AMSER Case of the Month September 2025

Abdominal Pain

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Patient Presentation

- 102 year old male with a history of smoking was brought from an outside hospital and was transferred to Loma Linda University Medical Center for concerns of abdominal pain
- CBC and CMP were within normal limits
- Patient had stable vitals
- Physical exam showed mild periumbilical abdominal tenderness with a pulsatile abdominal mass

What Imaging Should We Order?

ACR Appropriateness Criteria

American College of Radiology
ACR Appropriateness Criteria®
Thoracoabdominal Aortic Aneurysm or Dissection: Treatment Planning and Follow-Up

Variant 1: **Follow-up of known thoracoabdominal aortic aneurysm or dissection without repair. Without or with new symptoms.**

Procedure	Appropriateness Category	Relative Radiation Level
MRA chest abdomen pelvis without and with IV contrast	Usually Appropriate	O
MRA chest abdomen pelvis without IV contrast	Usually Appropriate	O
CTA chest abdomen pelvis with IV contrast	Usually Appropriate	☢☢☢☢☢
MRA chest and abdomen without and with IV contrast	May Be Appropriate	O
MRA chest and abdomen without IV contrast	May Be Appropriate	O
CT chest abdomen pelvis with IV contrast	May Be Appropriate	☢☢☢☢
CT chest abdomen pelvis without and with IV contrast	May Be Appropriate	☢☢☢☢
CT chest abdomen pelvis without IV contrast	May Be Appropriate	☢☢☢☢
CT chest and abdomen with IV contrast	May Be Appropriate	☢☢☢☢
CT chest and abdomen without and with IV contrast	May Be Appropriate	☢☢☢☢
CTA chest and abdomen with IV contrast	May Be Appropriate	☢☢☢☢
US duplex Doppler aorta abdomen	Usually Not Appropriate	O
US echocardiography transthoracic resting	Usually Not Appropriate	O
Radiography chest	Usually Not Appropriate	☢
Radiography chest abdomen pelvis	Usually Not Appropriate	☢☢☢
Aortography chest abdomen pelvis	Usually Not Appropriate	☢☢☢☢
CT chest and abdomen without IV contrast	Usually Not Appropriate	☢☢☢☢

This imaging modality was ordered by the ER physician

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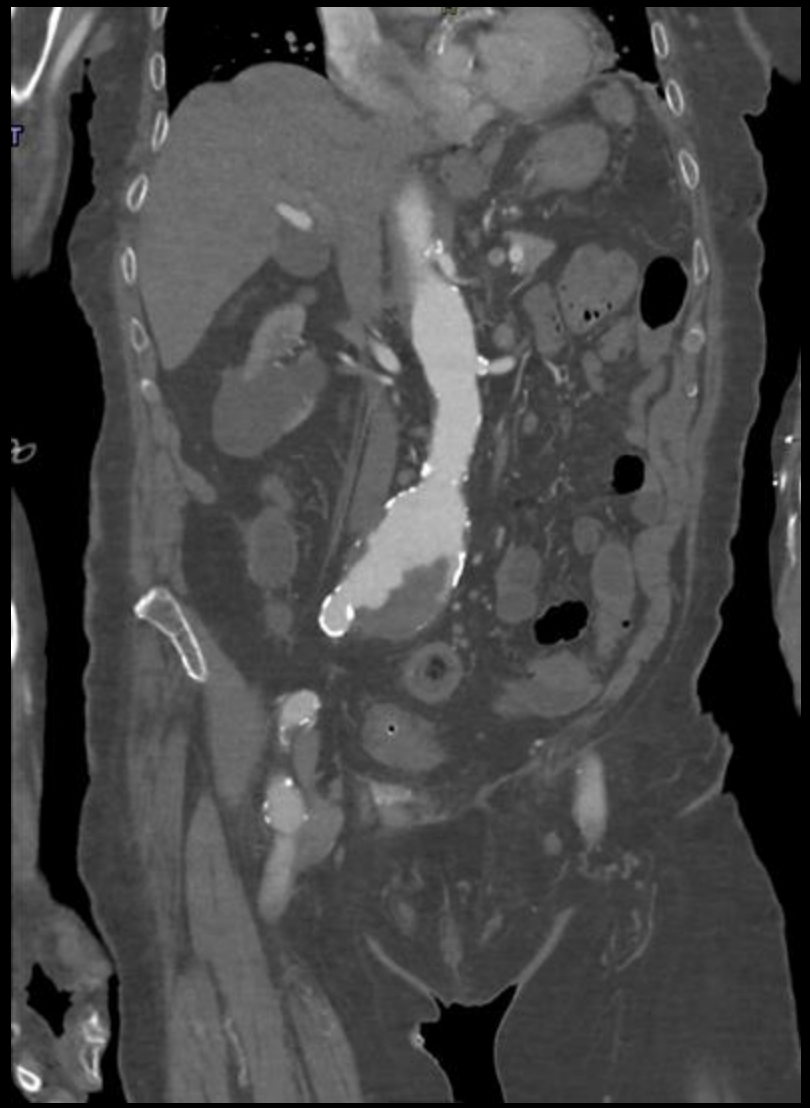
Findings (unlabeled)



CTA with IV contrast

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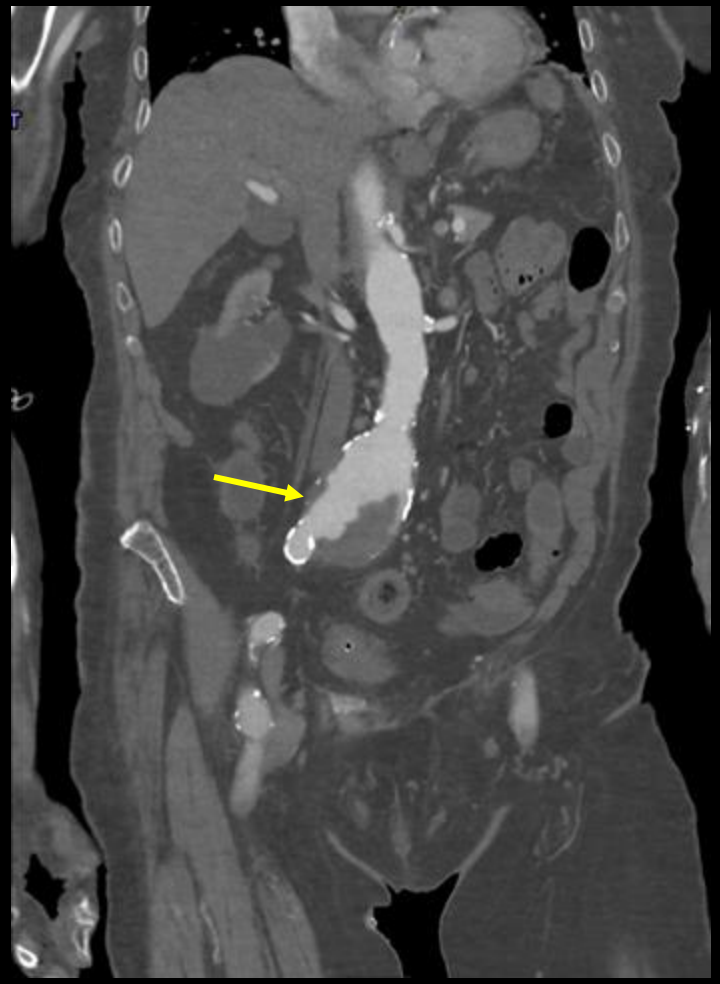
Findings (labeled)



- Aneurysmal enlargement of the abdominal aorta
- Irregular outpouching along the anterior aspect of the aneurysm
- Nonocclusive mural thrombus is seen within the aneurysm

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Final Dx:

Abdominal Aortic Aneurysm

Case Discussion

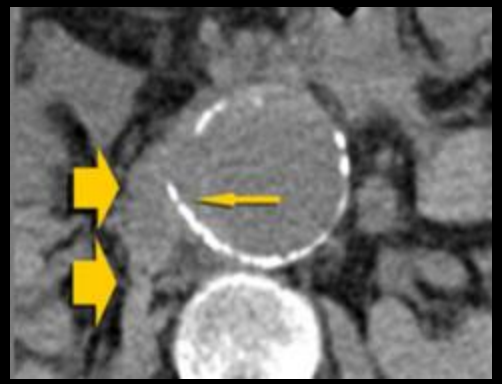
- Definition: Abdominal aortic aneurysm (AAA) is a localized dilation of all three layers of the abdominal aortic wall to ≥ 3 cm[1]
- Risk factors: Smoking, male sex, older age, family history of AAA, history of aortic aneurysm, hypertension, hyperlipidemia, genetics[2]
- Clinical Features:
  - Patients with AAA are most commonly asymptomatic
  - Patients may be symptomatic with rupture:
    - Abdominal, back or flank pain with syncope or shock
    - Presence of a pulsatile abdominal mass[3]

Case Discussion

- Imaging Findings
  - **Abdominal ultrasound -** screening in asymptomatic patients
  - **CT angiography abdomen and pelvis -** symptomatic patients and preop planning

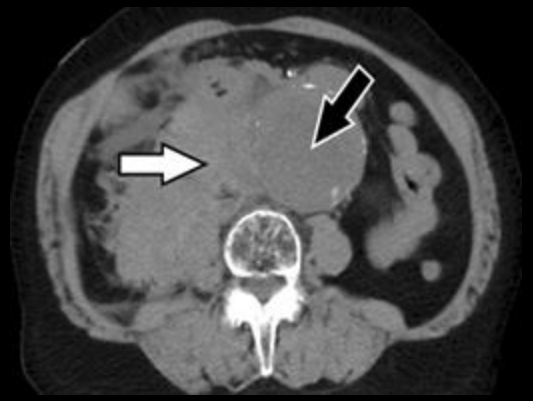
Signs of impending rupture or contained leakage:

High attenuation crescent sign[4]

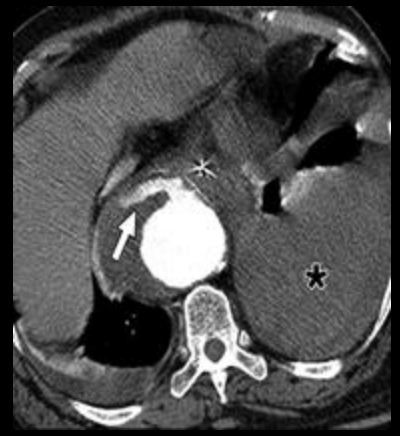


Tangential calcium sign[5]

Signs of rupture:



Retroperitoneal hematoma[6]



Contrast extravasation[7]

Case Discussion

- Management:
  - **Immediate surgical repair** is indicated for ruptured or symptomatic AAA
  - **Elective repair** is indicated for
    - Maximal aneurysm diameter is ≥ 5.5 cm in men or ≥ 5 cm in women
    - When there are symptoms attributable to the aneurysm
    - Rapid aneurysm growth defined as an increase of ≥ 0.5 cm in 6 months
  - Repair options are **open surgical repair** or **endovascular aneurysm repair**[8,9]
- Our patient:
  - Underwent endovascular aneurysm repair and was discharged in stable condition

References:

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5. Heiken J. Aortic aneurysm rupture. The Radiology Assistant : Aortic Aneurysm Rupture. Accessed June 26, 2025. ttps://radiologyassistant.nl/abdomen/aorta/aneurysm-rupture.

6. Diaz O, Eilbert W. Ruptured abdominal aortic aneurysm identified on point-of-care ultrasound in the emergency department. Int J Emerg Med. 2020;13(1):25. Published 2020 May 14. doi:10.1186/s12245-020-00279-9

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8. Writing Committee Members, Isselbacher EM, Preventza O, et al. 2022 ACC/AHA Guideline for the Diagnosis and Management of Aortic Disease: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines. J Am Coll Cardiol. 2022;80(24):e223-e393. doi:10.1016/j.jacc.2022.08.004

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