AMSER Case of the Month August 2025

42 y/o male presents with gross hematuria

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Patient Presentation

- HPI: 42 y/o male presenting with gross hematuria associated with testicular soreness and diarrhea
- PMHx: Hypertension, atrial fibrillation (HCC)
- PSHx: Cholecystectomy (2022)
- FHx: Familial Mediterranean Fever
- Allergies: Nitroglycerin
- Vitals: BP 164/78, Pulse 68, Temp 97.4 °F, RR 18, SpO2 98%
- Physical Exam: Normal physical exam (no masses, tenderness, erythema, or swelling)

Pertinent Labs

- Urine Urinalysis with Reflex Urine Culture
  - Color: Light orange
  - Clarity: Slightly cloudy
  - Ph UA: 8.0 (Ref 5-7)
  - Protein UA: Trace
  - Blood UA: 3+
- Urine Microscopic
  - WBC, UA: 11-30
  - RBC, UA: > 30

What Imaging Should We Order?

ACR Appropriateness Criteria

Variant 4: **Gross hematuria. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CTU without and with IV contrast	Usually Appropriate	☢☢☢☢
MRU without and with IV contrast	Usually Appropriate	O
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	☢☢☢☢
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate	O
MRI abdomen and pelvis without IV contrast	May Be Appropriate	O
US kidneys and bladder retroperitoneal	May Be Appropriate	O
CT abdomen and pelvis with IV contrast	May Be Appropriate	☢☢☢
CT abdomen and pelvis without IV contrast	May Be Appropriate	☢☢☢
Radiography abdomen and pelvis	Usually Not Appropriate	☢☢
Arteriography kidney	Usually Not Appropriate	☢☢☢
Radiography intravenous urography	Usually Not Appropriate	☢☢☢

This imaging modality was ordered by the physician

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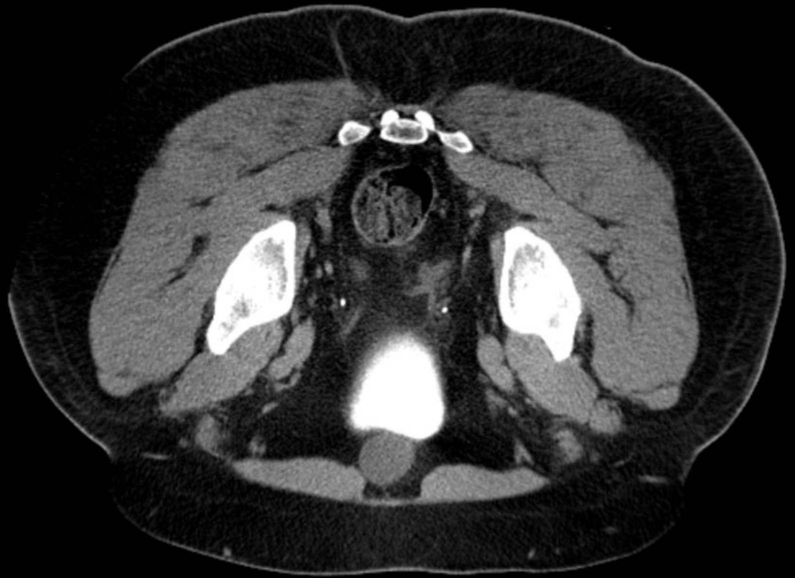
Findings (unlabeled)



Axial prone

Axial supine

Sagittal

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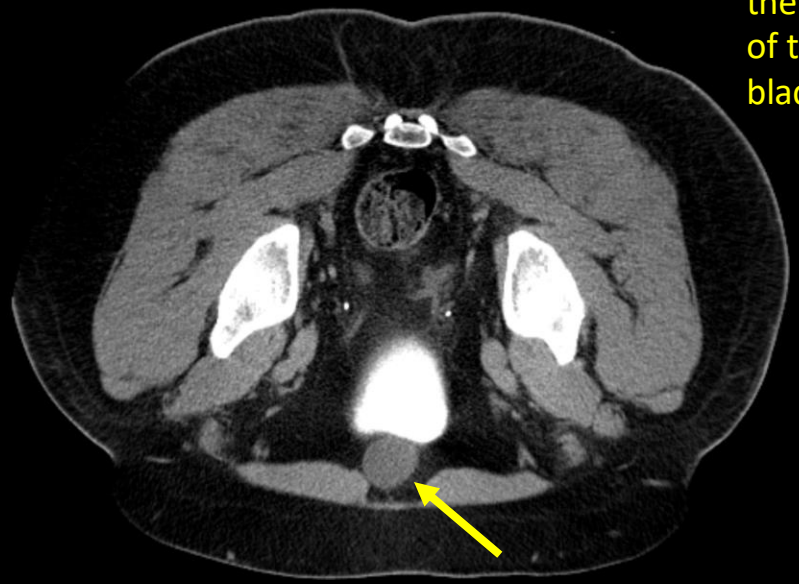
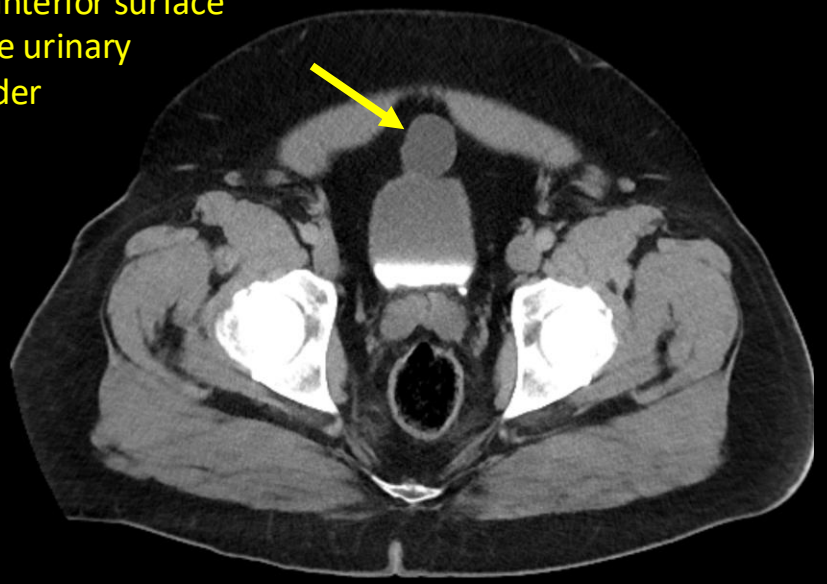
Findings (labeled)

A cystic lesion anterior to the bladder dome measures 3.9 x 3.2 x 3.4 cm and appears simple. On prone imaging, contrast in the bladder does not communicate with the lesion, which abuts the bladder dome wall.

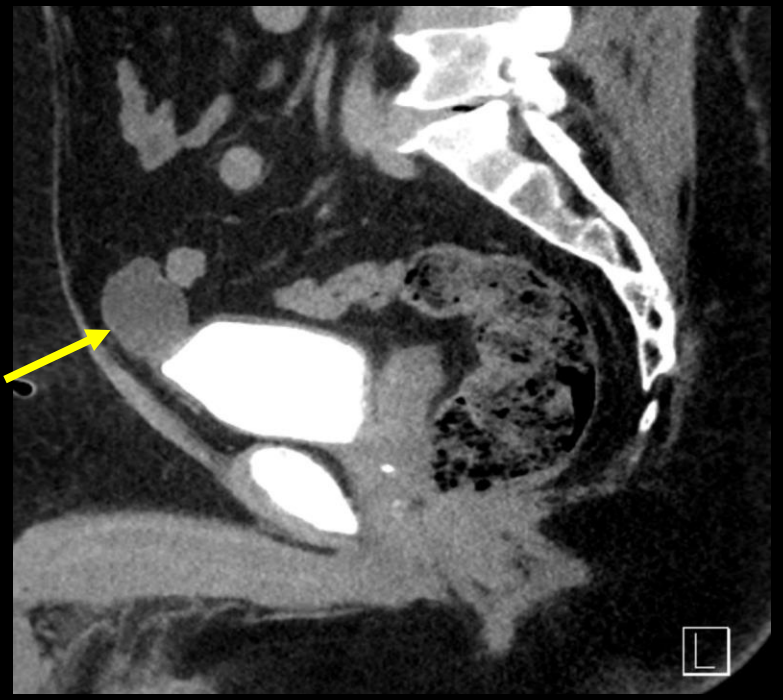


Axial prone

Urachal cyst abutting the anterior surface of the urinary bladder



Axial supine



Sagittal

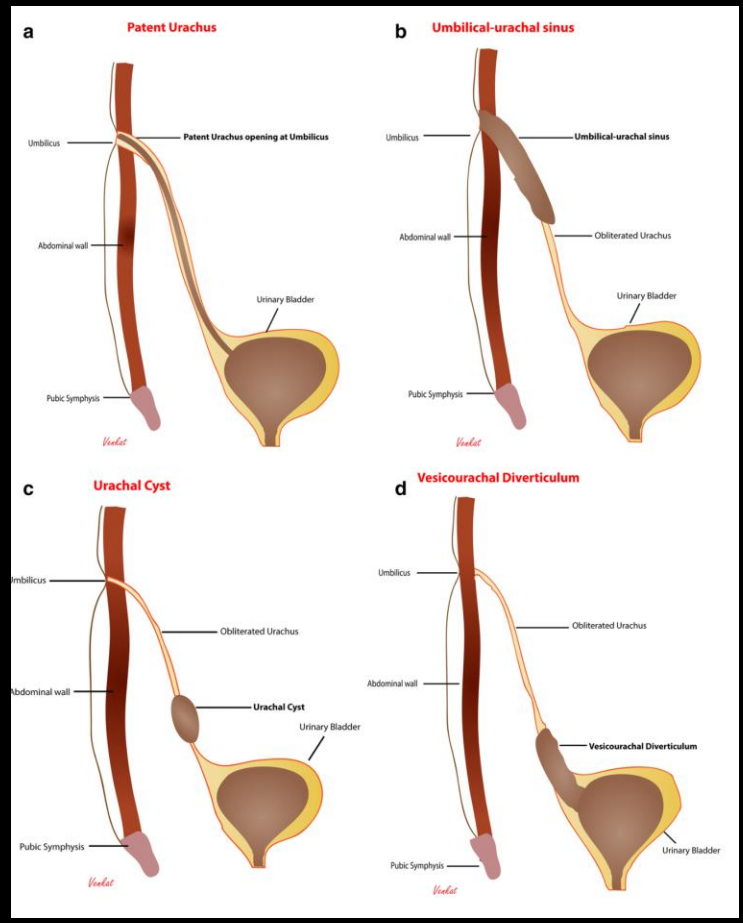
Final Dx:

Gross Hematuria (Primary) and Urachal Remnant Cyst

Case Discussion

Background

- A urachal cyst is a type of anomaly caused by the persistence of the urachus, which is formed by the allantois and cloaca, structures that typically obliterate at birth.[1,2] An estimated 2% of adults have a persistent urachus.[2]
- Additional urachal anomalies:
  - Patent urachus: urachal fistula, tubular connection between urinary bladder and umbilicus[1]
  - Umbilical-urachal sinus: urachus does not involute, rather dilates at the umbilical end [1]
  - Vesico-urachal diverticulum: outpouching of urinary bladder due to failure of superior aspect of urachus to involute[1]
- Patients with urachal anomalies can be symptomatic or asymptomatic. These non-specific symptoms include umbilical discharge, erythema, or UTIs[1,2]
- Complications due to urachal anomalies are age-dependent. Infection is common in infants, children, and adults but adults are also at risk for malignancies, particularly adenocarcinomas.[1]



Adapted from Buddha et al.[1]

Case Discussion

Diagnosis

- Diagnosed based on the presence of a mass near the dome of the bladder, commonly found incidentally due to the availability of cross-section imaging[1,2]
  - Ultrasound
    - Initial imaging modality due to wide availability, rapid speed, and low cost[1]
  - CT
    - Disease staging in the event of urachal malignancies[1]
    - Indications of infection[1]
  - MRI
    - Better soft-tissue contrast resolution[1]
    - Visualizing changes in cystic degeneration[1]
    - Disease staging in the event of urachal malignancies[1]
- Differential diagnoses for urachal cysts include a congenital diverticulum, umbilical hernia, various umbilical cord cysts, and other intra- abdominal disorders[3]

Case Discussion

Management

- Urachal cysts are often diagnosed in infancy and the recommendation is to monitor with ultrasound, though in most cases, cysts tend to spontaneously resolve during early childhood[3]
- Urachal cysts that persist into adulthood are often incidental findings if patients are asymptomatic. The recommendation is to prophylactically surgically excise the cyst to reduce the risk of infections and malignancies[1]
- Infected urachal cysts are associated with complications due to intraperitoneal cyst ruptures[1]:
  - Peritonitis
  - Fistula formation
  - Abdominal pain
- Operative treatment: laparoscopic excision[2]
- Nonoperative treatment: antibiotic treatment and if applicable, a percutaneous drainage via ultrasound guidance to reduce inflammation in the case of an infected urachal cyst[4]
  - Can also be followed by surgical excision[4]

References:

1. Buddha S, Menias CO, Katabathina VS. Imaging of urachal anomalies. *Abdom Radiol*. 2019;44(12):3978-3989. doi:10.1007/s00261-019-02205-x
2. Calagna G, Rotolo S, Catinella V, et al. Unexpected finding of urachal remnant cyst. Tips for laparoscopic approach. International Journal of Surgery Case Reports. 2020;77:S139-S142. doi:10.1016/j.ijscr.2020.09.013
3. Schurmans RCP, Olij B, Kool M, Weinans CRGJ, Visschers RGJ, Zijta FM. Infected urachal cyst in an adult patient. J of Clinical Ultrasound. 2024;52(9):1490-1494. doi:10.1002/jcu.23791
4. Sghaier A, Lamloum E, Debaibi M, Sridi A, Chouchene A. Surgical management of benign noninfected urachal cysts in adult patients: two case reports. J Med Case Reports. 2023;17(1):214. doi:10.1186/s13256-023-03944-8

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