# AMSER Case of the Month August 2025

## 74-year-old with acute abdominal pain after aortic balloon valvuloplasty

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# Patient Presentation

- 74 yo M with PMH of severe non-rheumatic aortic stenosis ( dx 4/2023), severe pulmonary HTN, rheumatoid arthritis, emphysema, abdominal aortic aneurysm, for routine balloon valvuloplasty of the aortic valve.
- During procedure patient sustained complete heart block and required TVP placement.
- Patient progressed into respiratory distress, suspected secondary to pulmonary edema. Responded well to Lasix 40 mg IV and did not require initiation of BiPAP. Patient was admitted to CCU
- Several hours later that night patient had significant abdominal pain and vomiting. Bedside exam reveals significant abdominal tenderness.

Initial Vital Signs

BP 108/68
HR 86
RR 22
T 97.9 F
SPO2 97% RA

# Pertinent Labs

- Initial Labs (5/13):
  - Lactic Acid: 0.9
  - BUN: 17
  - Cr: 1.08
  - ECG NSR with ventricular rate 92
- Subsequent Labs (5/14):
  - LDH: 739
  - High sensitivity troponin: 298
  - Lactic Acid: 3.0

# What Imaging Should We Order?

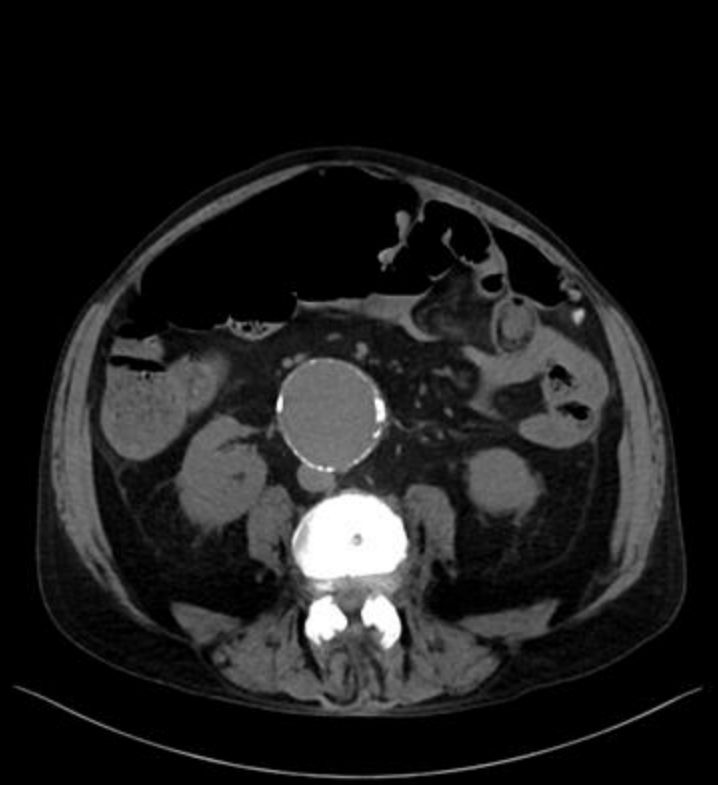
# Select the applicable ACR Appropriateness Criteria

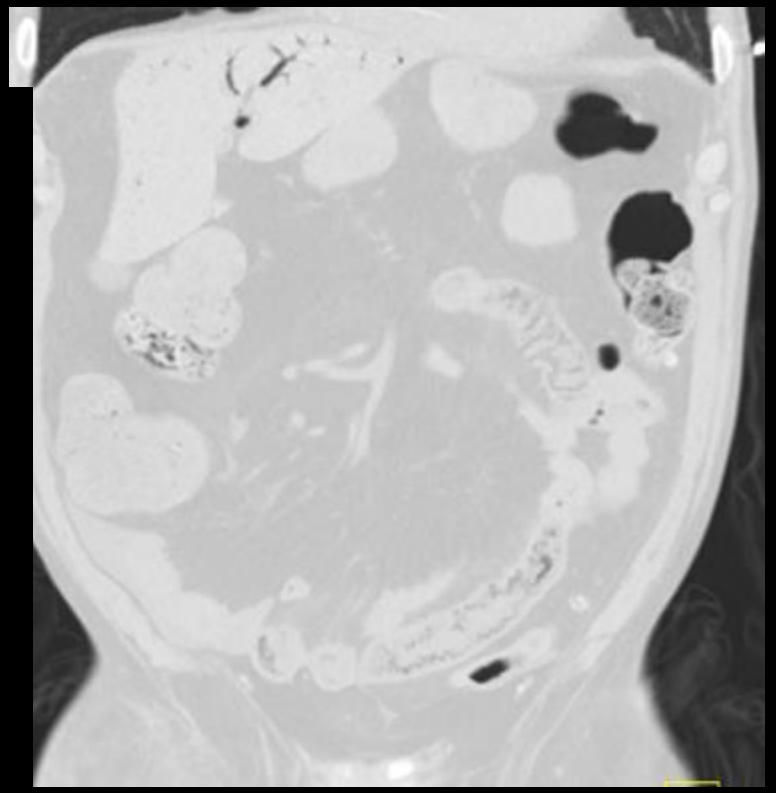
**Variant 1:** **Suspected acute mesenteric ischemia. Initial imaging.**

| 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) | O |
| Radiography abdomen | May Be Appropriate | ☢☢ |
| US duplex Doppler abdomen | May Be Appropriate | O |
| 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 | O |

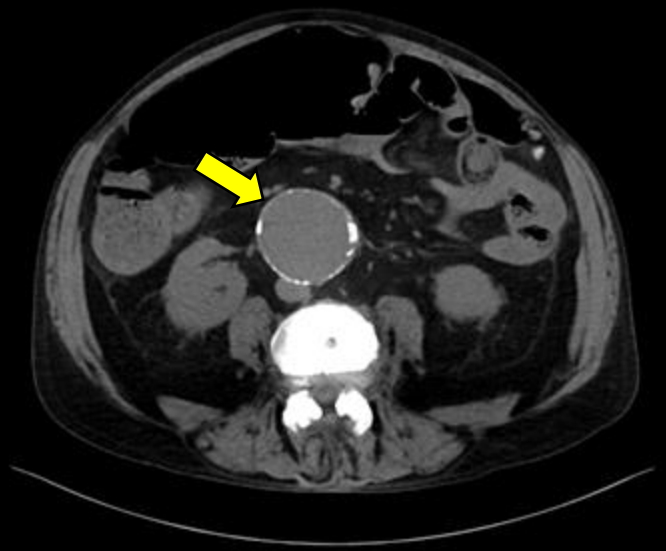
This imaging modality was ordered by the CCU physician

# Findings (unlabeled)

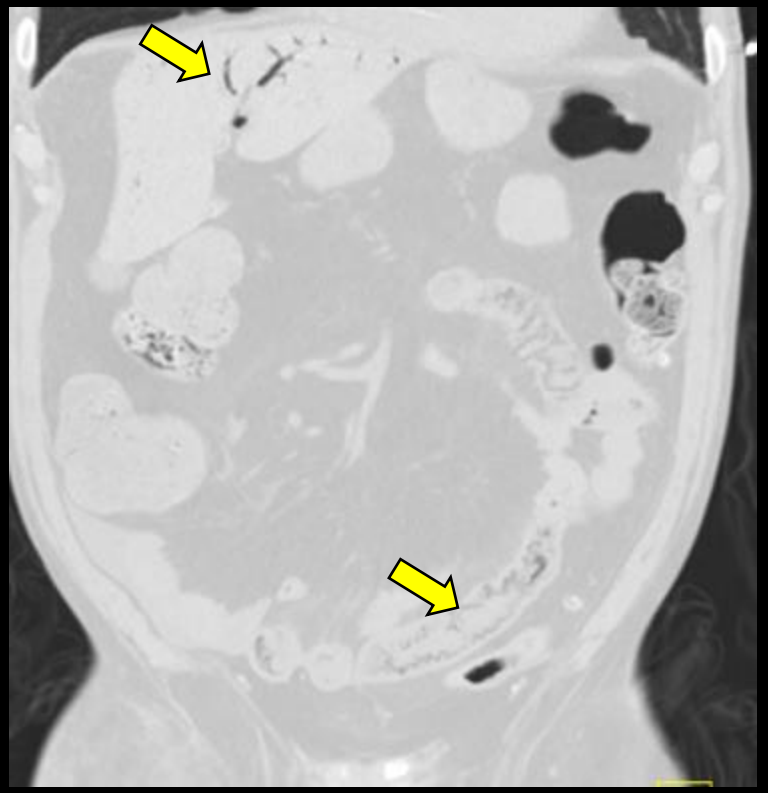




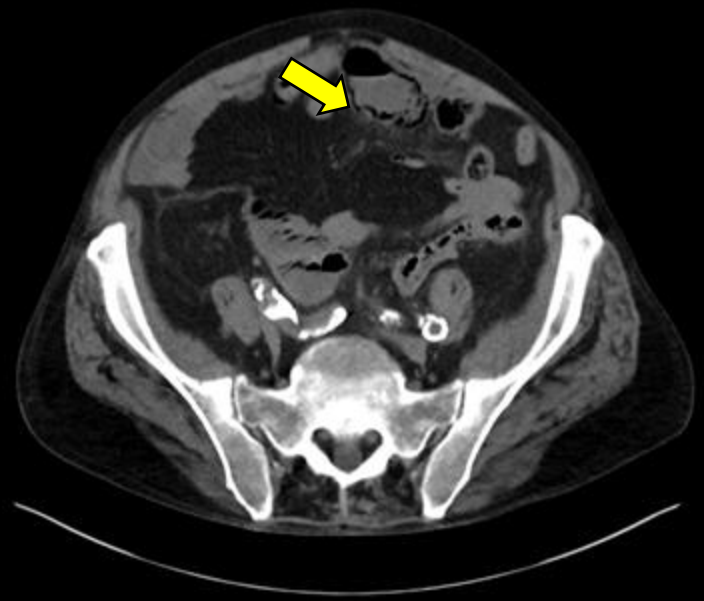
# Findings (labeled)



CT of abdomen without contrast. Arrows indicating aortic aneurysm.



Coronal view of CT abdomen arrows indicating portal venous gas in the liver reaching periphery, and pneumatosis of small bowel.



Arrows indicate linear and bubbly lucencies within the wall of small bowel loops.

# Final Dx:

Long segment pneumatosis involving small bowel loops and extensive portal venous gas concerning for bowel ischemia

# Case Discussion

- Etiology: sudden onset of small intestinal hypoperfusion due to occlusive or nonocclusive obstruction of arterial blood supply or venous outflow obstruction.
- Nonocclusive mesenteric ischemia is a result of low-flow state most commonly vasoconstriction from low cardiac output or vasopressors.
- The low flow state induces a state of diffuse mesenteric ischemia of the small bowel
- Nonocclusive mesenteric ischemia accounts for 20% of all cases of acute mesenteric ischemia
- Presentation: abdominal pain is the most common presenting symptom. It is commonly described as “abdominal pain our of proportion to the physical examination”

# Case Discussion

- The presence of portal venous gas and pneumatosis intestinalis correlates with bowel wall ischemia in 70% of cases.
- Arterial lactate is associated with late-stage ischemia due to transmural infarction, tissue hypoperfusion, and cell death.
- Surgery should not be delayed in patients suspected on intestinal infarction or perforation based on clinical exam and radiologic findings. Patients with nonocclusive mesenteric ischemia should undergo surgical treatment if presenting with peritoneal signs.

# References:


1. Tendler A,  Thomas L. (2024). *Overview of intestinal ischemia in adults*. UpToDate. Retrieved May 14, 2025, from https://www.uptodate.com/contents/overview-of-intestinal-ischemia-in-adults
2. Im, J., & Anjum, F. (2023, April 27). *Pneumatosis Intestinalis*. StatPearls - NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK564381/
3. Lendzion RJ, Frahm-Jensen G, Keck J. Acute Mesenteric Ischemia. Clin Colon Rectal Surg. 2022 Aug 12;35(3):227-236. doi: 10.1055/s-0042-1743283. PMID: 35966379; PMCID: PMC9374525.
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