

# AMSER Case of the Month

## May 2023

66-year-old female with acute, progressive abdominal pain for 3 days, 1-day post-endovascular thrombectomy and bolus IV thrombolytic therapy for M1 occlusion

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# Patient Presentation

- **HPI:** 66-year-old female presented with acute, progressive abdominal and left flank pain for 3 days. The patient was 1-day post-IV bolus thrombolytic therapy and endovascular thrombectomy (TICI 2C flow) for acute stroke caused by M1 occlusion.
- **PMH:** Type 2 Diabetes Mellitus, Hypertension, Hyperlipidemia
- Pertinent social, surgical, or family history could not be obtained due to patient's significant aphasia. No known allergies.

# Patient Presentation

- **ROS:**

- Chest pain had developed overnight
- Pain in left flank

- **Physical Exam:**

- Patient was writhing in pain
- Abdomen soft, nontender to palpation anteriorly
- Positive tenderness to palpation of left flank

# Pertinent Labs

- Labs:

- Serum lactate dehydrogenase (LDH) : 45 mmol/L (N < 2.2)
- High-sensitivity troponin: 65 ng/L (N < 19)
- Serum BUN: 28 mg/dL (N < 23)
- Serum Creatinine: 1.31 (N < 1.2)
- Stable hemoglobin and hematocrit

What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

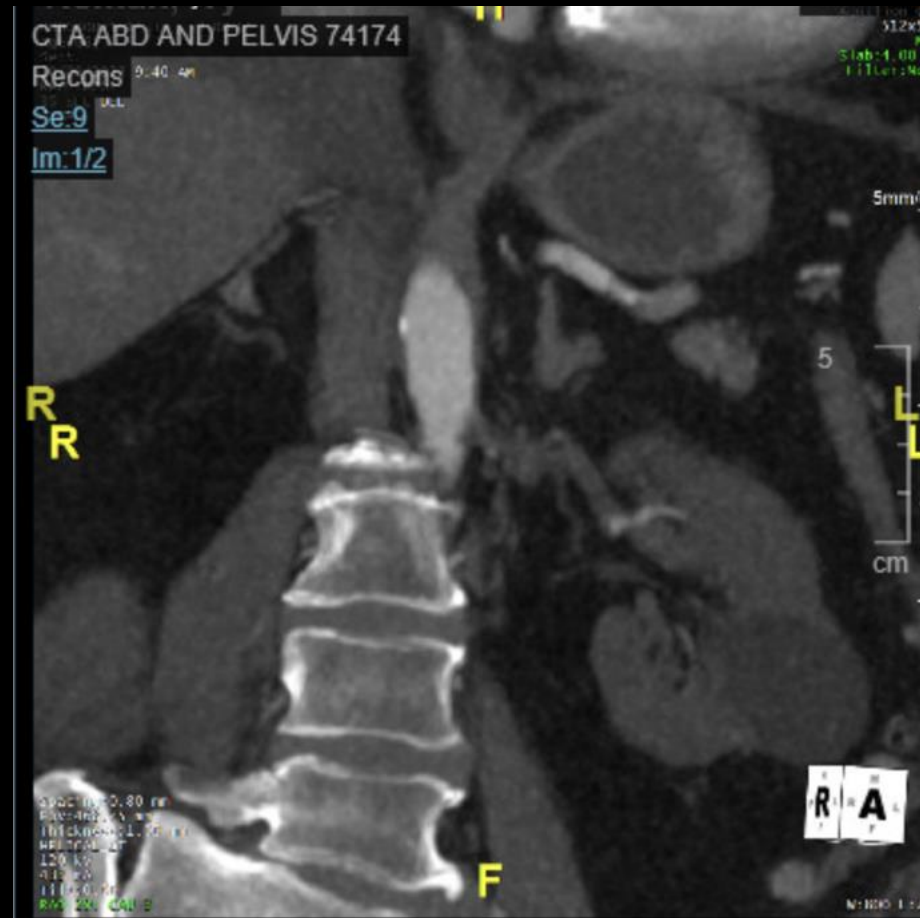
**Variant 1:** Suspected acute mesenteric ischemia. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CTA abdomen and pelvis with IV contrast	Usually Appropriate	⊕⊕⊕⊕
CT abdomen and pelvis with IV contrast	May Be Appropriate	⊕⊕⊕
Arteriography abdomen	May Be Appropriate (Disagreement)	⊕⊕⊕
MRA abdomen and pelvis without and with IV contrast	May Be Appropriate (Disagreement)	○
Radiography abdomen	May Be Appropriate	⊕⊕
US duplex Doppler abdomen	May Be Appropriate	○
CT abdomen and pelvis without and with IV contrast	Usually Not Appropriate	⊕⊕⊕⊕
CT abdomen and pelvis without IV contrast	Usually Not Appropriate	⊕⊕⊕
MRA abdomen and pelvis without IV contrast	Usually Not Appropriate	○

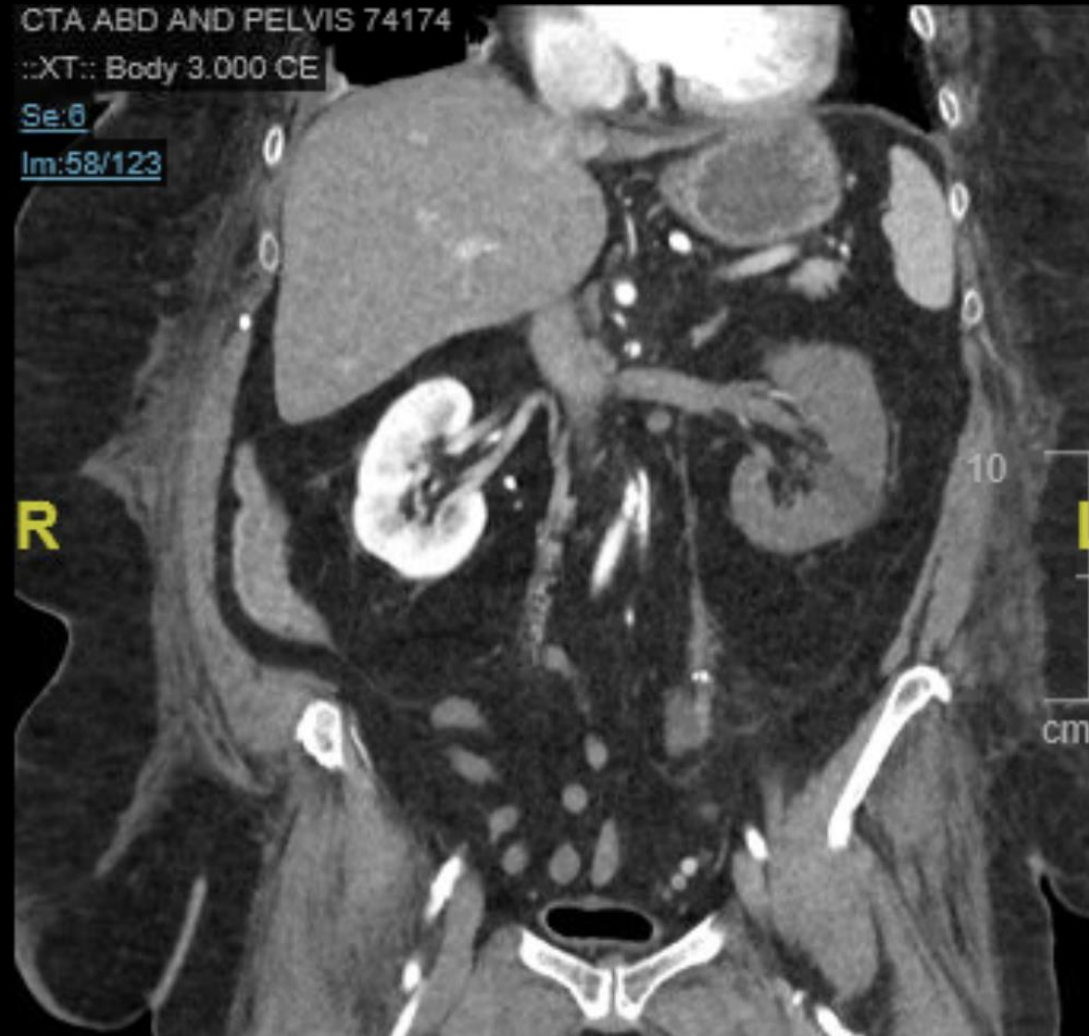
This imaging modality was ordered by the critical care physician



# Findings: (unlabeled)

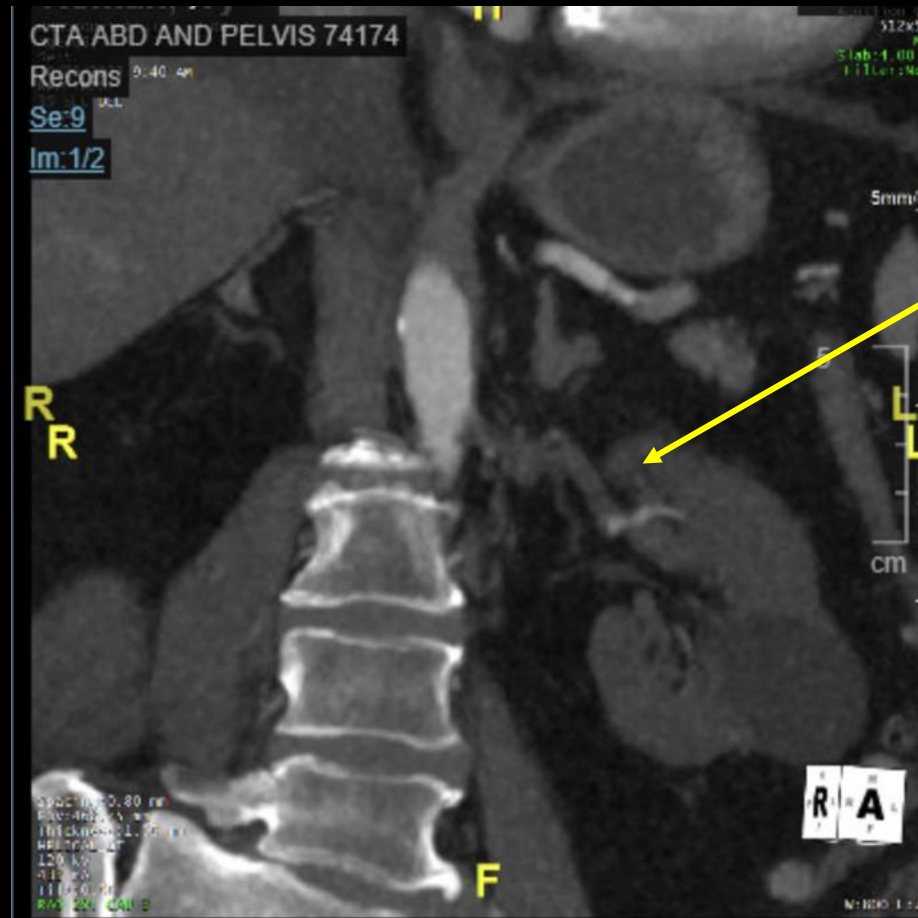


# Findings: (unlabeled)



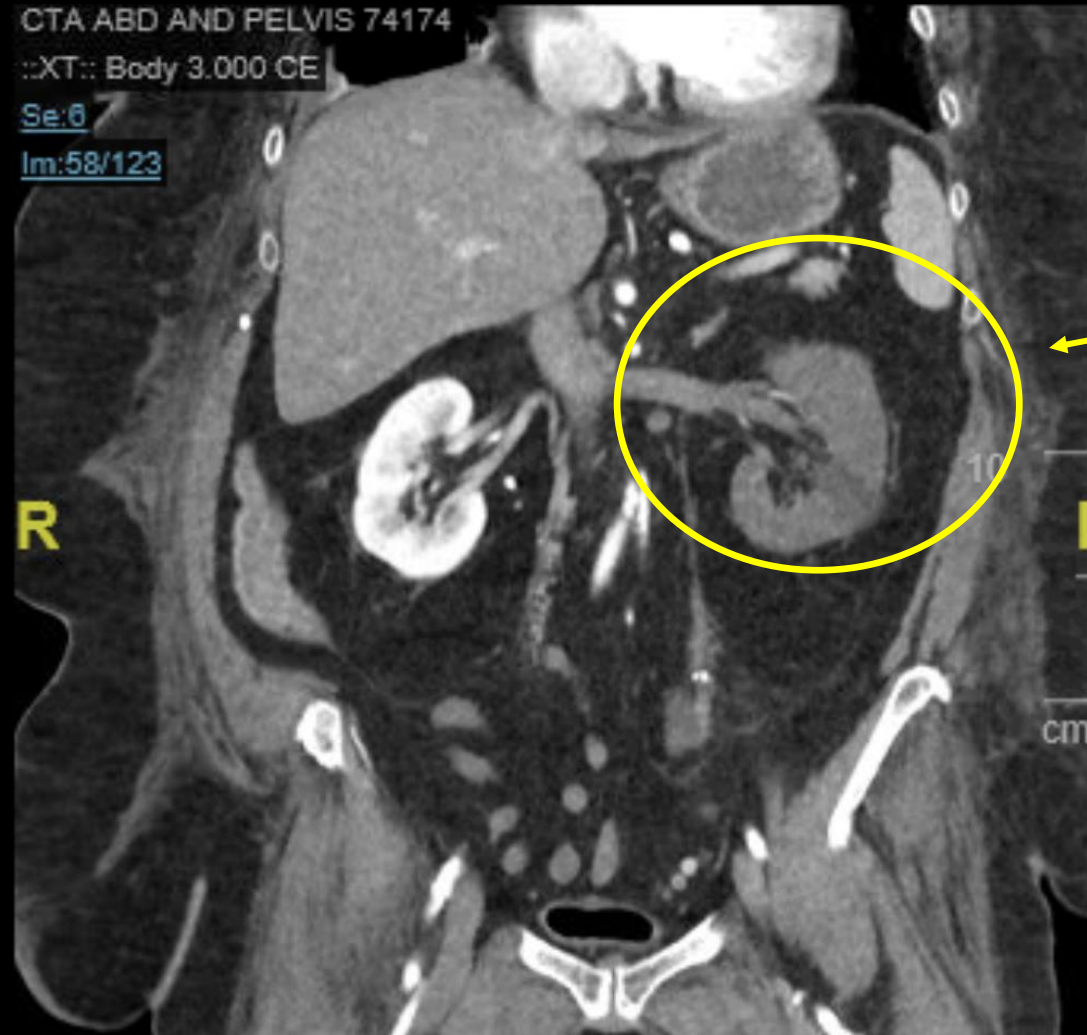


# Findings: (labeled)



Acute thrombosis  
along entire length of  
left renal artery

# Findings: (labeled)



Resultant  
nonperfusion of  
left kidney

Final Dx:

Left Renal Artery Occlusion

# Case Discussion

Presentation of renal artery occlusion may include the following symptoms:

- Abdominal and/or flank pain
- Uncontrolled hypertension
- Anuria or hematuria
- Acute kidney injury
- Emboli to additional organs
- Fever
- Nausea

Laboratory values:

- Increased serum creatinine
- Increased serum LDH

# Case Discussion

- Renal artery thrombosis is often seen in the setting of atrial fibrillation or an aortic atherosclerotic embolic source. Other precipitating factors include renal artery trauma, connective tissue disorder, iatrogenic thrombosis after endovascular interventions, and pro-coagulative states.
- In this case, the renal artery thrombus occurred post-acute stroke due to M1 occlusion suggesting the patient was in a pro-coagulative state.

# Case Discussion

- Management of renal artery thrombosis depends on the cause, magnitude of renal injury, and risk of recurrence of intervention for arterial thrombosis of kidney.
- Treatment strategies include:
  - Surgical reconstruction
  - Anticoagulation
  - Thrombolytic therapy
  - Endovascular procedure
  - Supportive care and management of hypertension

# Follow Up

- The patient underwent endovascular suction thrombectomy of the aorta, left renal artery, and superior mesenteric artery and its distal branches
- Hospital admission was complicated by hypotensive shock, concerns for sepsis, and bilateral lower extremity arterial occlusions
- Heparin-Induced Thrombocytopenia screen test positive, confirmatory Serotonin Release Assay negative
- Patient was discharged after 20 days, prescribed anticoagulation for 6 months, and instructed to follow up with outpatient hematologist to determine cause of pro-coagulative state

# References:

- Textor, Stephen C. "Renovascular Disease." *Harrison's Principles of Internal Medicine, 21e* Eds. Joseph Loscalzo, et al. McGraw Hill, 2022,
- Sholy HG, Levy Y. Renal artery thrombosis. *Am J Med Sci.* 2013 Jun;345(6):489. doi: 10.1097/MAJ.0b013e31825407e6. PMID: 22885629.
- Inaba A, Karim M. Postoperative renal artery thrombosis. *Clin Exp Nephrol.* 2014 Aug;18(4):676-7. PMID: 24174161.
- Silverberg, Daniel, et al. "Acute Renal Artery Occlusion: Presentation, Treatment, and Outcome." *Journal of Vascular Surgery*, vol. 64, no. 4, 2016, pp. 1026–1032. PMID: 27345378