

AMSER Case of the Month

October 2023

65-year-old man with urinary urgency, dysuria, and rectal pain.

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Patient Presentation

- **HPI:** 65-year-old man with a history of CKD IV presenting to the ED with several weeks of urinary urgency, dysuria, constipation, and rectal pressure. Treated with amoxicillin by his PCP, which temporarily improved his symptoms. He also notes lower abdominal pain associated with an increased pressure sensation in his penis.
- **PMHx:** CKD IV, HTN, DM2, Gastric bypass (2005)
- **Vitals:** Temp: 36.9 C, Pulse: 78 bpm, Resp: 18/min, SpO2: 97%, BP: 128/60
- **Physical Exam:** No acute distress, abdomen is soft, non-distended, tender throughout the lower abdomen with associated pressure-sensation in penis, normoactive bowel sounds

Pertinent Labs

- WBC: $11.6 \times 10^3/\mu\text{L}$ (H)
- HGB: 10.2 g/dL (L)
- PLT: $176 \times 10^3/\mu\text{L}$
- Creatinine: 2.46 mg/dL (H - baseline 3.3-3.6)
- Lactate: 1.5 units/L
- PSA: 2.1 ng/mL
- Urinalysis
 - Yellow, turbid
 - Blood: Negative
 - Protein: 20 mg/dL
 - Glucose: Normal
 - Nitrite: 1+ (H)
 - Leukocyte esterase: 500 Leu/uL (H)
- Urine Culture
 - 100,000 CFU/mL E. Coli

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 2:

Suspected acute pyelonephritis. Complicated patient (eg, recurrent pyelonephritis, diabetes, immune compromise, advanced age, vesicoureteral reflux, or lack of response to initial therapy). Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	⊕⊕⊕
US abdomen	May Be Appropriate	○
US color Doppler kidneys and bladder retroperitoneal	May Be Appropriate	○
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate	○
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
CT abdomen and pelvis without IV contrast	May Be Appropriate	⊕⊕⊕
CT abdomen with IV contrast	May Be Appropriate (Disagreement)	⊕⊕⊕
CT abdomen and pelvis without and with IV contrast	May Be Appropriate (Disagreement)	⊕⊕⊕⊕
Fluoroscopy voiding cystourethrography	Usually Not Appropriate	⊕⊕
Radiography abdomen and pelvis (KUB)	Usually Not Appropriate	⊕⊕
Fluoroscopy antegrade pyelography	Usually Not Appropriate	⊕⊕⊕
Radiography intravenous urography	Usually Not Appropriate	⊕⊕⊕
MRI abdomen without and with IV contrast	Usually Not Appropriate	○
MRI abdomen without IV contrast	Usually Not Appropriate	○
MRU without and with IV contrast	Usually Not Appropriate	○
MRU without IV contrast	Usually Not Appropriate	○
CT abdomen without IV contrast	Usually Not Appropriate	⊕⊕⊕
DMSA renal scan	Usually Not Appropriate	⊕⊕⊕
CT abdomen without and with IV contrast	Usually Not Appropriate	⊕⊕⊕⊕
CTU without and with IV contrast	Usually Not Appropriate	⊕⊕⊕⊕

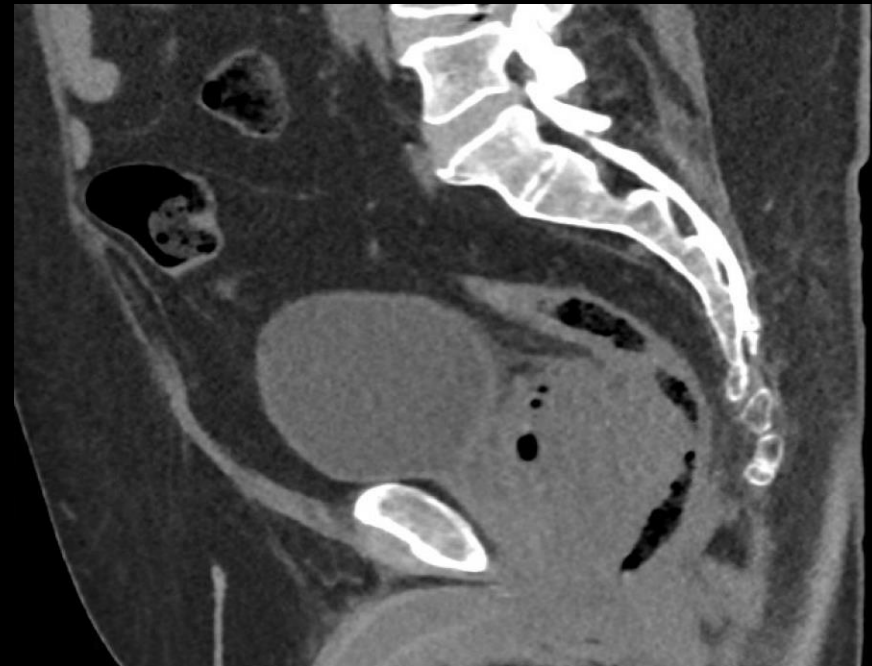


This imaging modality was ordered by the ER physician given patient's history of advanced CKD (with PO contrast also given)

Findings (CT abdomen and pelvis without IV contrast)



Axial Non-Contrast CT

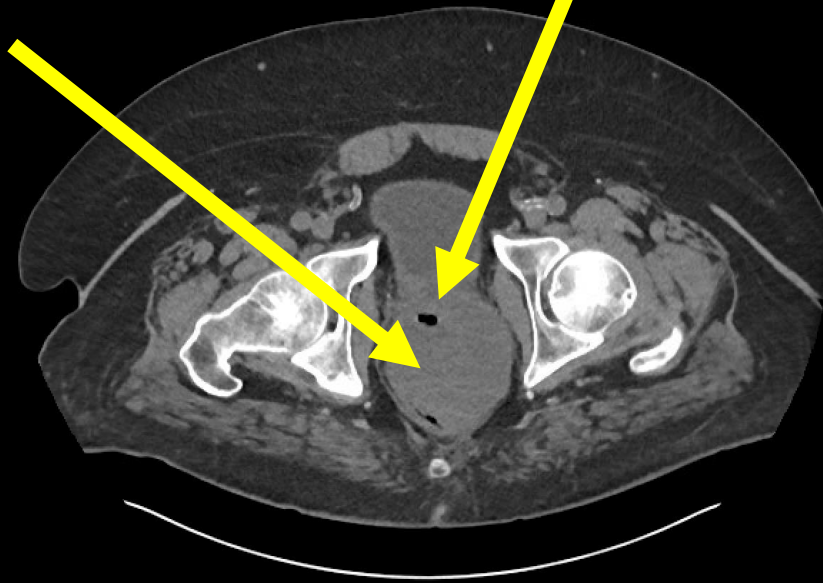


Sagittal Non-Contrast CT

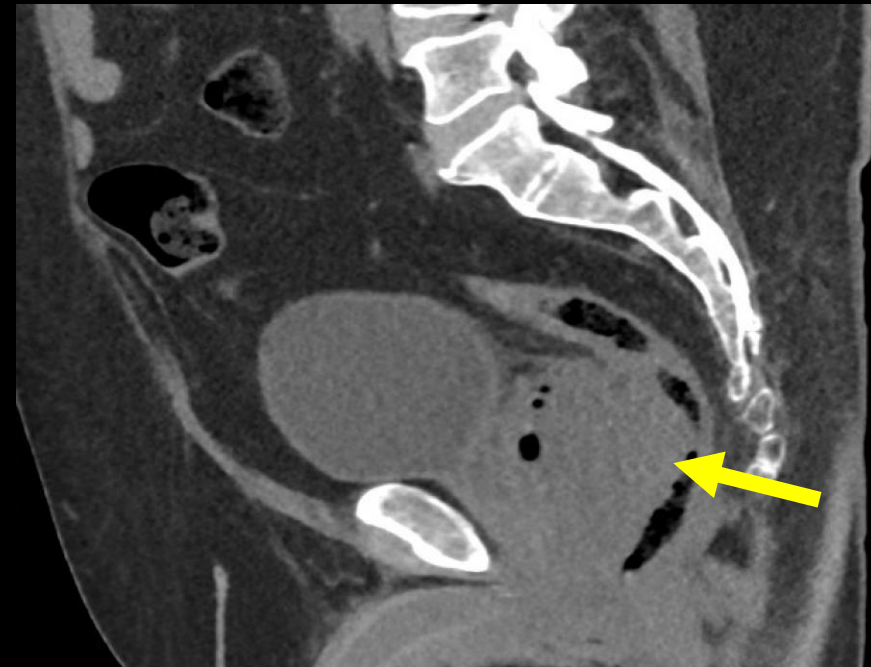
Findings (CT abdomen and pelvis without IV contrast)

Fungating 8.3 cm lobulated mass inseparable from prostate and rectum with focus of gas. Overall concerning for rectal or prostatic carcinoma, though adjacent gas foci are non-specific and raise suspicion for infection or fistula.

Focus of gas



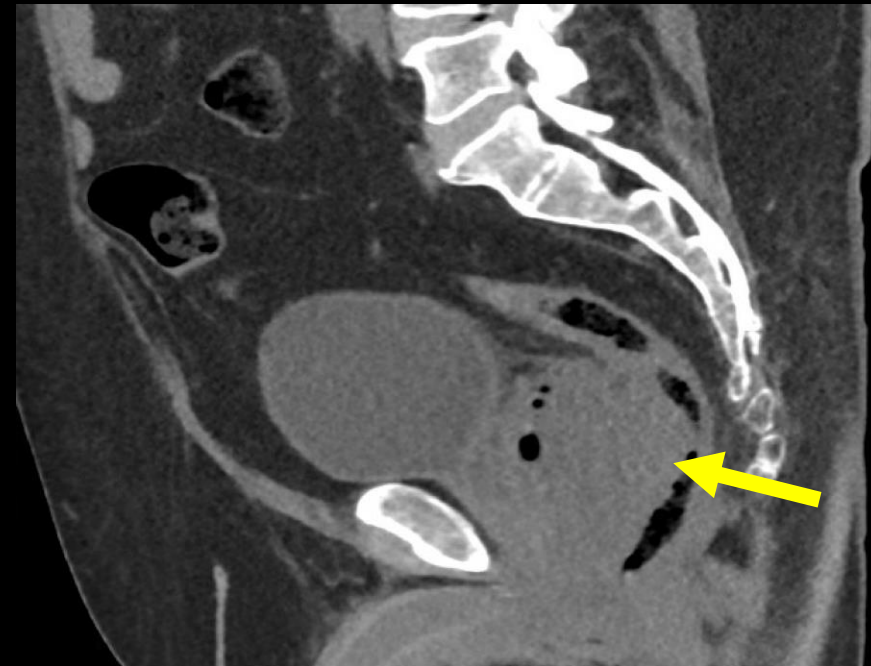
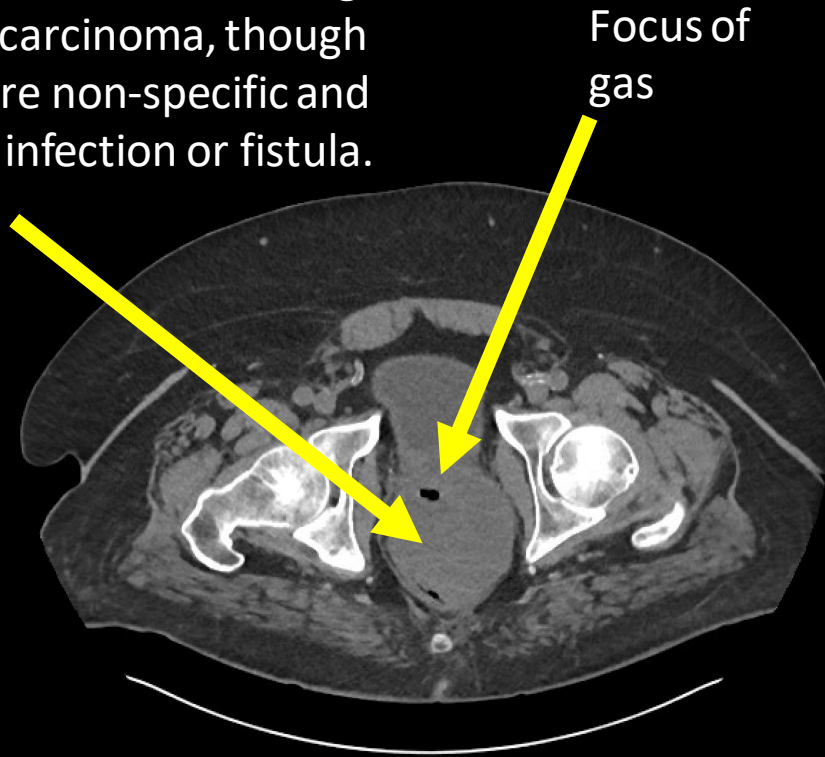
Axial Non-Contrast CT



Sagittal Non-Contrast CT

Findings (CT abdomen and pelvis without IV contrast)

Fungating 8.3 cm lobulated mass inseparable from prostate and rectum with focus of gas. Overall concerning for rectal or prostatic carcinoma, though adjacent gas foci are non-specific and raise suspicion for infection or fistula.



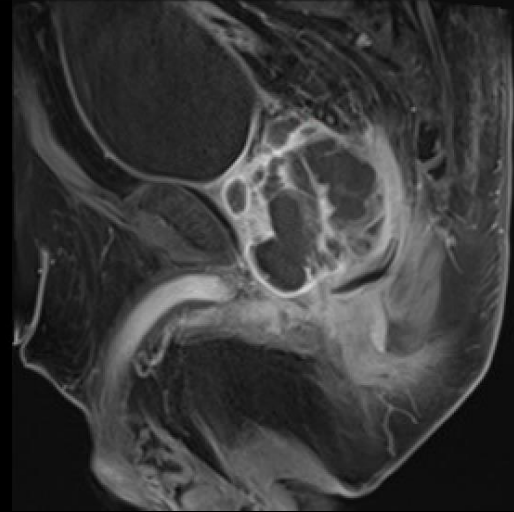
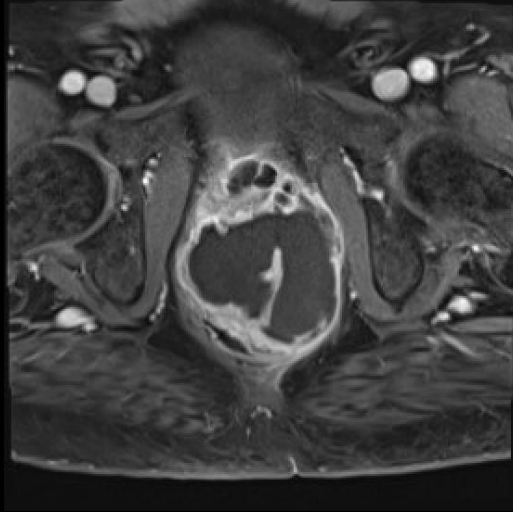
Patient underwent flexible sigmoidoscopy, which showed partial obstruction of the rectum by an extrinsic mass



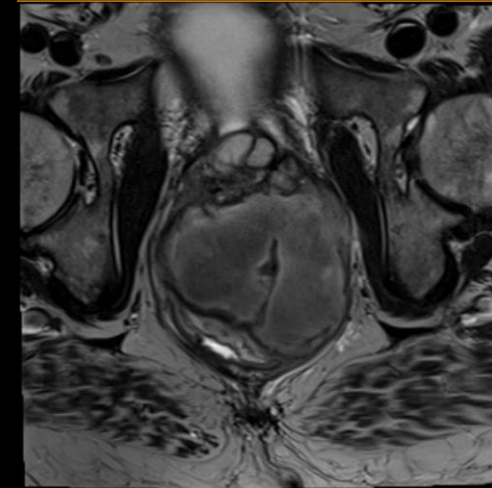
MRI Pelvis with and without contrast (prostate protocol)

Findings (MRI Pelvis, Prostate Protocol)

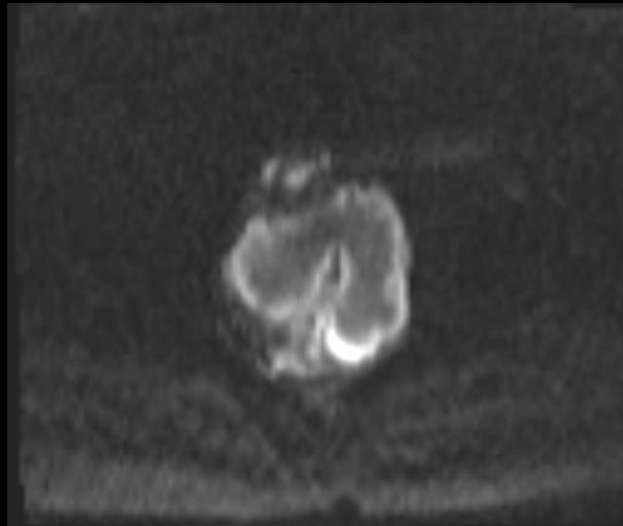
Axial and Sagittal T1, fat saturated, post contrast



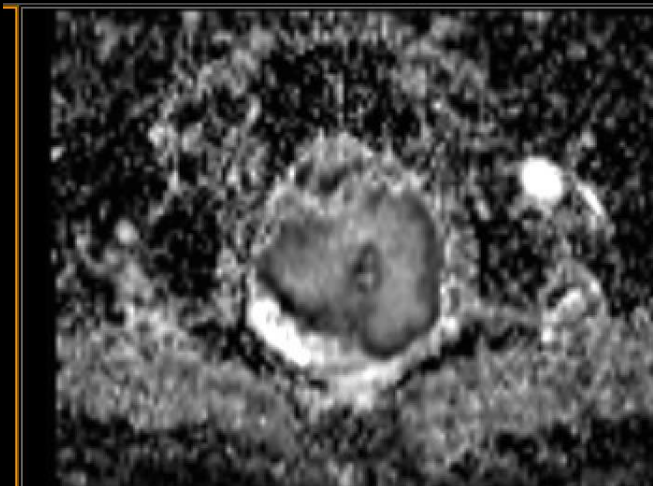
Axial T2



Axial DWI (b1600)



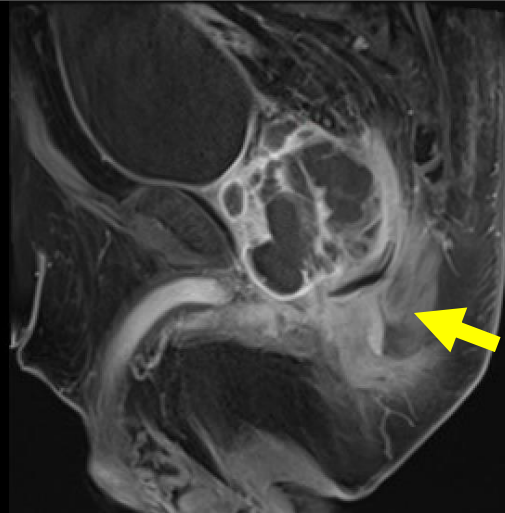
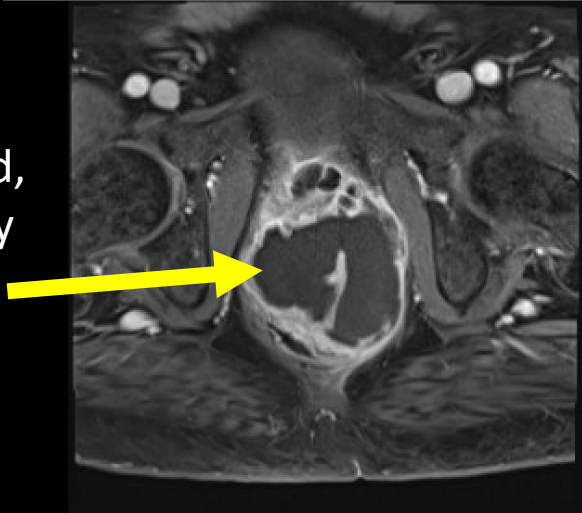
Axial ADC Map



Findings (MRI Pelvis, Prostate Protocol)

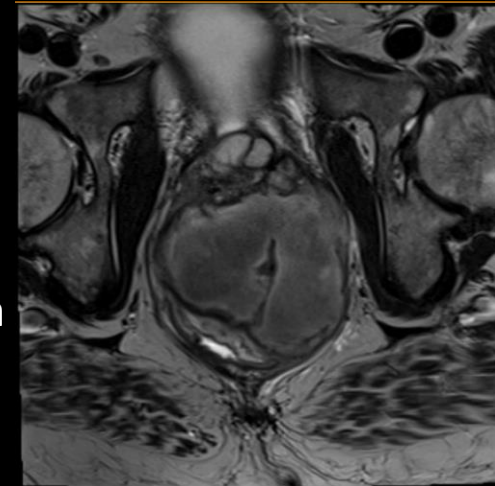
Axial and Sagittal T1, fat saturated, post contrast

Multiloculated, predominantly cystic pelvic lesion arising from the prostate



Mass effect on the rectum

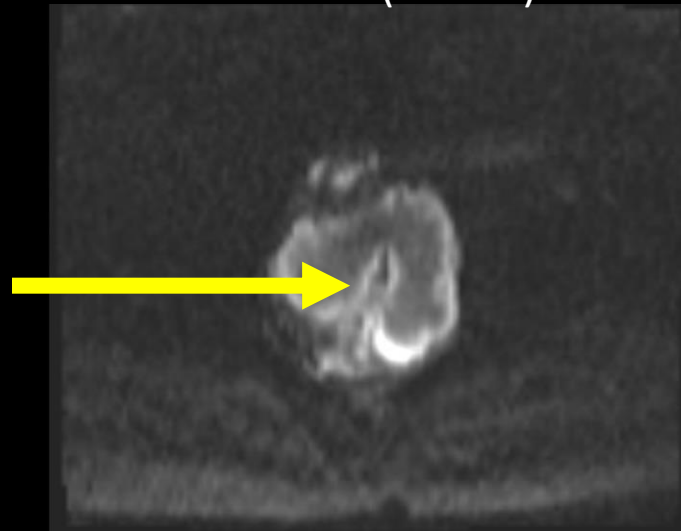
Axial T2



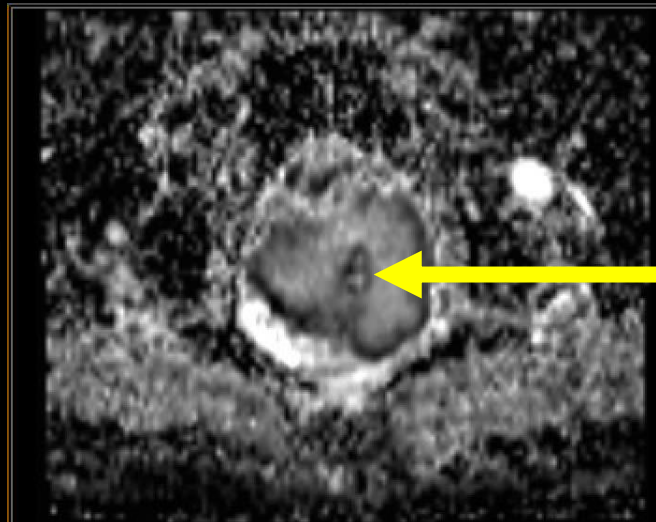
No normal residual prostate tissue identified

Axial DWI (b1600)

Restricted diffusion of some of the thickened septations



Axial ADC Map

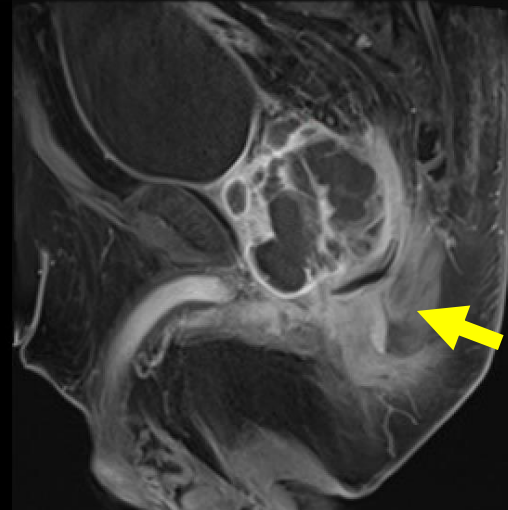
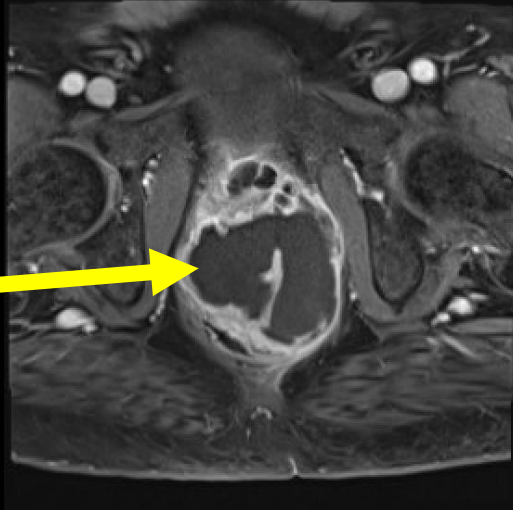


Findings (MRI Pelvis, Prostate Protocol)

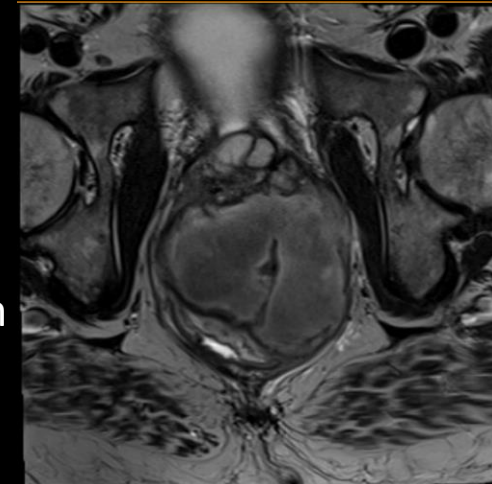
Axial and Sagittal T1, fat saturated, post contrast

Axial T2

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Mass effect on the rectum



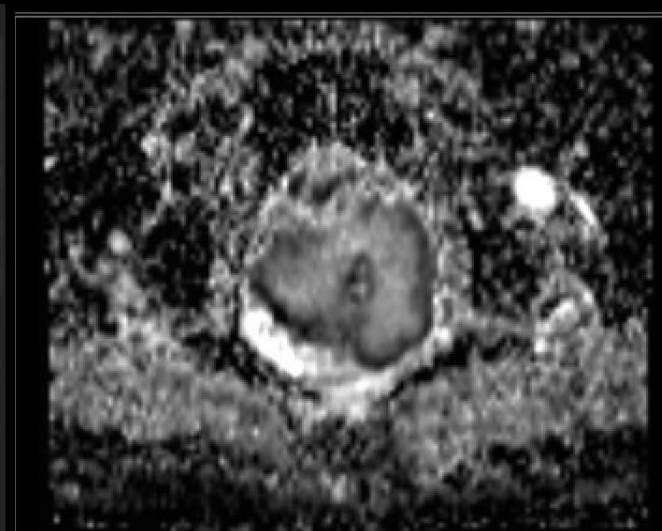
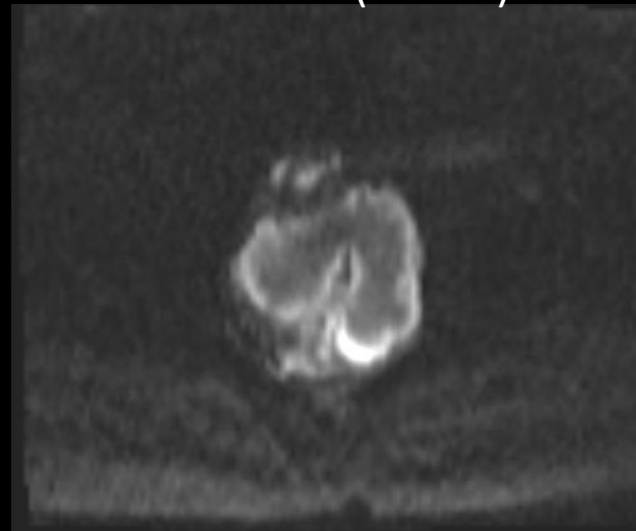
No normal residual prostate tissue identified

Axial DWI (b1600)

Axial ADC Map

Differential includes atypical prostatic neoplasm or abscess.

Recommend ultrasound-guided biopsy of the prostate.

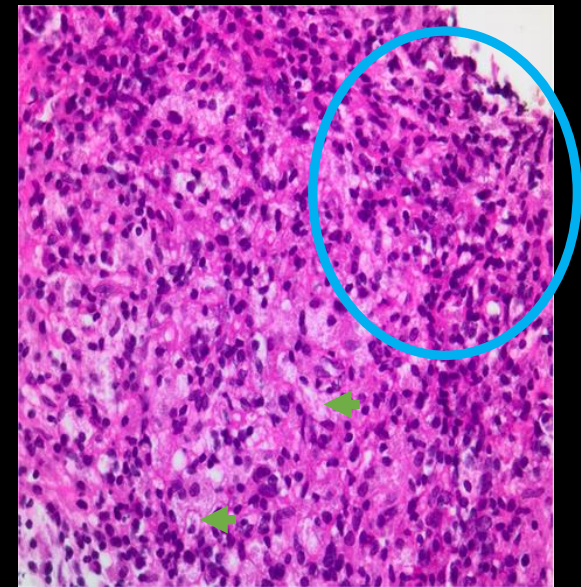


Final Dx:

Xanthogranulomatous Prostatitis

Case Discussion: Xanthogranulomatous Prostatitis

- Granulomatous prostatitis is a rare, inflammatory, nodular form of chronic prostatitis.
- It is a benign lesion, though often mimics prostatic carcinoma or abscess on MRI.
- Diagnosed via tissue sampling
- Xanthogranulomatous prostatitis is a subtype involving foamy histiocytes and mixed acute and lymphoplasmacytic inflammatory infiltrate



Mukendi et al. (2020)

Case Discussion: Xanthogranulomatous Prostatitis

- **Causes:**

- Infection
- Bacillus Calmette-Guerin (BCG) vaccine
- Autoimmune disease
- Sarcoidosis
- Idiopathic

- **Treatment:** Antibiotics + removal of infected tissue (e.g., TURP, open prostatectomy)

Patient underwent culture-directed antibiotic therapy for 30 days then underwent TURP that showed benign pathology.

References:

Acute Pyelonephritis. Available at <https://acsearch.acr.org/docs/69489/Narrative/>. American College of Radiology. Accessed July 17, 2023.

Kumbar, R., Dravid, N., Nikumbh, D., Patil, A., & Nagappa, K. G. (2016). Clinicopathological Overview of Granulomatous Prostatitis: An Appraisal. *Journal of Clinical and Diagnostic Research*, 10(1), EC20-EC23. <https://doi.org/10.7860/JCDR/2016/15365.7146>

Mukendi, Doherty, S., & Mohanlal, R. (2020). Xanthogranulomatous prostatitis: A rare mimicker of prostate adenocarcinoma. *Clinical Case Reports*, 8(1), 203-205. <https://doi.org/10.1002/ccr3.2610>

Rafique, M., & Yaqoob, N. (2006). Xanthogranulomatous prostatitis: A mimic of carcinoma of prostate. *World Journal of Surgical Oncology*, 4, 30. <https://doi.org/10.1186/1477-7819-4-30>