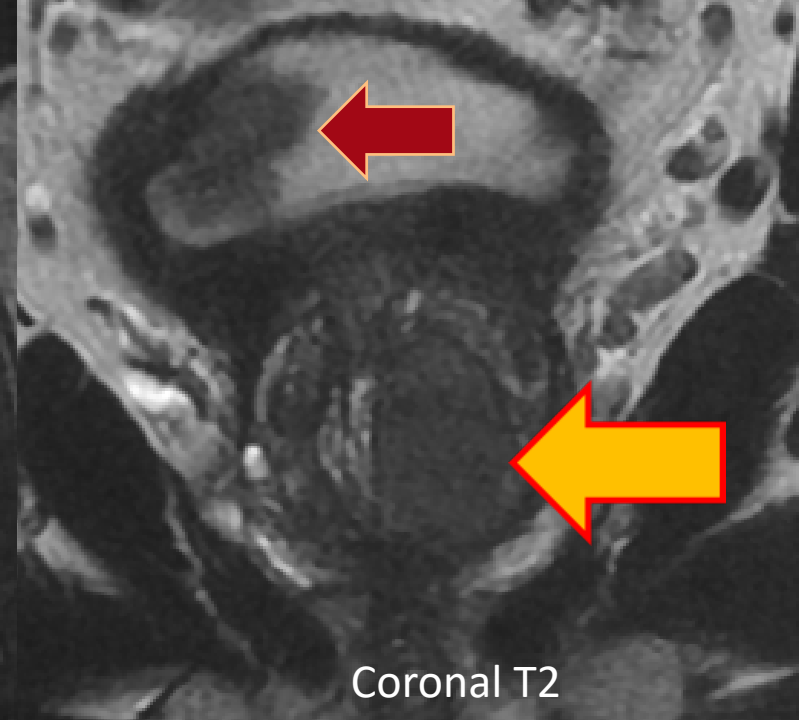
- PSA 33.9 ng/mL
- Urinalysis: large blood
- Urine culture: negative
- Urine cytology: atypical urothelial cells, occ. RBC's



# PI-RADS categorization

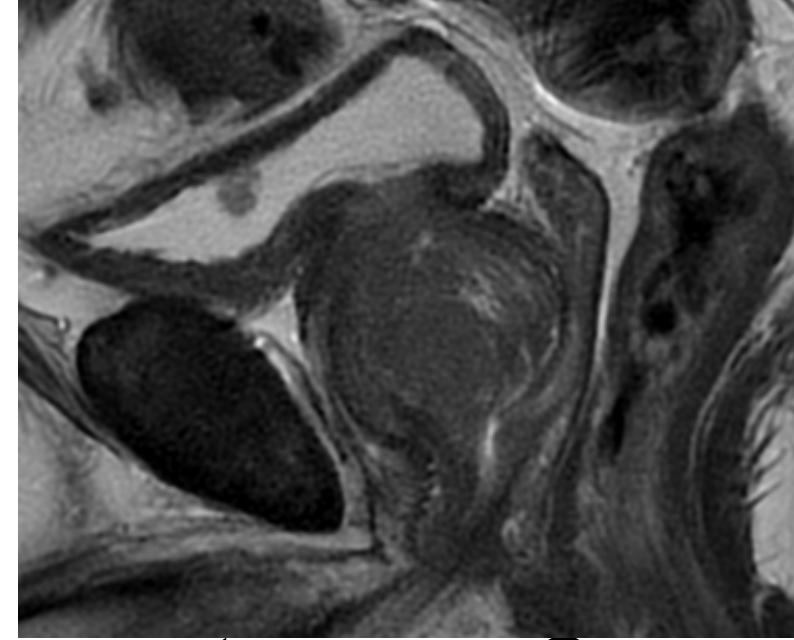
- Location: Left midgland transition anterior: LMTa
- Size: 2.2 cm (T2-weighted imaging)
- T2: hypointense oval, obscured margins, category 3
- DWI: markedly hypointense ADC, hyperintense DWI, >1.5 cm, category 5
- DCE: focal early enhancement, category (+)
- Overall category 3 (T2) +1 (DWI) = 4





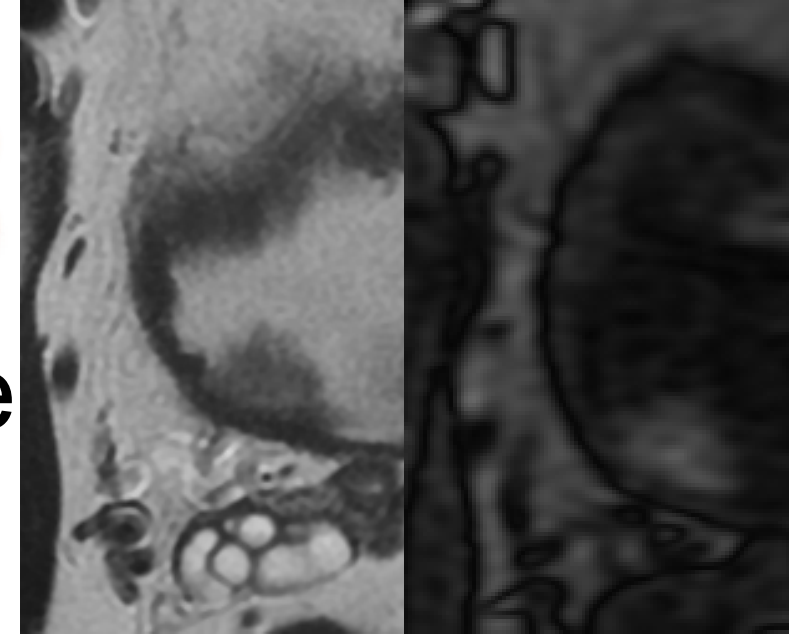
# VI-RADS Reporting 1

- Mapping: anterior wall
- Morphology: pedunculated
- T2: uninterrupted muscularis,  $> 1$  cm, category 2
- CE: no enhancement of muscularis, category 1
- DW: muscularis with continuous signal,  $> 1$  cm, category 2
- Final Scoring: VI-RADS 2



# VI-RADS Reporting 2

- Mapping: posterior wall, right trigone
- Morphology: sessile
- T2: sessile, uninterrupted muscularis, category 3
- CE: no enhancement of muscularis, category 3
- DW: muscularis with continuous signal, sessile, category 3
- Final Scoring: VI-RADS 3



# Biopsy Pathology

- Prostate transition zone: Grade Group 5
- Prostate left apex: Grade Group 4
- Prostate right mid: Grade Group 2
- Bladder right trigone: Non-invasive low grade papillary urothelial carcinoma
- Bladder posterior wall: Invasive low grade papillary urothelial carcinoma invades lamina propria only



# Performance of VI-RADS for Muscle Invasion

- Barchetti *et al*, Eur Radiol Eur Radiol. 2019 Oct;29(10):5498-5506 for VI-RADS >3
  - sens/spec 77-82% / 89-94%
  - PPV/NPV 74-86% / 91-93%
- Wang LH *et al*, Radiology. 2019 Jun;291(3):668-674
  - For VI-RADS  $\geq 3$ , sens/spec 87% / 97%
- In this case, the second tumor invaded the propria, but not muscularis.

# Take-Home Points

There are a lot of other organs in the field of view that can develop cancer  
Standardized reporting for bladder tumors has performance rivalling PI-RADS  
The technique for bladder and prostate evaluation is similar

# Acknowledgements

- Max Loda (Chair), Brian Robinson, Francesca Khani (pathology)
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- Robert Min (Chair, Radiology)
- Valeria Panebianco *et al*, Multiparametric Magnetic Resonance Imaging for Bladder Cancer: Development of VI-RADS (Vesical Imaging-Reporting And Data System). Eur Urol. 2018 Sep;74(3):294-306