AMSER Case of the Month: September 2019

Acute Right Flank Pain

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Patient Presentation

- EL is a 39 year old male presenting to the ED with acute onset 7/10, stabbing, right flank pain that started 4 days ago when he was at rest. He also reports mild N/V.
- PMH: Type 1 DM, IV drug use, CAD, nephrolithiasis
- PSH: Cardiac Catherization with stent placement 1 year ago
- SH: Current smoker with 10 pack-year history, does not drink alcohol, occasionally smokes marijuana. Currently using 13 bags of heroin per day
- PE: Normal with the exception of right CVA tenderness
- Vitals: BP: 131/82, Temp: 100°F

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Pertinent Labs

- WBC: 22.5, Percent granulocytes: 86.9, Percent lymphocytes: 5.9
- HbA1c: 17.5
- UA: Specific gravity 1.020, 4+ glucose, 1+ leukocyte esterase, with 20 WBC per hpf (H), 5 RBC per hpf (H). Trace blood with no protein or ketones

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What Imaging Should We Order?

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Select the applicable ACR Appropriateness Criteria

Variant 2: **Acute pyelonephritis. Complicated patient (eg, diabetes or immunocompromised or history of stones or prior renal surgery or not responding to therapy). Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	☢☢☢
CT abdomen and pelvis without and with IV contrast	Usually Appropriate	☢☢☢☢
MRI abdomen without and with IV contrast	May Be Appropriate	O
CT abdomen and pelvis without IV contrast	May Be Appropriate	☢☢☢
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate (Disagreement)	O
MRI abdomen and pelvis without IV contrast	May Be Appropriate	O
MRI abdomen without IV contrast	May Be Appropriate	O
US color Doppler kidneys and bladder retroperitoneal	May Be Appropriate	☢☢
Tc-99m DMSA scan kidney	May Be Appropriate	☢☢☢
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	☢☢☢

This imaging modality was ordered by the ER physician

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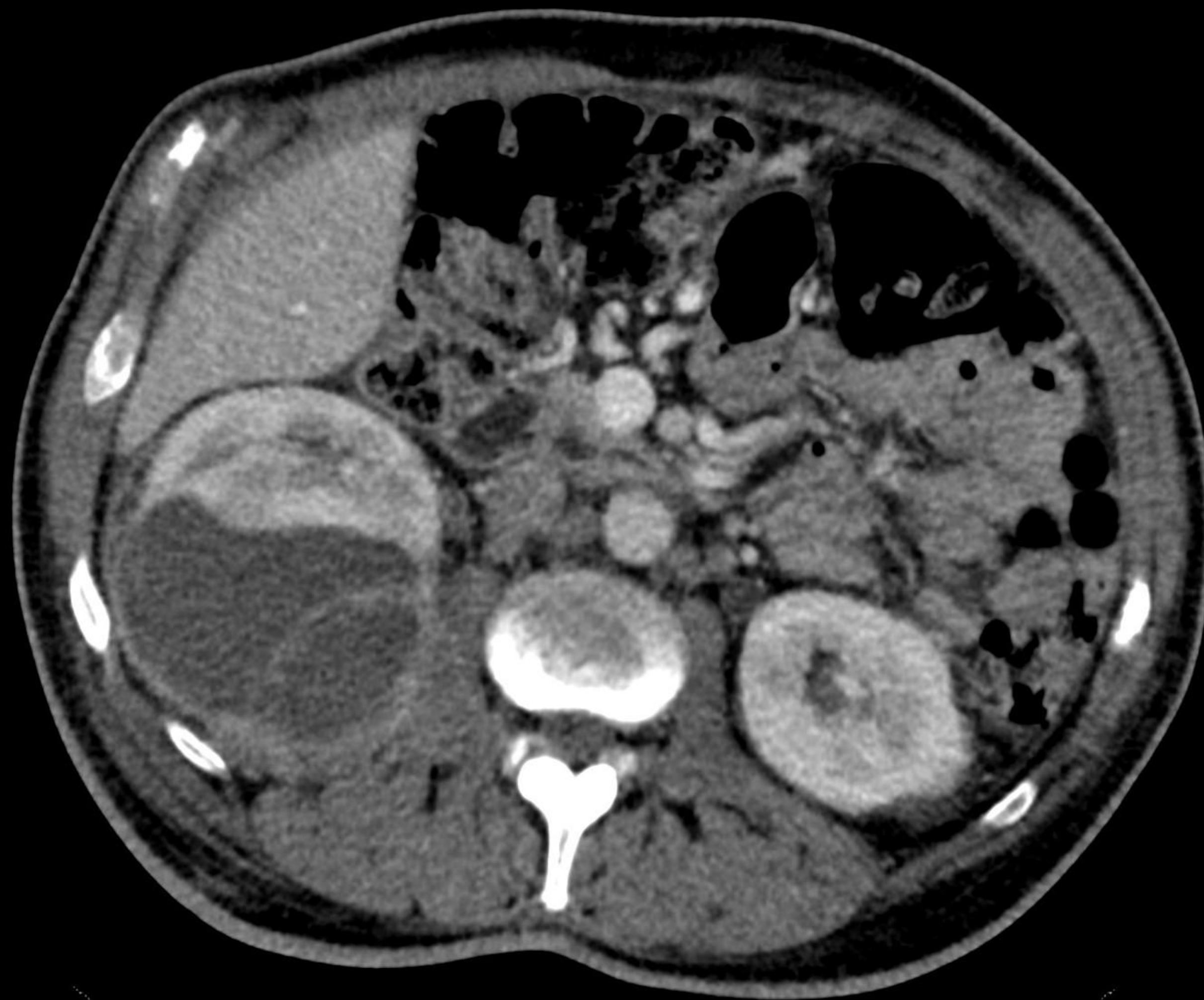
Findings: (unlabled)



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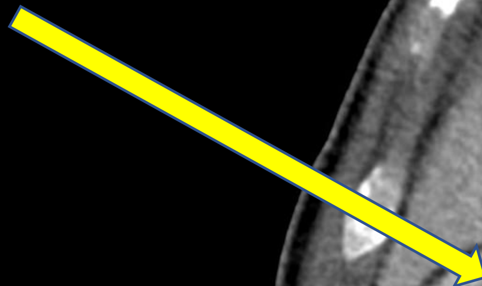
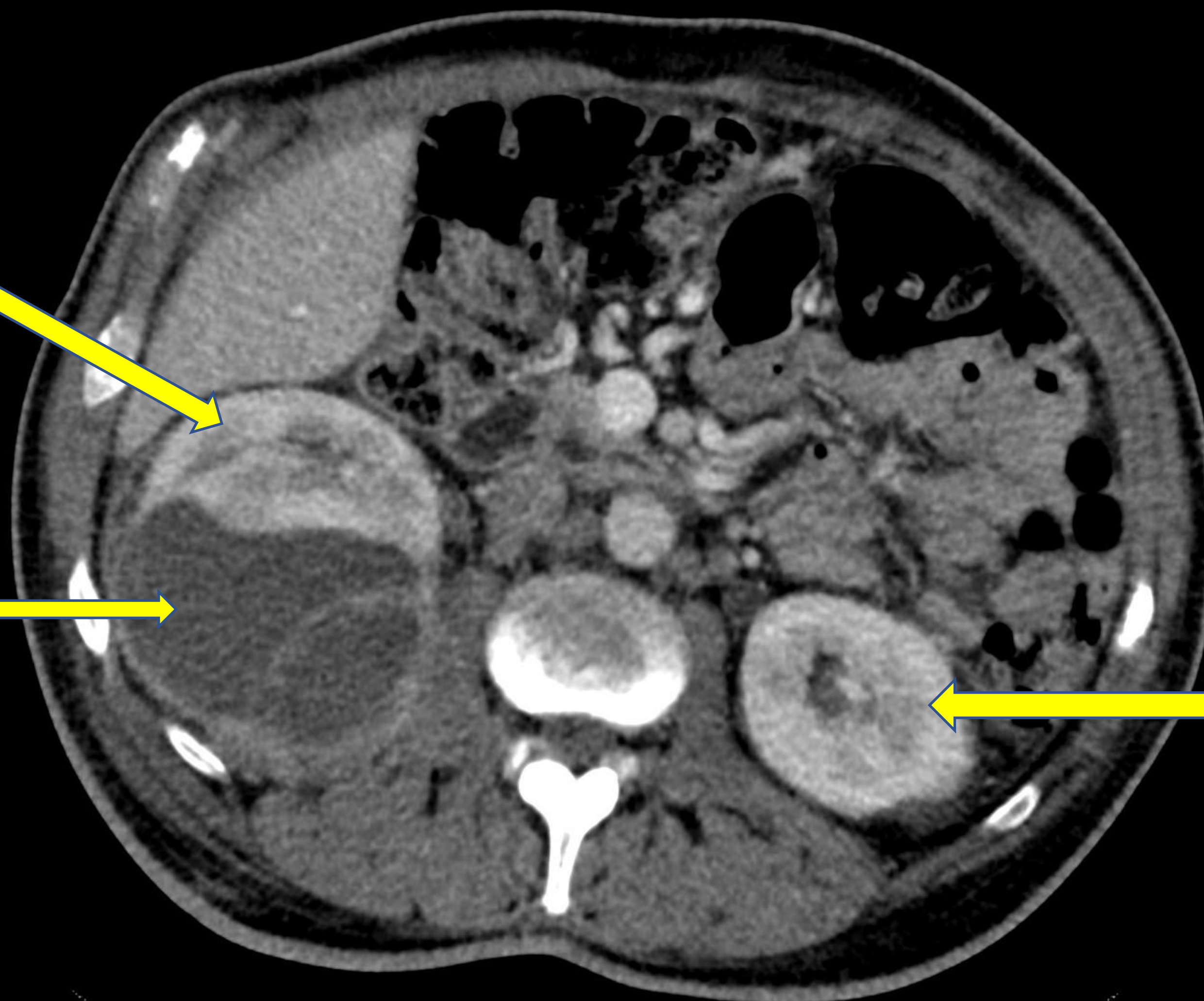
Findings (labeled)

Anteriorly displaced renal parenchyma of right kidney





Heterogeneous, peripherally enhancing, right subcapsular fluid collection compatible with a renal abscess.

Left Kidney

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Final Dx:

Renal Abscess

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Case Discussion

- Renal Abscess

→ Localized collection of pus due to suppurative necrosis in the kidney

→ Etiology

- most commonly from ascending infection of urinary tract as a complication of pyelonephritis. More likely to be uropathogenic species
- can also be from hematogenous spread. More likely to be Staph Aureus

→ Risk Factors

- diabetes mellitus, nephrolithiasis, ureteral obstruction

→ Complications

-Abscess rupture

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Case Discussion

- Renal Abscess Treatment

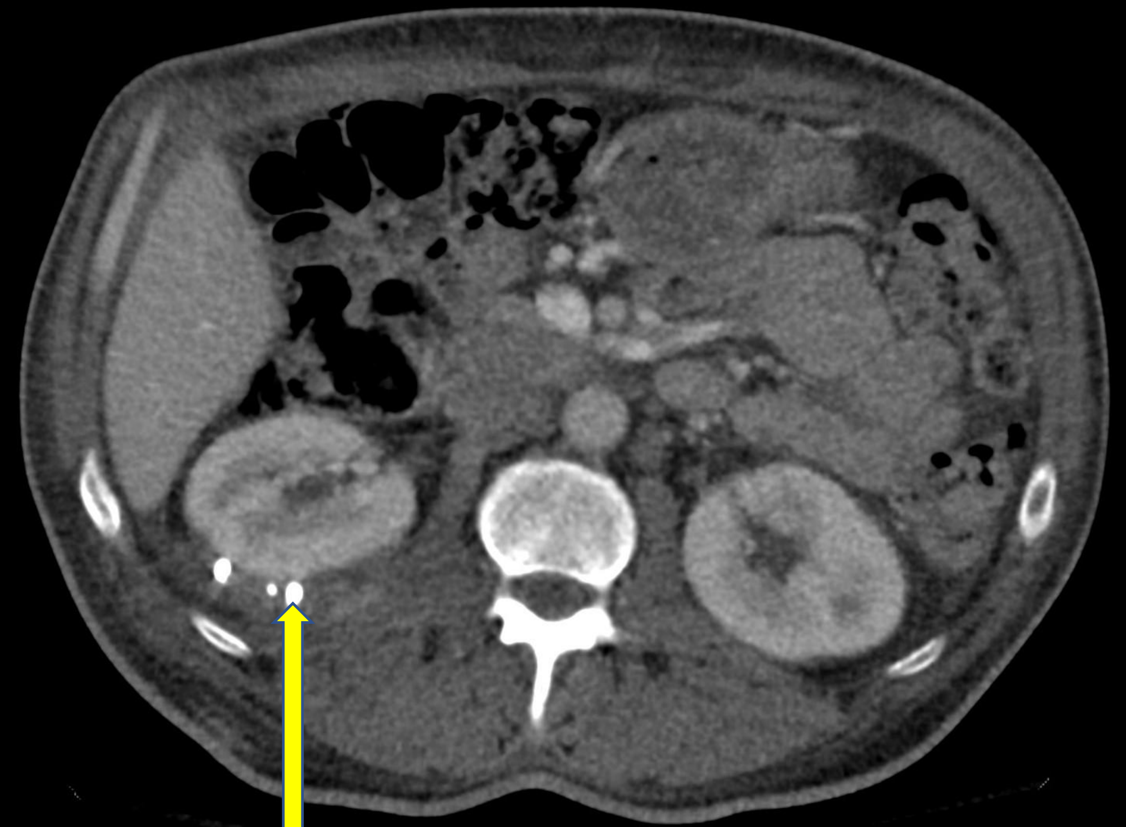
  → Broad spectrum abx

  → An abscess >5cm usually warrants percutaneous drainage using CT or US guidance

  → in severe cases nephrectomy may be necessary

Case Discussion

- A drain was placed by IR after diagnosis was made and 90cc of pus was drained
- Cultures were positive for MRSA so he was started on vancomycin
- Patient then left AMA with drain still in place.
- The drain was removed when the patient returned over a month later



Follow up imaging prior to drain removal showing significant reduction in size of abscess

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