

A pictorial review of abdominal CT signs of impending doom

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Disclosure : None



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Learning objectives:

To look for subtle signs in abdomen CT of a patient with systemic hypotension that can help arrive at a correct diagnosis for prompt and appropriate management.

To highlight and describe various abdominal CT signs encountered in the acutely ill that portend an impending catastrophic event.

To make a check list of findings that should not be ignored or missed in emergency radiology setting.

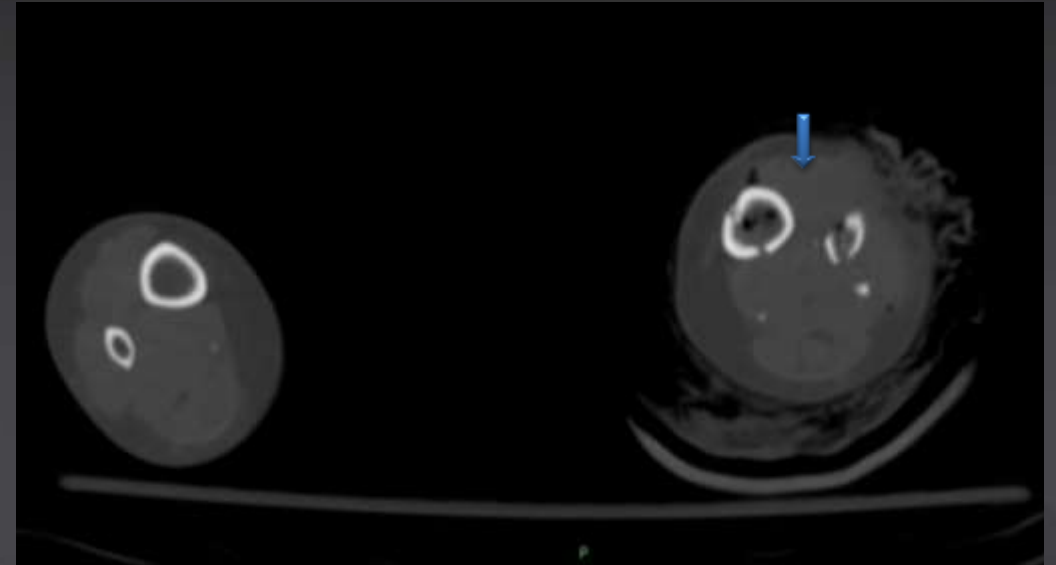
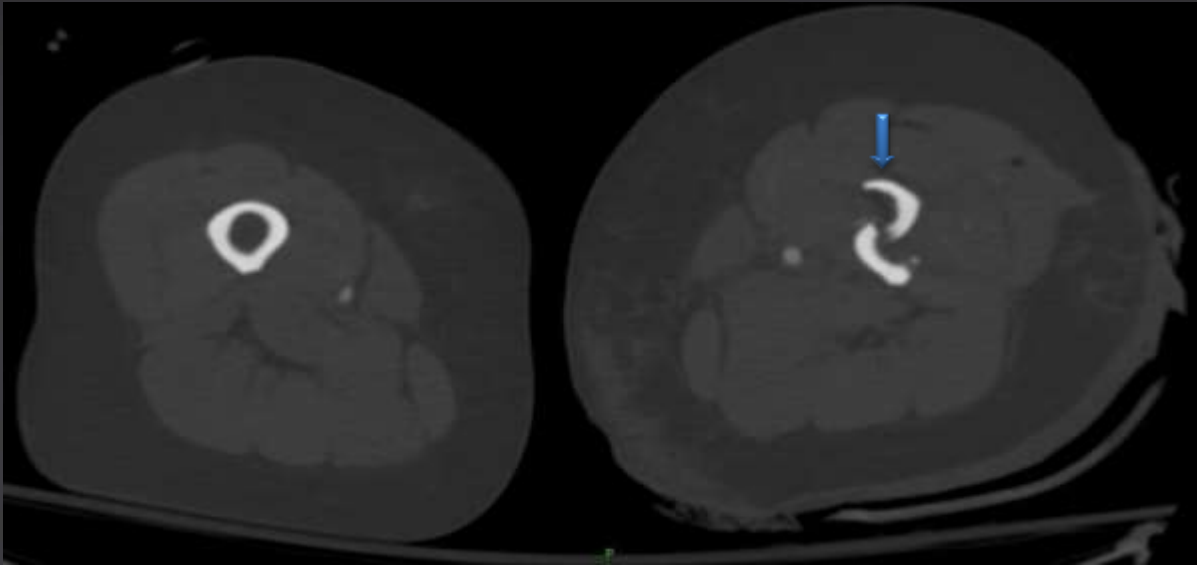


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CT signs of Systemic hypotension / shock



42 years, Male



History of motor vehicle collision



Resultant - left femoral, tibial and fibula fractures.

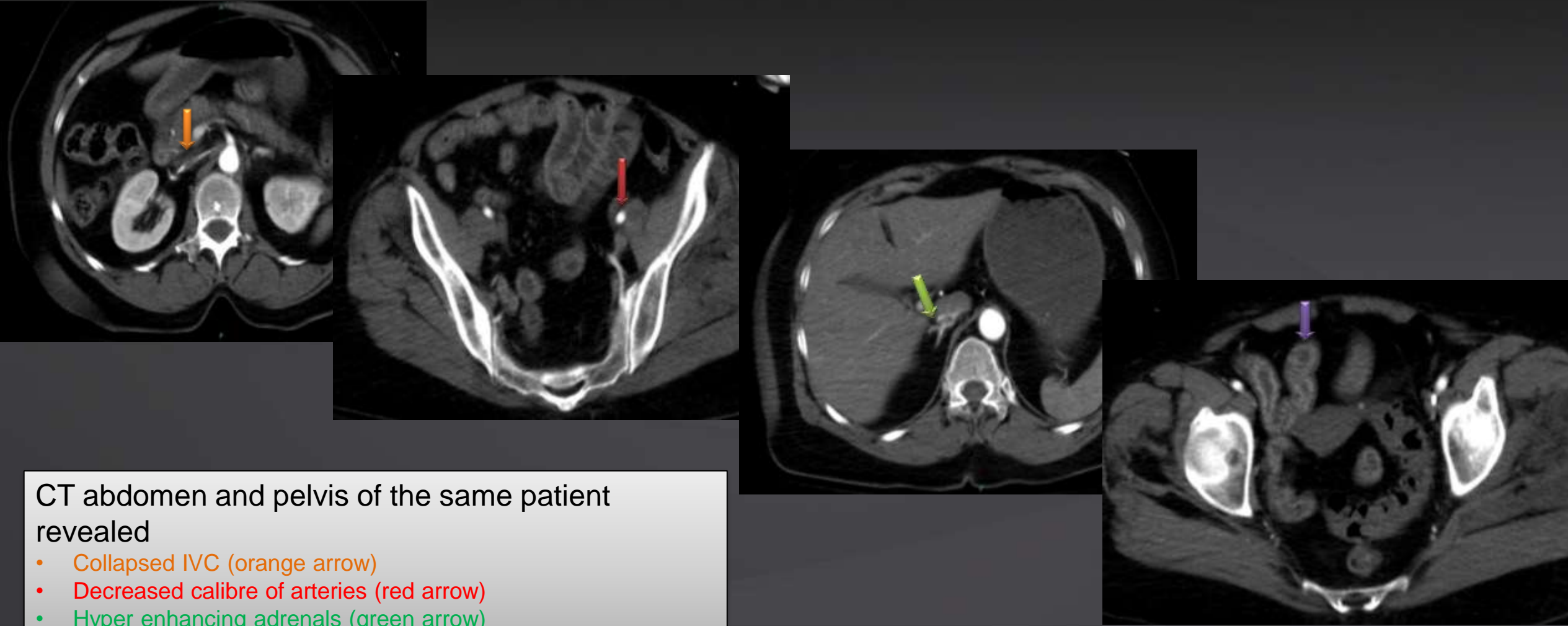


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CT signs of Systemic hypotension/ shock



CT abdomen and pelvis of the same patient revealed

- Collapsed IVC (orange arrow)
- Decreased calibre of arteries (red arrow)
- Hyper enhancing adrenals (green arrow)
- Thickened small bowel (purple arrow)

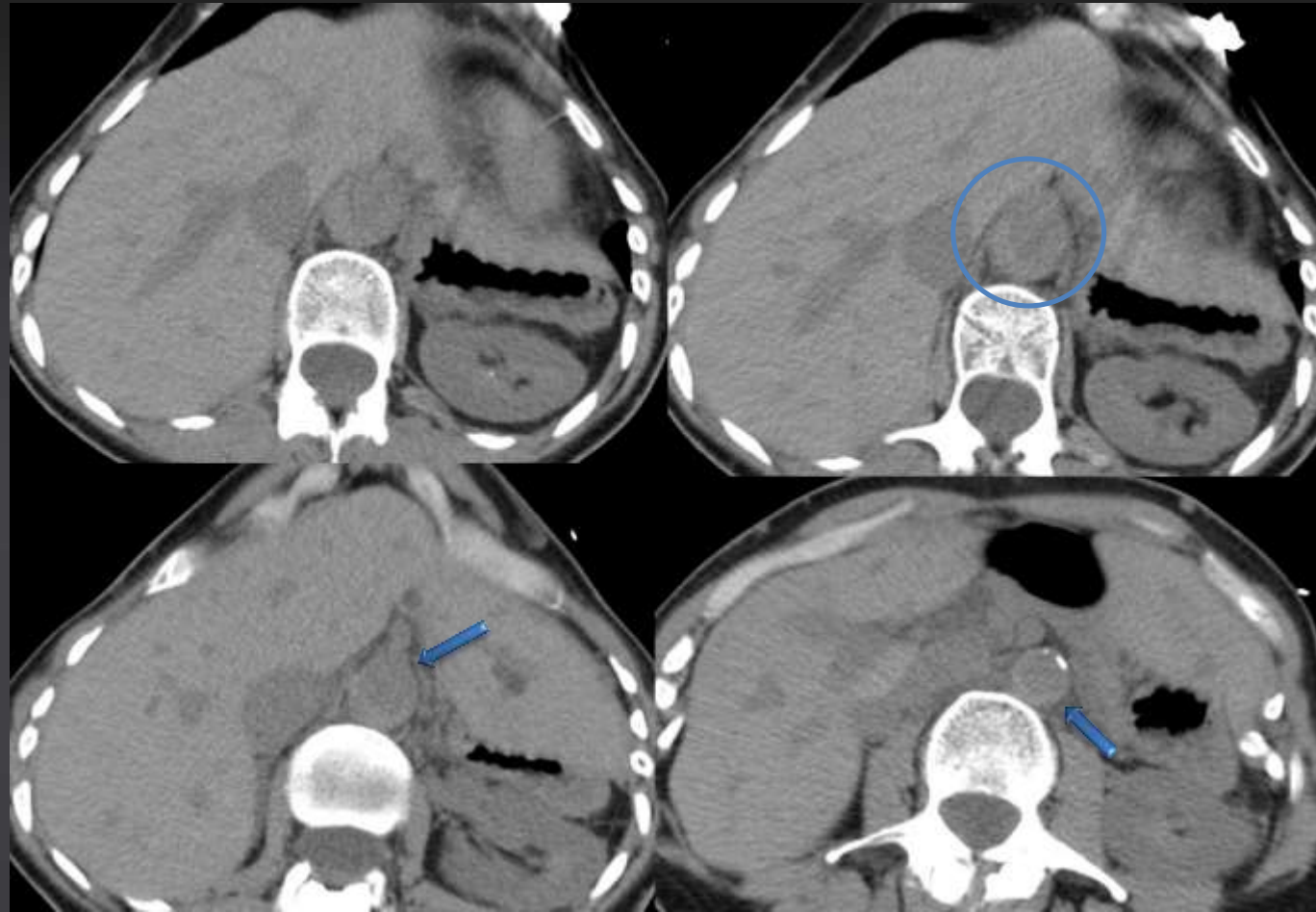


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CT Signs of impending abdominal aortic aneurysm rupture



High attenuating crescent sign, suggesting intramural hematoma with contained leak / rupture

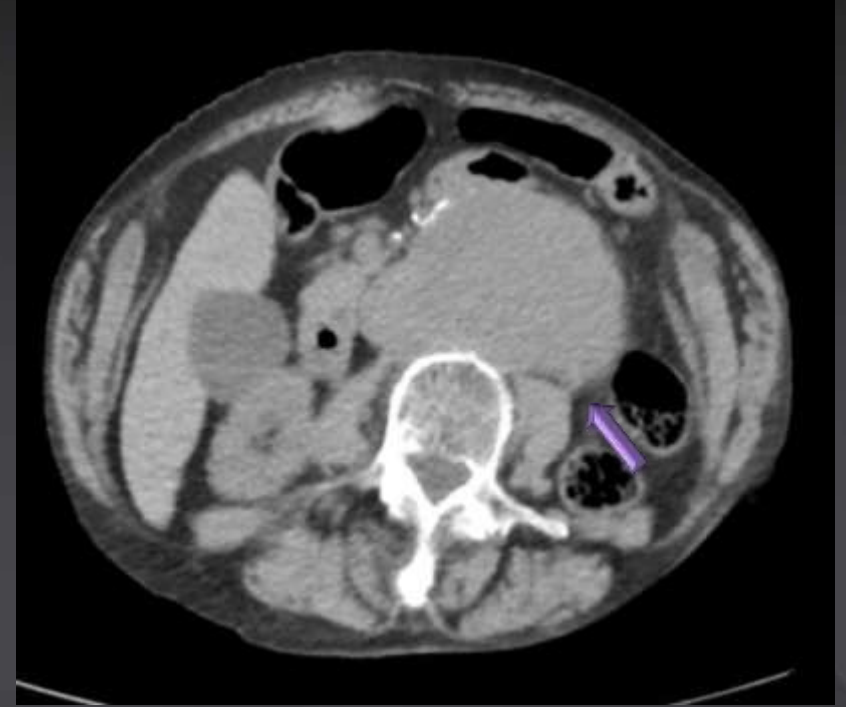
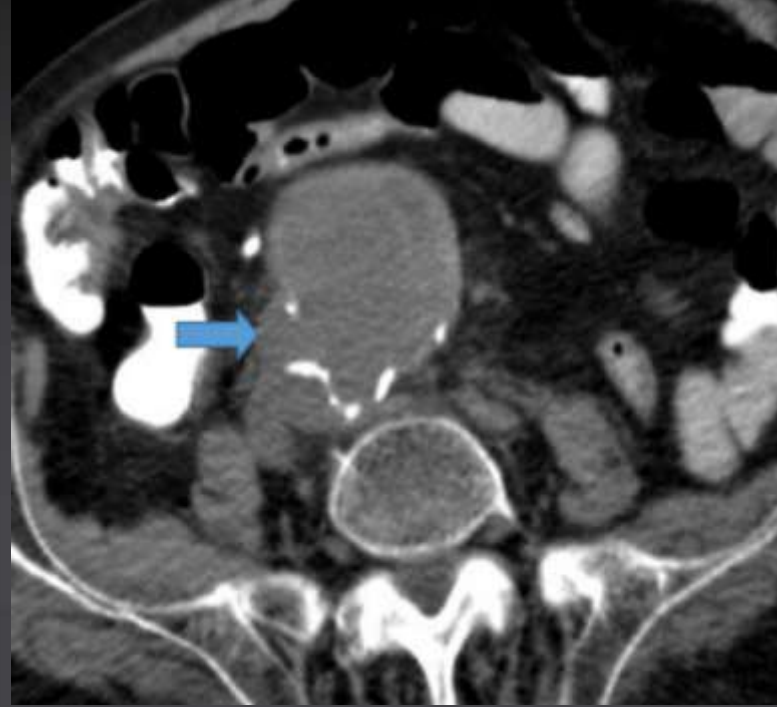
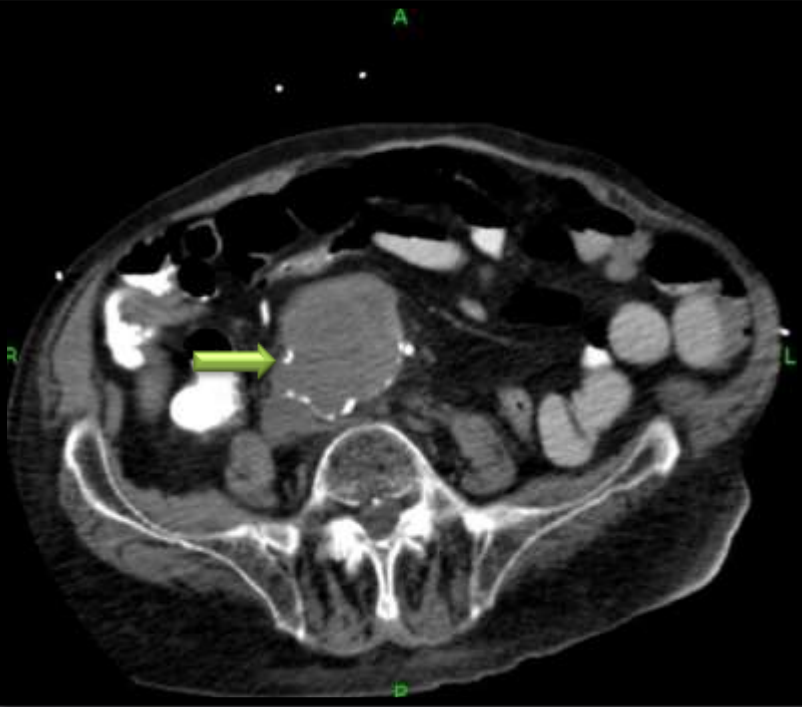


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CT Signs of impending abdominal aortic aneurysm rupture



- Focal Discontinuity of intimal calcification (green arrow)
- Tangential Calcium sign (blue arrow)
- Draped aorta sign (purple arrow)

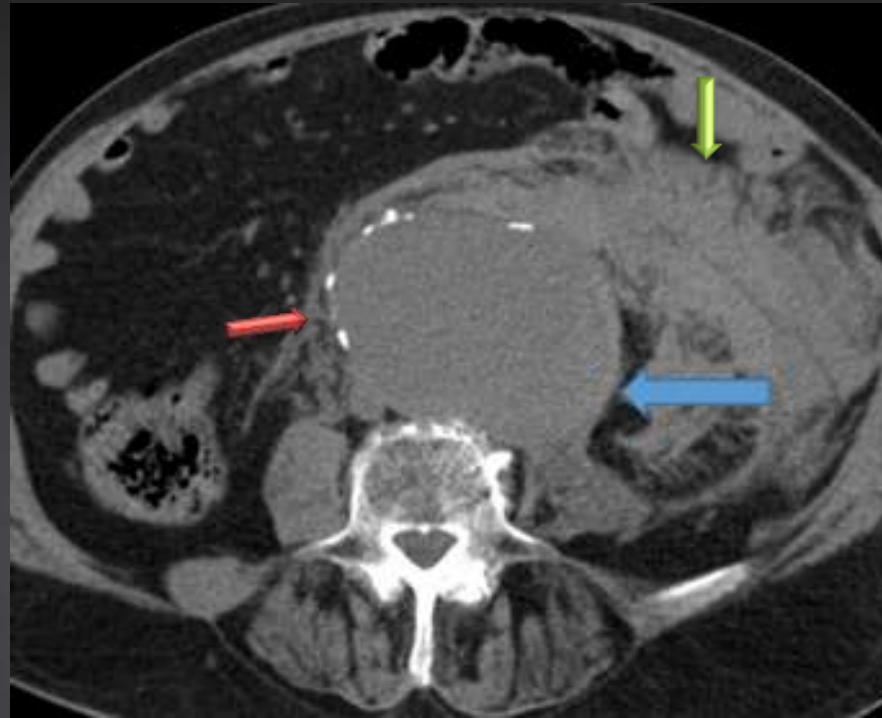


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CT Signs of ruptured abdominal aortic aneurysm (Non contrast)



- High attenuating crescent sign (blue arrow)
- Periaortic fat stranding (red arrow)
- Large retroperitoneal hematoma (blue arrow)

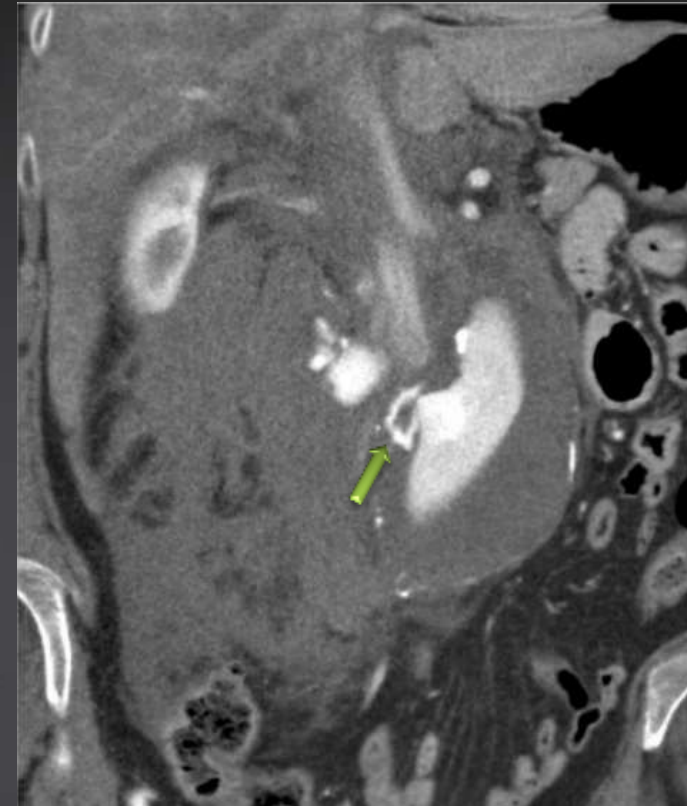
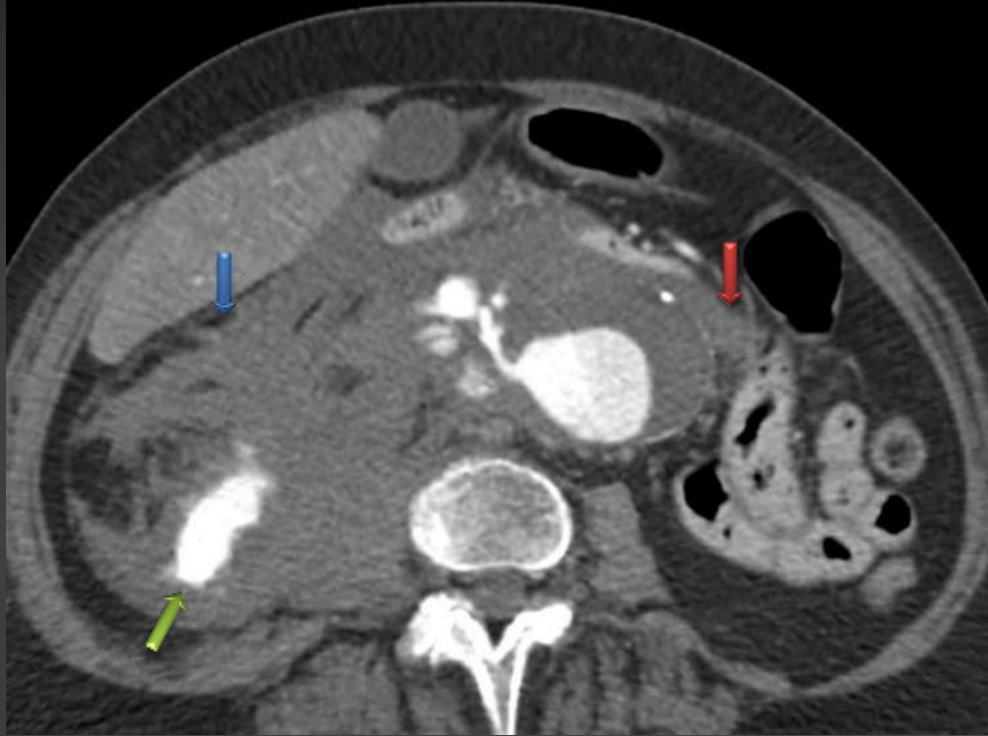


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CT Signs of ruptured abdominal aortic aneurysm (with contrast)



- Periaortic fat stranding (red arrow)
- Large retroperitoneal hematoma (blue arrow)
- Active contrast extravasation (green arrow)

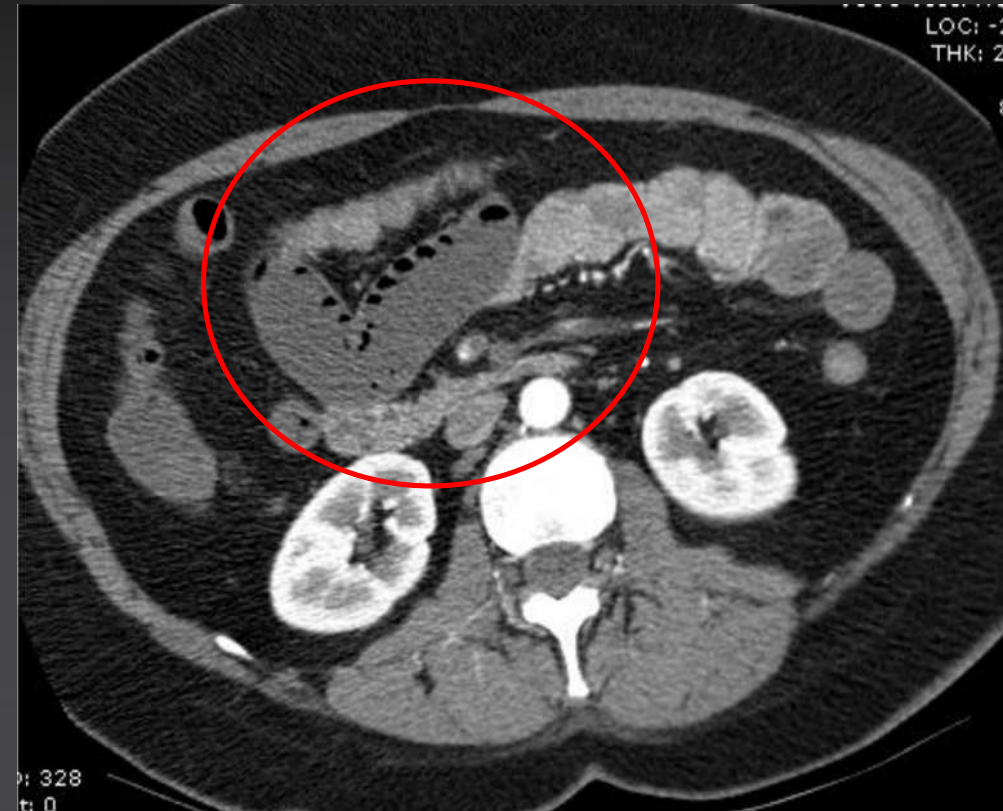


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CT Signs of bowel ischemia due to SMA thrombosis

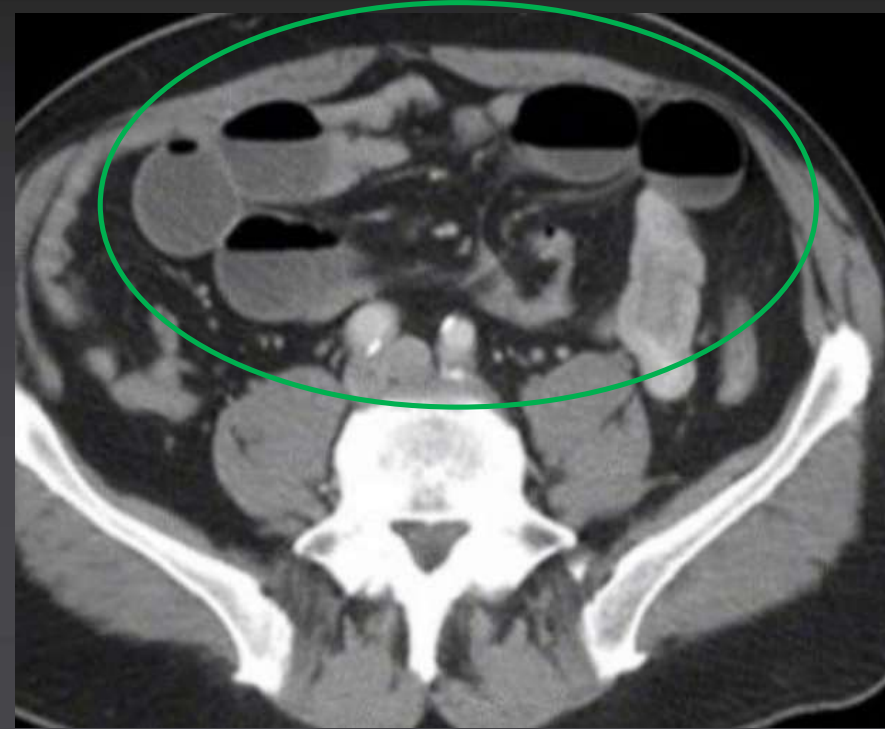


- SMA thrombosis (purple arrow)
- Bowel dilatation and abnormal wall enhancement corresponding to a vascular distribution with abrupt interface between normal and affected bowel (red circle)



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CT signs of closed loop small bowel obstruction (A)



- Radial array of dilated and fluid filled small bowel loops (red circle)
- Mesenteric vessels converging onto a central point (purple arrow)
- Small bowel obstruction (green circle)

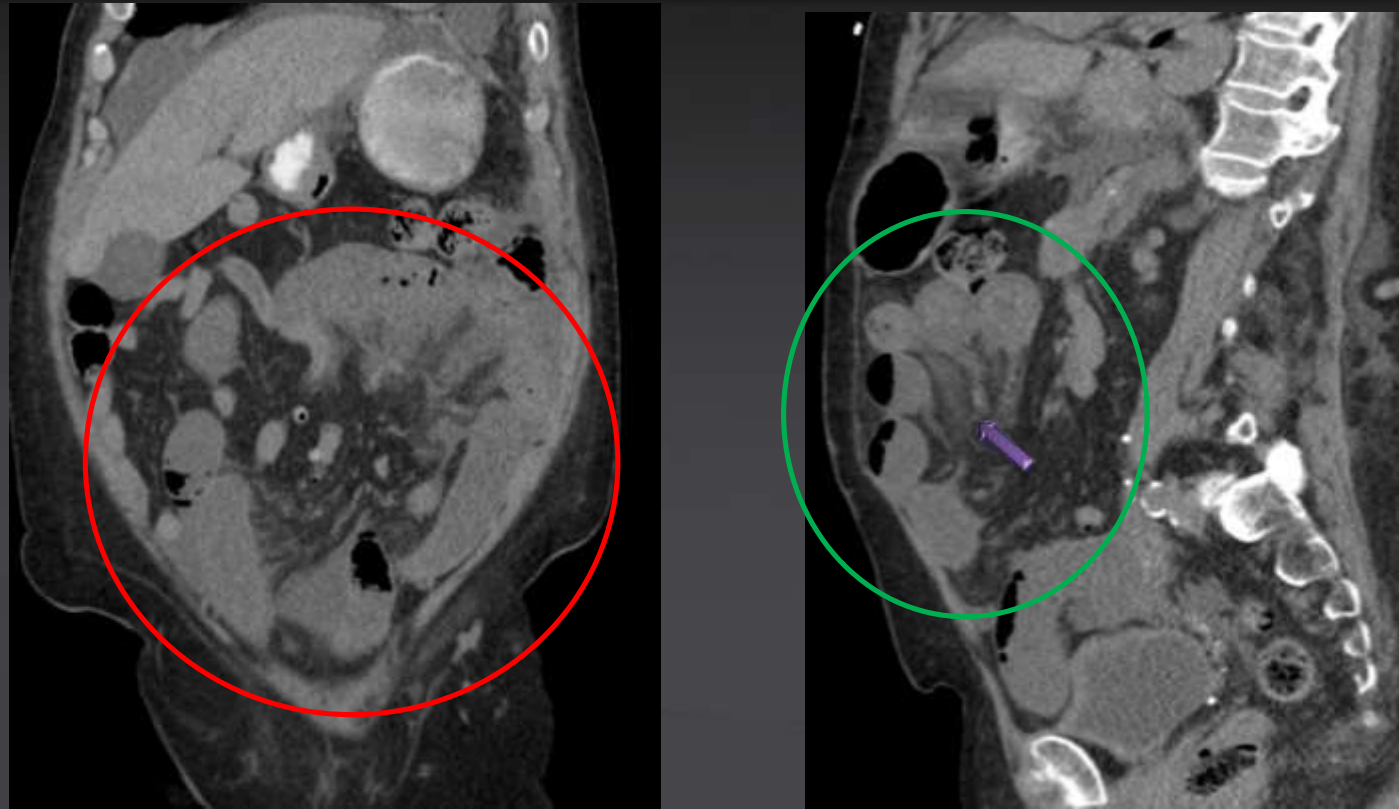


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CT signs of closed loop small bowel obstruction (B)



- Radial array of dilated and fluid filled small bowel loops (red circle)
- Mesenteric vessels converging onto a central point with diffuse mesenteric edema and congestion (purple arrow)
- Small bowel obstruction (green circle)



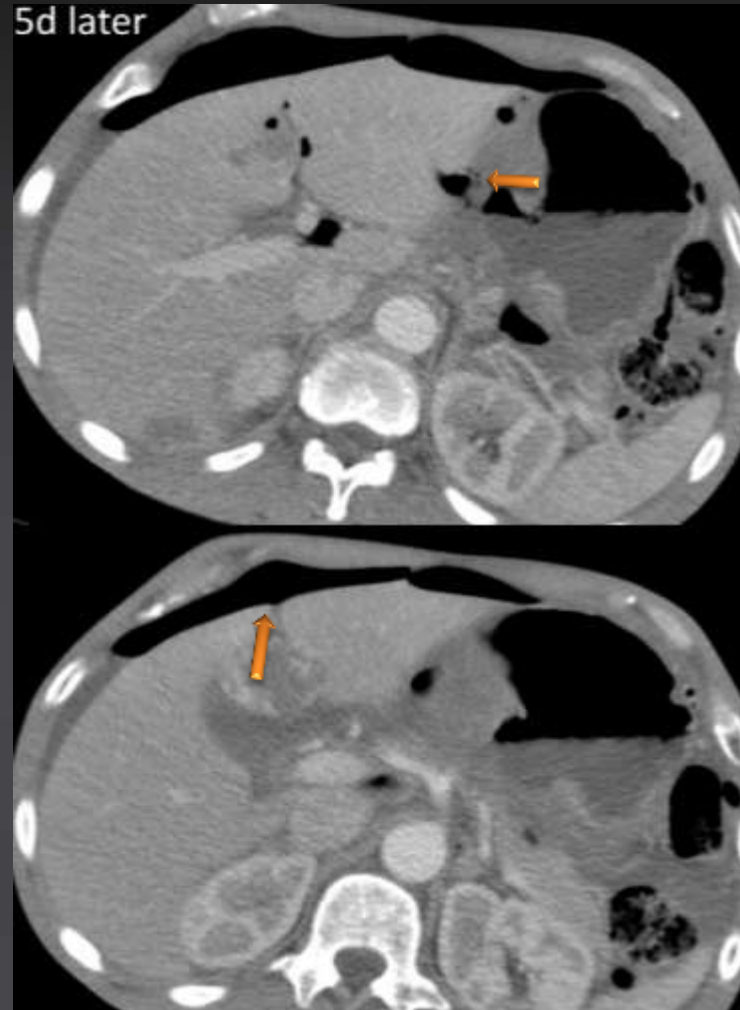
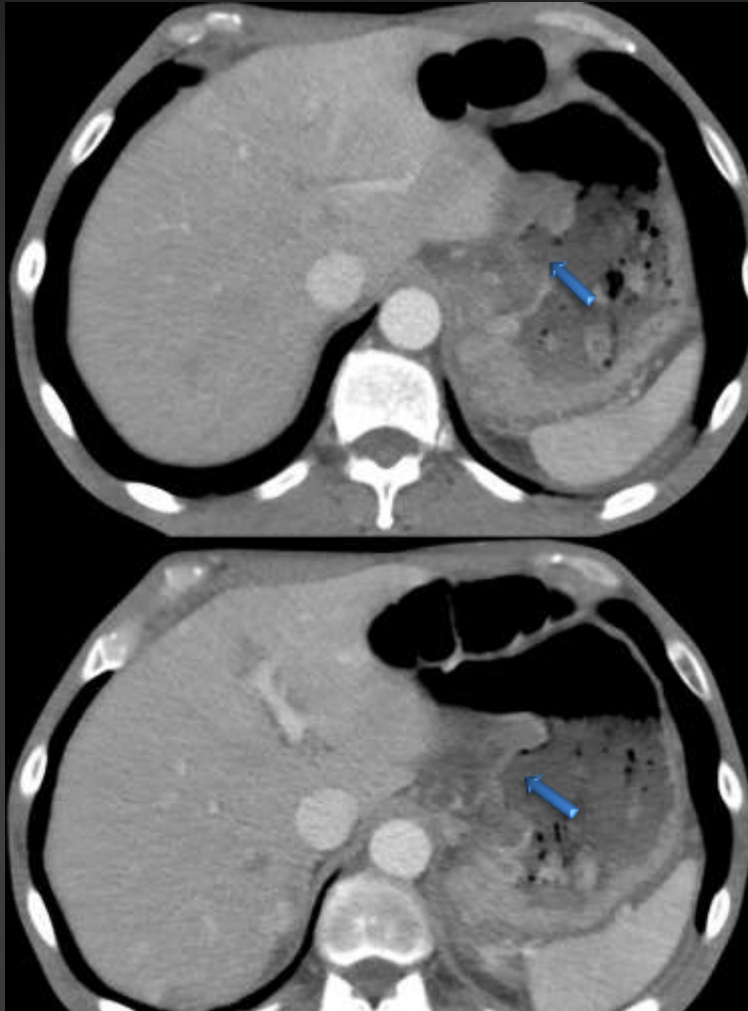
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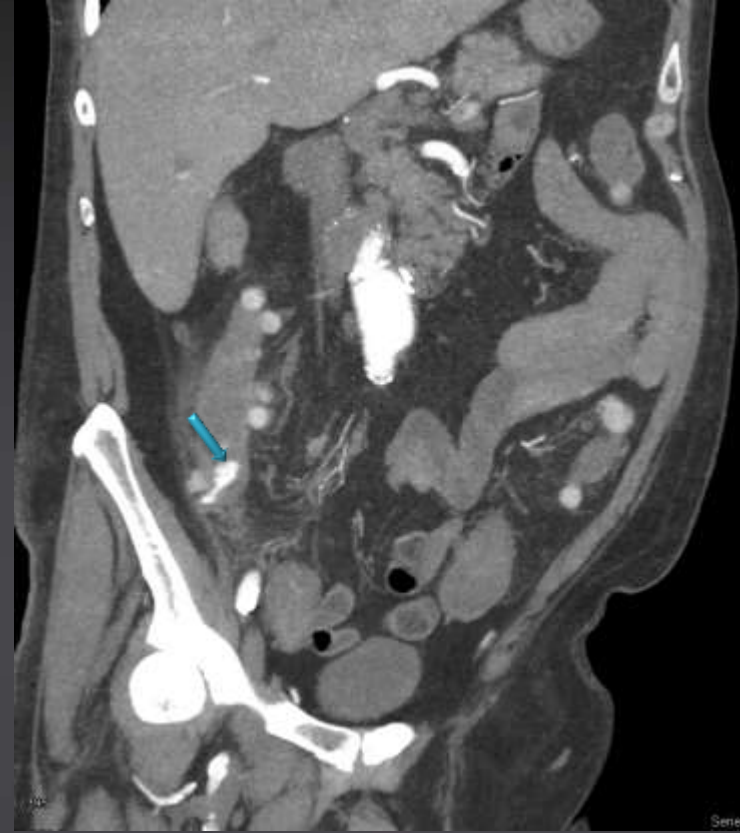
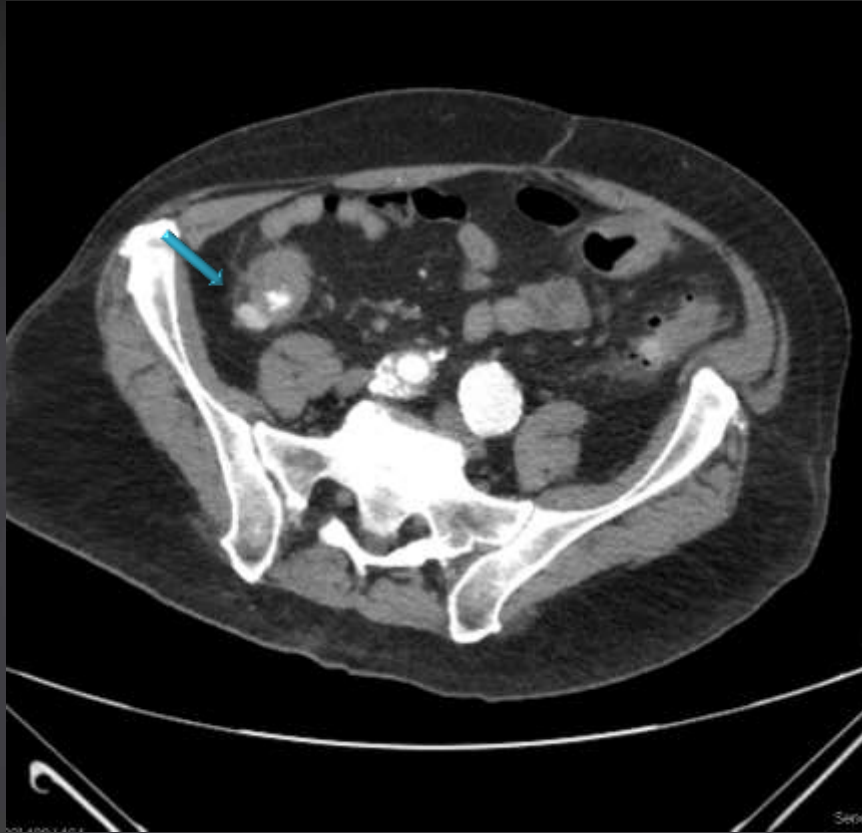
CT Signs of impending gastric perforation

Irregular mucosal wall thickening and enhancement with deep penetrating ulcers extending up to the level of serosa with adjacent fat stranding.



Follow up in 5 days' demonstrates pneumoperitoneum due to gastric ulcer perforation.

CT Signs of gastrointestinal hemorrhage



Acute gastrointestinal hemorrhage seen as a streak of active contrast extravasation within the bowel as indicated on CT angiogram evaluation (blue arrow)

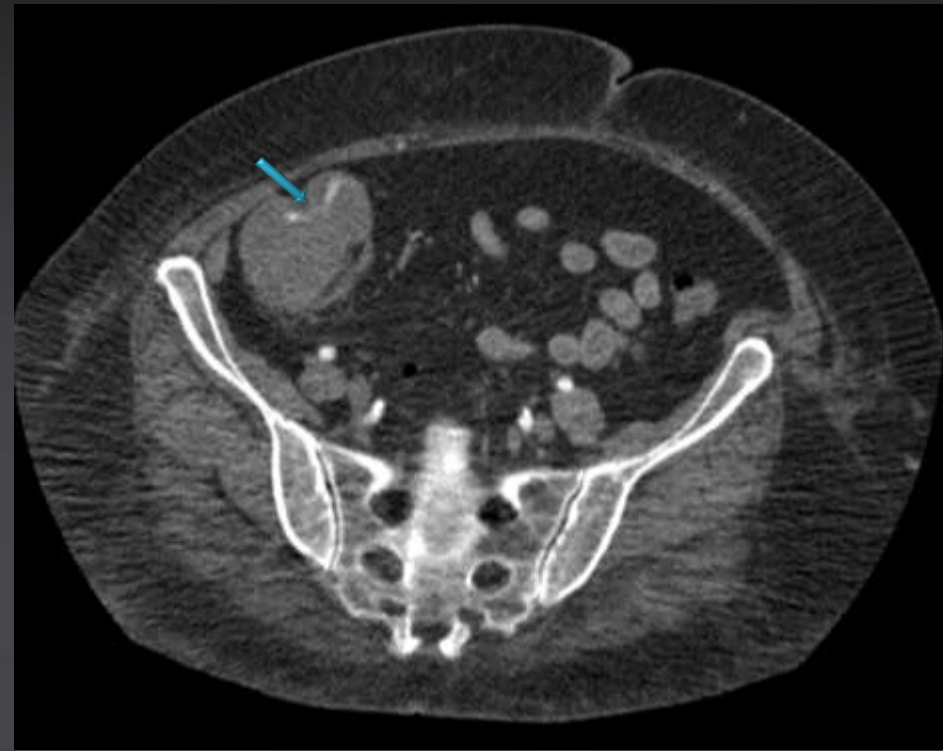
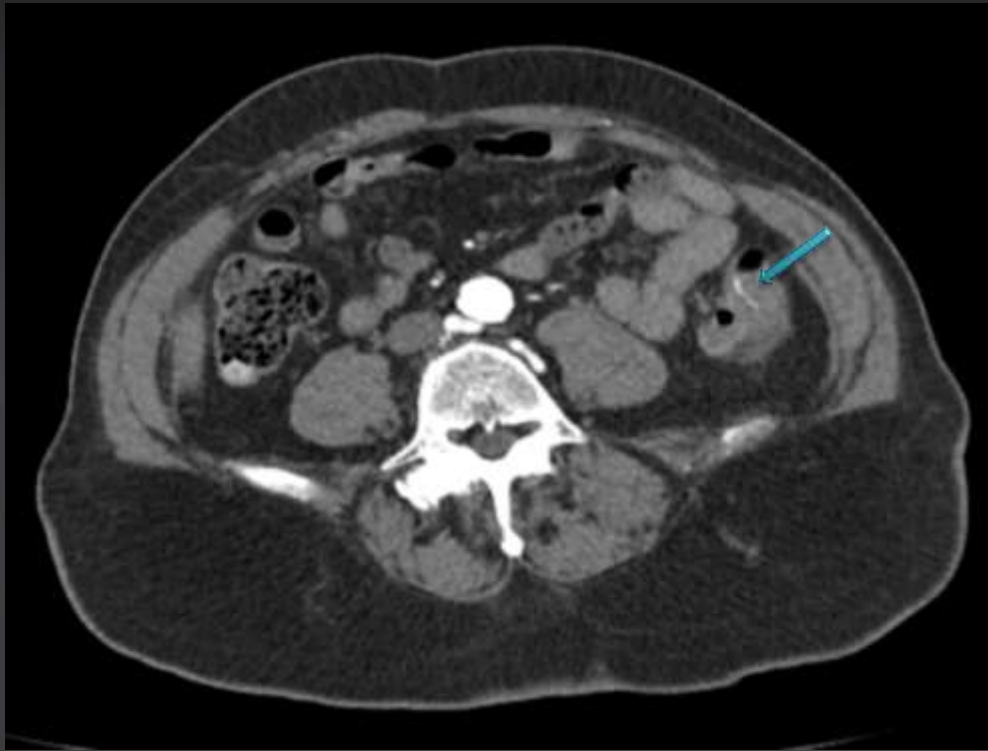


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CT Signs of gastrointestinal hemorrhage



Acute gastrointestinal hemorrhage seen as a streak of active contrast extravasation within the bowel as indicated on CT angiogram evaluation (blue arrow)

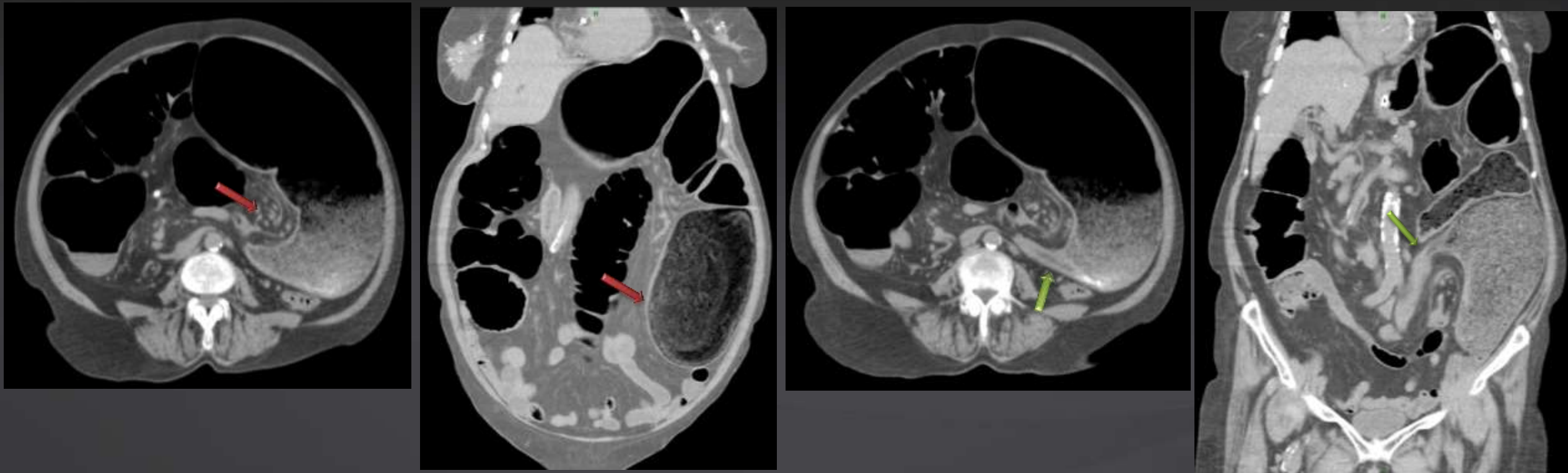


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CT Signs of sigmoid volvulus



- Markedly dilated loop of sigmoid colon with whirl sign of the sigmoid mesentery
- Bird beak sign representing gradual tapering of colon up to the level of obstruction



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CT Signs of right paratubal cyst with torsion



- Smooth margined right adnexal lesion, abnormally located in the midline pelvis
- Ipsilateral deviation of the uterus
- Twisted adnexa with tubal thickening

Timely intervention saved the ovary.



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Conclusion:

This pictorial review provides a useful guide to radiologists in quickly recognizing the various signs on abdominal CT which warrant immediate attention of the emergency and critical care teams to ensure adequate preparedness for an imminent catastrophe.

Awareness of the salient signs of shock on CT and the subtle findings in other conditions that should not be ignored or missed in the acutely ill is necessary to avert permanent loss of organ or life.



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