

# AMSER Case of the Month

## November 2025

49 year-old male presenting with abdominal pain

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# Patient Presentation

- HPI: 49 year-old male with BPH and prediabetes presenting with 6 months of abdominal pain.
- Vitals: 98.2 F, 17 RR, 124/88 BP
- Physical Exam:
  - Abdomen: Round and soft with active bowel sounds, reducible umbilical hernia associated with tenderness

# Pertinent Labs

- None

What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

American College of Radiology  
ACR Appropriateness Criteria®  
Hernia

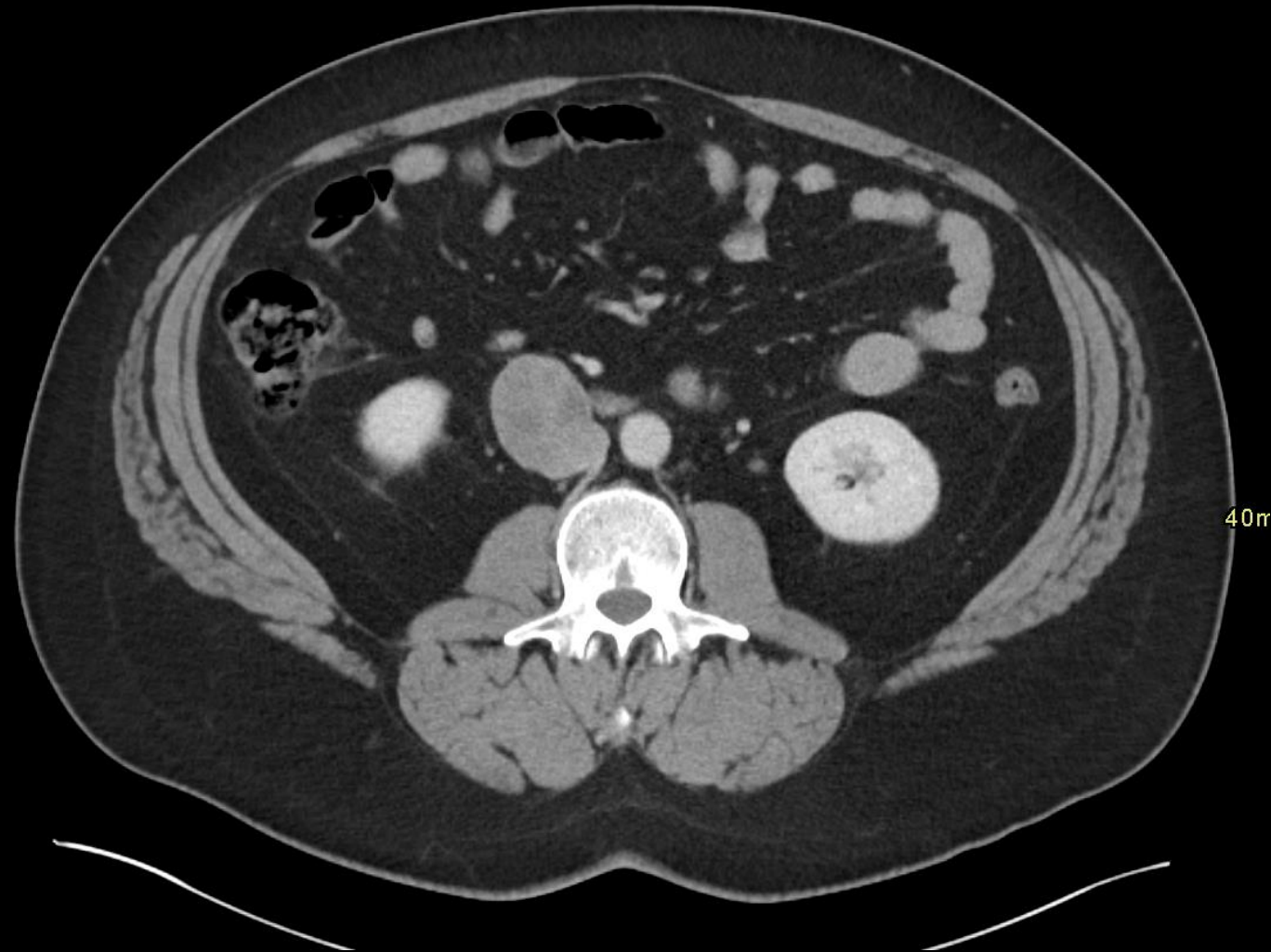
Variant 1: Suspected abdominal wall hernia such as umbilical, ventral, incisional, lumbar, or spigelian.  
Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
US abdomen	Usually Appropriate	○
CT abdomen and pelvis with IV contrast	Usually Appropriate	⊕⊕⊕
CT abdomen and pelvis without IV contrast	Usually Appropriate	⊕⊕⊕
MRI abdomen without and with IV contrast	May Be Appropriate	○
MRI abdomen without IV contrast	May Be Appropriate	○
US pelvis	Usually Not Appropriate	○
Radiography abdomen and pelvis	Usually Not Appropriate	⊕⊕
Fluoroscopy upper GI series	Usually Not Appropriate	⊕⊕⊕
Fluoroscopy upper GI series with small bowel follow-through	Usually Not Appropriate	⊕⊕⊕
MRI pelvis without and with IV contrast	Usually Not Appropriate	○
MRI pelvis without IV contrast	Usually Not Appropriate	○
CT abdomen and pelvis without and with IV contrast	Usually Not Appropriate	⊕⊕⊕⊕

This imaging modality was ordered by primary care physician

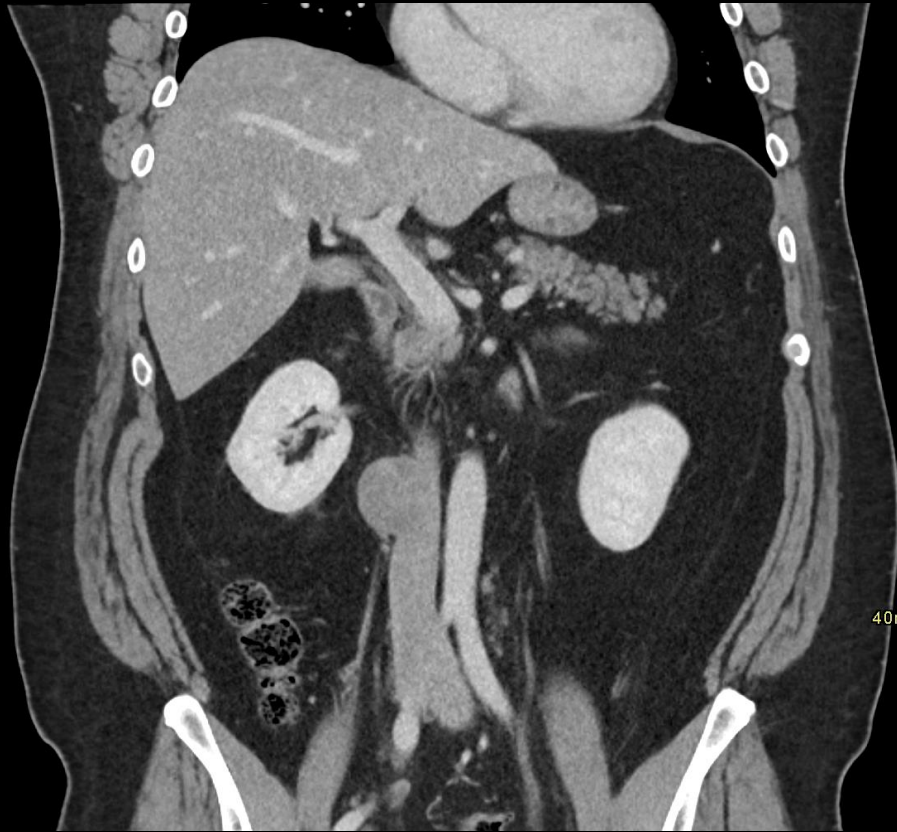
# Findings: Unlabeled

CT Abdomen w/ IV contrast  
Axial images



# Findings: Unlabeled

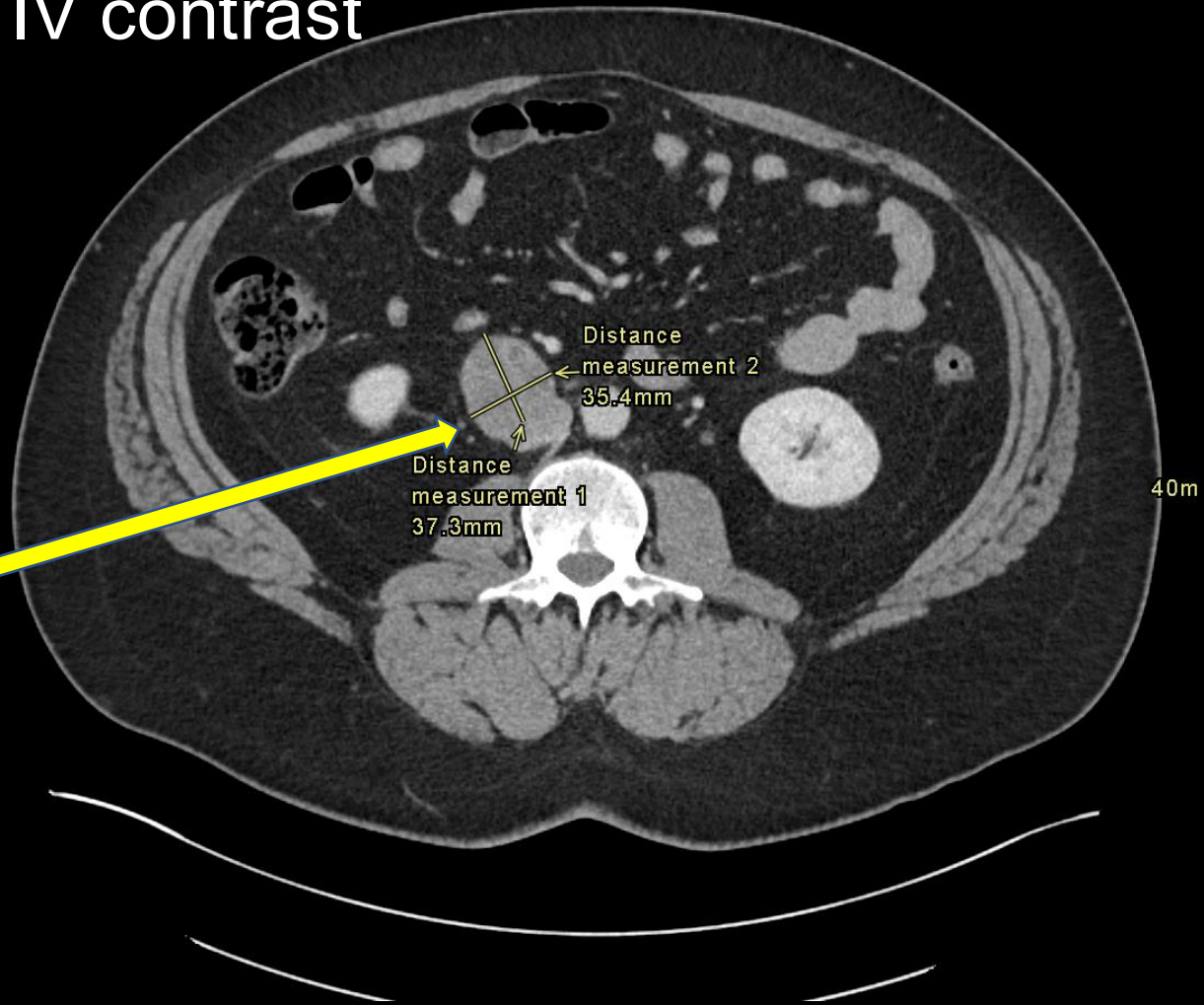
CT Abdomen w/ IV contrast  
Coronal images



# Findings: (labeled)

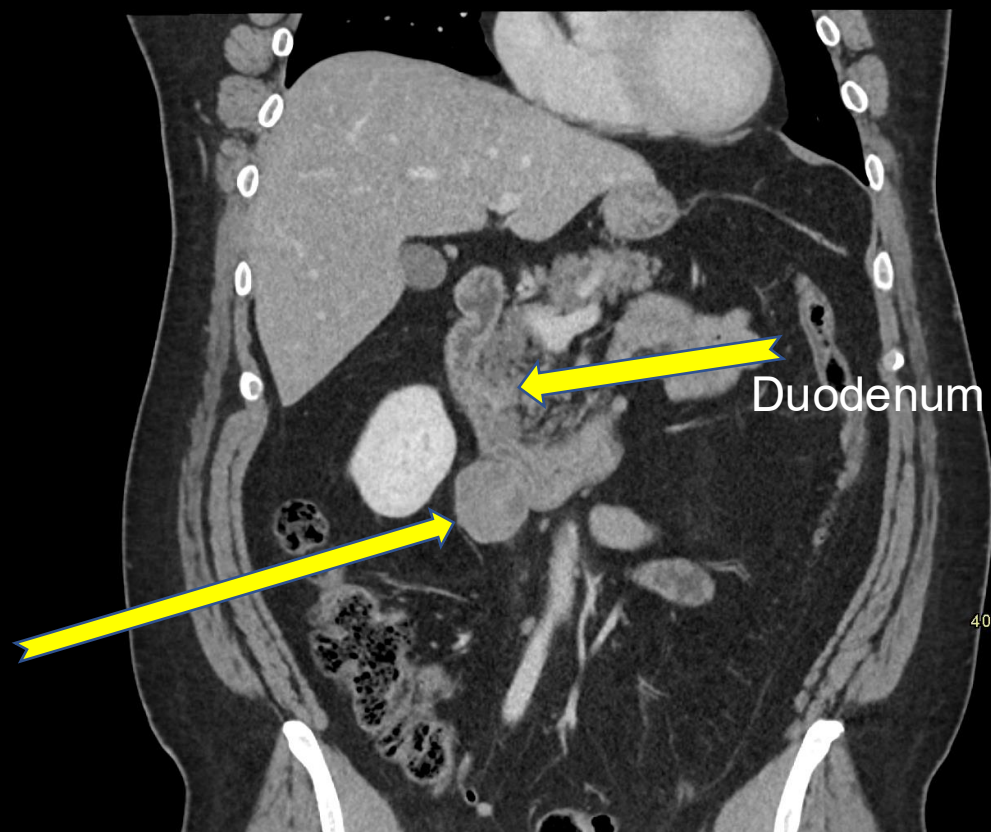
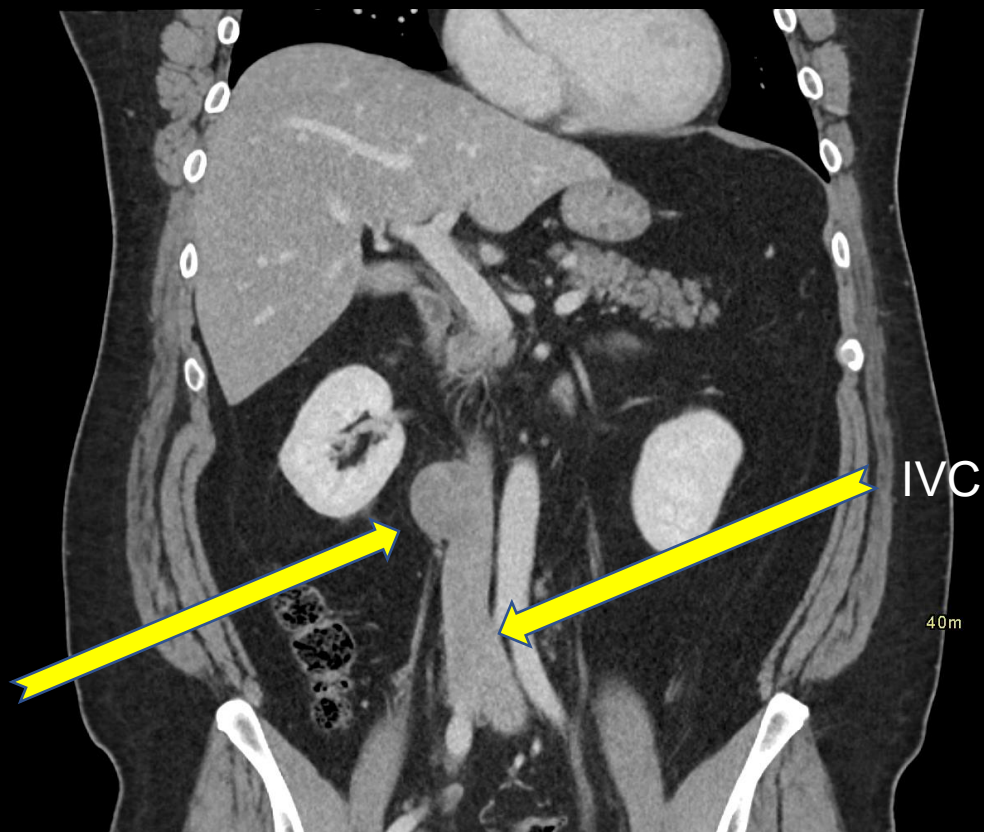
CT Abdomen w/ IV contrast  
Axial images

Heterogeneous  
mass in the  
retroperitoneum



CT w/ IV con  
Coronal

## Findings: (labeled)



Heterogeneous soft-tissue mass arising from the IVC adjacent to the descending duodenum

# Follow up Imaging+ Biopsy

- Upper GI Endoscopic Ultrasound
  - Hypoechoic, well-defined round 41mm mass adjacent to descending part of the duodenum
- Pathology
  - Positive for **malignant cells, spindle cell neoplasm**

Final Dx:

IVC Leiomyosarcoma

# Case Discussion

- Other DDx<sup>1,2,3,4</sup>:
  - GIST (gastrointestinal stromal tumor)<sup>1</sup>
    - On CT, usually showing exophytic, soft-tissue density with central areas of necrosis
      - *In this case, GIST was considered because it was difficult to determine where the mass was arising from on imaging alone. The mass was adjacent to the descending duodenum with an effaced fat plane between the IVC and the mass.*
    - Torricelli-Bernoulli sign: non-dependent air trapped in necrotic ulcer
  - GI sarcomas (e.g., undifferentiated pleomorphic sarcoma, angiosarcoma, liposarcoma)
    - On CT, may be more infiltrative, homogeneous, or show tissue-specific features, such as fat in liposarcoma
  - Tumor thrombus
    - On CT, presence of enhancement and expansion of vessel, more likely in the setting of malignancies (e.g., RCC, HCC)
  - GI leiomyoma
    - On CT, well-defined, homogeneous soft-tissue density
    - w/ or w/o calcifications
    - No necrosis

# Case Discussion

- Patient Course
  - Case was discussed at tumor board -> T1N0M0G2-3 Group II
  - Patient had resection of the R retroperitoneal mass with segment of the IVC reconstructed with graft. He also had an umbilical hernia repair.
    - Operative report: *4cm retroperitoneal mass intimately adherent to infrarenal IVC*
  - Received 6 cycles of chemotherapy
  - Subsequent CT had no evidence of active intra-abdominopelvic metastatic disease

# Case Discussion

- Epidemiology<sup>5,6,7</sup>
  - IVC is most common type of retroperitoneal leiomyosarcoma
  - $\frac{3}{4}$  cases occur in 40-60 year-old females
  - $\frac{1}{2}$  cases present with metastatic lesions to the liver and lung
- Pathophysiology<sup>7</sup>
  - Leiomyosarcomas arise from RB1 and PTEN tumor suppressor gene mutations of smooth muscle origin or mesenchymal cell precursors
  - Risk factors for soft tissue sarcomas include radiation exposure (at a young age) and Li-Fraumeni syndrome

# References:

1. Fortman B. Torricelli-Bernoulli Sign in an Ulcerating Gastric Leiomyosarcoma. *AJR Am J Roentgenol.* 1999;173(1):199-200. doi:10.2214/ajr.173.1.10397126
2. Alpert L, Al-Sabti R, Graham R et al. Smooth Muscle Tumors of the Gastrointestinal Tract: An Analysis of Prognostic Features in 407 Cases. *Mod Pathol.* 2020;33(7):1410-9. doi:10.1038/s41379-020-0492-5
3. Levy, A. D., Manning, M. A., Al-Refaie, W. B., & Miettinen, M. M. (2017). Soft-Tissue Sarcomas of the Abdomen and Pelvis: Radiologic-Pathologic Features, Part 1-Common Sarcomas: From the Radiologic Pathology Archives. *Radiographics : a review publication of the Radiological Society of North America, Inc*, 37(2), 462–483. <https://doi.org/10.1148/rg.2017160157>
4. Quencer, K. B., Friedman, T., Sheth, R., & Oklu, R. (2017). Tumor thrombus: incidence, imaging, prognosis and treatment. *Cardiovascular diagnosis and therapy*, 7(Suppl 3), S165–S177. <https://doi.org/10.21037/cdt.2017.09.16>
5. Bednarova I, Frellesen C, Roman A, Vogl T. Case 257: Leiomyosarcoma of the Inferior Vena Cava. *Radiology.* 2018;288(3):901-8. doi:10.1148/radiol.2018160821
6. Ganeshalingam S, Rajeswaran G, Jones R, Thway K, Moskovic E. Leiomyosarcomas of the Inferior Vena Cava: Diagnostic Features on Cross-Sectional Imaging. *Clin Radiol.* 2011;66(1):50-6. doi:10.1016/j.crad.2010.08.004
7. Menon G, Mangla A, Yadav U. Leiomyosarcoma. [Updated 2024 Feb 28]. In: StatPearls [Inter Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/boc>