

AMSER Case of the Month

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68YO F PRESENTING WITH FEVER AND LOSS OF
APPETITE

Imran S. Alam MS, BS - MS4, Royal College of Surgeons in Ireland

Linda White Nunes MD, MPH - University of Pennsylvania

Patient Presentation

HPI:

- **Fever and loss of appetite** for last 2 days
- Associated **nausea and vomiting**
- Patient nonverbal with cerebral palsy and intellectual disability; wheel-chair bound
- Known chronic constipation, but appetite usually unaffected

Relevant PMH:

- History of UTI's
- Renal calculi w/o complications
- Chronic constipation
- Osteoporosis

Pertinent Labs

- **Blood Tests:** Pancytopenia with WBC of 2.6, baseline for this patient. Other blood tests unremarkable.
- **Urinalysis:** +Blood (Moderate), +Leukocyte Esterase (Small), +Nitrites, +Protein 30
- **Urine Microscopy:** 10-20 RBC/HPF, 10-20 WBC/HPF, Few Bacteria

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 1: Acute nonlocalized abdominal pain and fever. No recent surgery. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	⊕⊕⊕
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate	○
US abdomen	May Be Appropriate	○
CT abdomen and pelvis without IV contrast	May Be Appropriate	⊕⊕⊕
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	⊕⊕⊕⊕
Radiography abdomen	May Be Appropriate	⊕⊕
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	⊕⊕⊕⊕
WBC scan abdomen and pelvis	Usually Not Appropriate	⊕⊕⊕⊕
Nuclear medicine scan gallbladder	Usually Not Appropriate	⊕⊕
Fluoroscopy contrast enema	Usually Not Appropriate	⊕⊕⊕
Fluoroscopy upper GI series with small bowel follow-through	Usually Not Appropriate	⊕⊕⊕

This imaging modality was ordered by the ED physician



Findings (unlabeled)

Contrast: None

C: 50.0, W: 500.0

Gantry: 0°

FoV: 266 mm

Time: 500 ms

Slice: 2 mm

Pos: FFS

Age at exam: 68 years

8. ST_AX_VEN_DE_AP_2.0_F_0.7 iMAR

Angle:

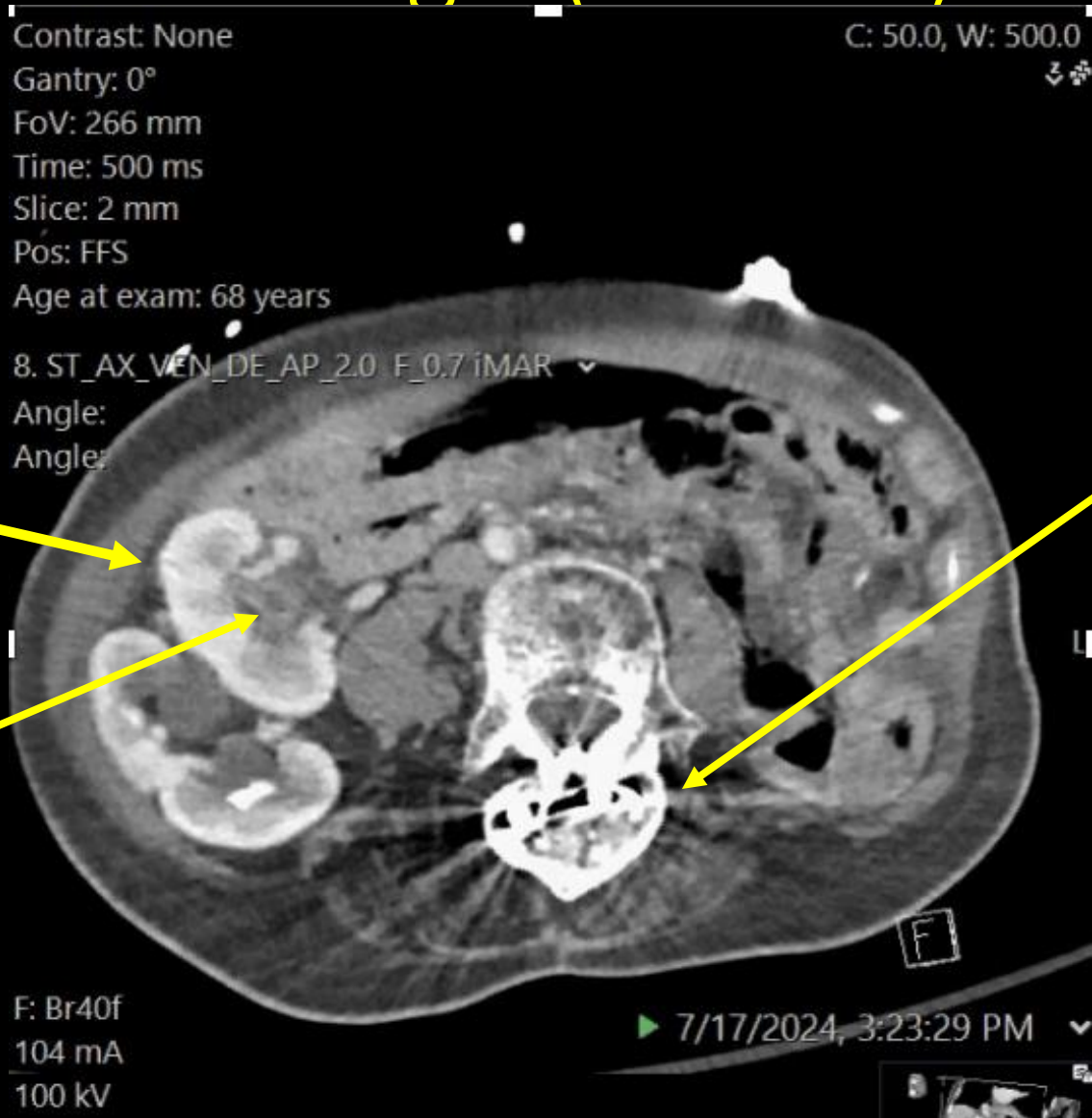
Angle:



F: Br40f
104 mA
100 kV

7/17/2024, 3:23:29 PM

Findings: (labeled)

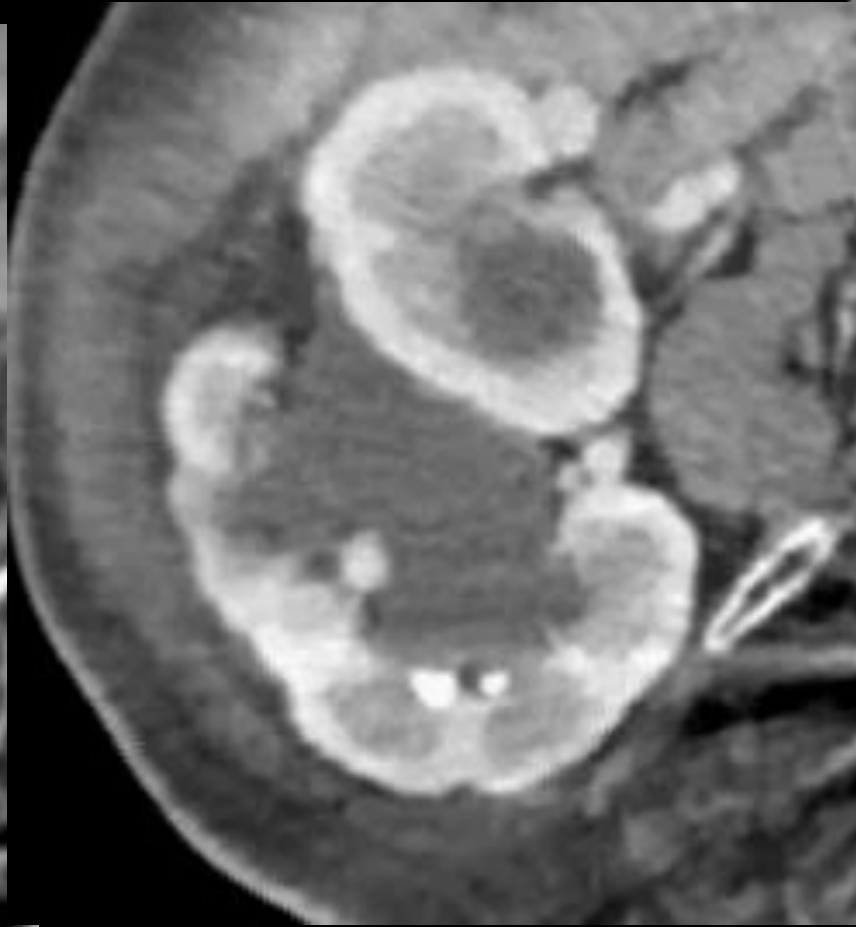
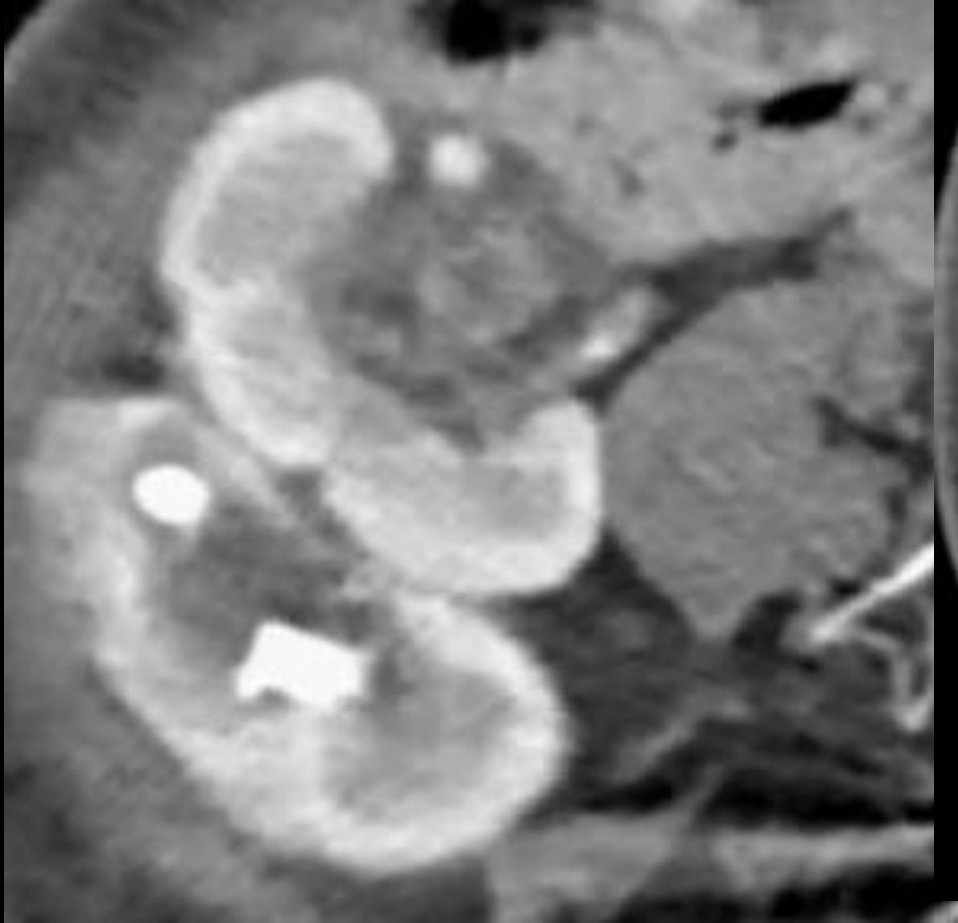


Left kidney located ectopically and anterior to right kidney

Thickening and hyperenhancement of the left renal pelvis and urothelium

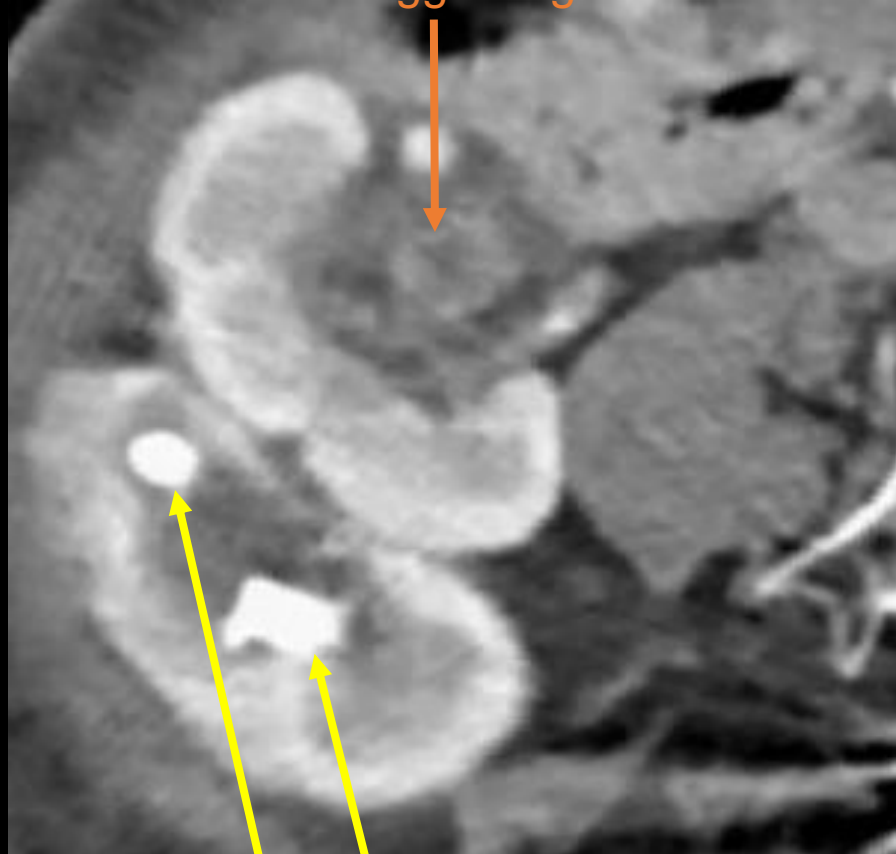
Artifact due to spinal hardware

Additional Findings (unlabeled)



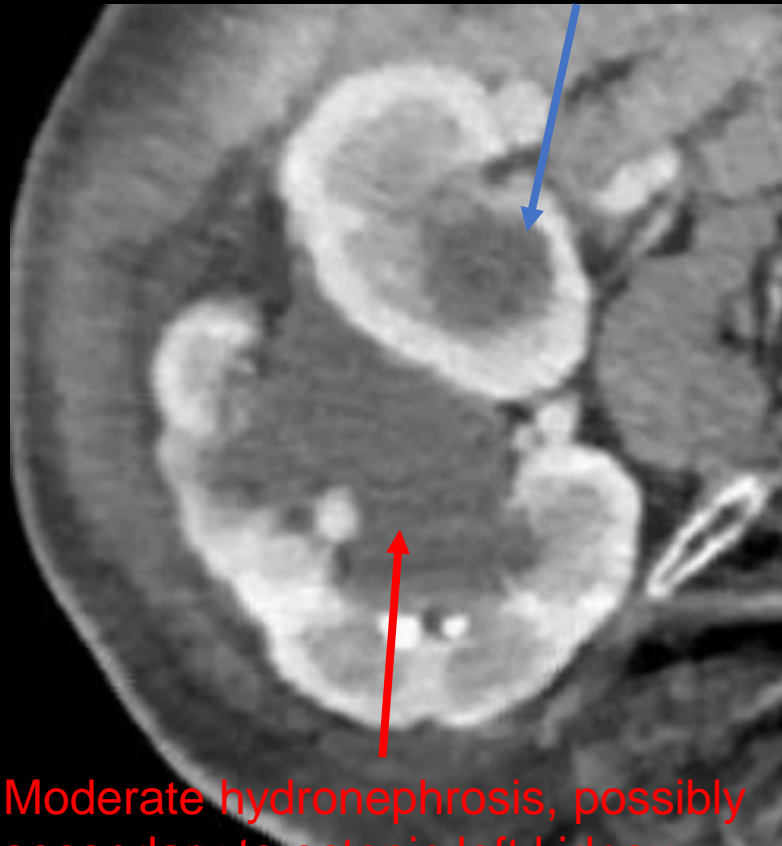
Additional Findings (labeled)

Thickening and hyperenhancement of the left renal pelvis and urothelium suggesting infectious/inflammatory change



Several nonobstructing right renal calculi.

Small simple cyst



Moderate hydronephrosis, possibly secondary to ectopic left kidney compressing right ureter; no stone in UPJ or ureter



0.9 cm calculus in left UPJ.

Final Dx:

Salient finding: Non-fused crossed renal ectopia
(CRE)

Fever of unknown origin, potentially secondary to
UTI

Case Discussion

Ectopic Kidney

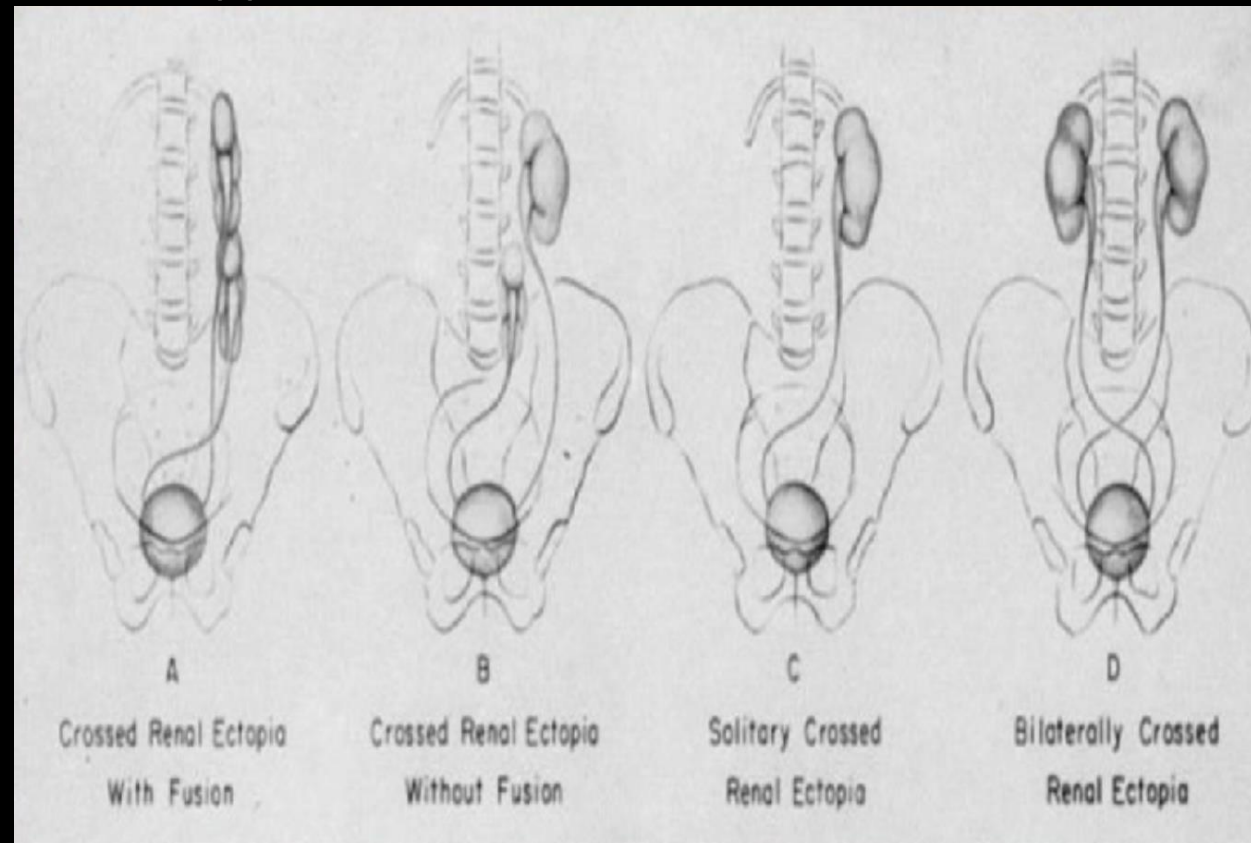
- **Etiology:** Congenital renal anomaly
- **Epidemiology:** Autopsy incidence for Crossed Renal Ectopia (CRE) is 1:7000, and **1:75,000 for Non-fused CRE¹**
- There are some associated disorders with other forms of Renal Ectopia (MRKH, Turner's)

Case Discussion

Crossed Renal Ectopia

- **Classification²: McDonald and McClellan's Classification for Crossed Renal Ectopia** (This case was Type B). Created in 1957.

A – Bilateral kidneys with single kidney crossed & kidneys fused
B – Bilateral kidneys with single kidney crossed & kidneys not fused
C – Solitary kidney, crossed
D – Bilateral kidneys, crossed



Case Discussion

CRE is usually asymptomatic

Complications of CRE seen in this patient:

- Hydronephrosis
- Ureteropelvic/Ureteral Obstruction
- Renal Calculi - (This patient is further predisposed to calculi due to increased bone demineralization secondary to chronic immobilization.)
- Infection (increased risk due to above) – (This patient is further predisposed to UTI due to chronic immobilization and urinary incontinence.)

References:

1. Al-Hamar, N.E. and Khan, K., 2017. Crossed nonfused renal ectopia with variant blood vessels: a rare congenital renal anomaly. *Radiology Case Reports*, 12(1), pp.59-64. DOI: [10.1016/j.radcr.2016.10.016](https://doi.org/10.1016/j.radcr.2016.10.016)
2. McDonald, J.H. and McClellan, D.S., 1957. Crossed renal ectopia. *The American Journal of Surgery*, 93(6), pp.995-1002. DOI: [10.1016/0002-9610\(57\)90680-3](https://doi.org/10.1016/0002-9610(57)90680-3)