

A large, bold, purple letter 'W' is centered on the left side of the slide. The background is split diagonally from the top-left to the bottom-right, with a white upper-left section and a purple lower-right section. A thin, light purple curved line separates the two sections, following the diagonal split.

The following training module was developed as a quality improvement project to serve as an educational tool for junior radiology residents. The following diagnostic radiology protocoling modules were developed by University of Washington radiology residents Patricia Ojeda and Mariam Shehata.

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Gastrointestinal

Common Clinical Scenarios

Protocols Module

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Outline

Gastrointestinal Protocols to be Covered:

- Abdomen and Pelvis with IV Contrast
- Abdomen and Pelvis with IV and Oral Contrast
- Pancreatitis Protocol
- Mesenteric Ischemia
- Gastrointestinal Hemorrhage



Clinical Scenario

Elderly patient presents with severe abdominal pain in the left lower quadrant

CT Abdomen and Pelvis with IV Contrast

- Iodinated IV contrast allows for more optimal evaluation of vasculature as well as organs
 - More diagnostic than a non-contrast study
- Passage of Contrast:

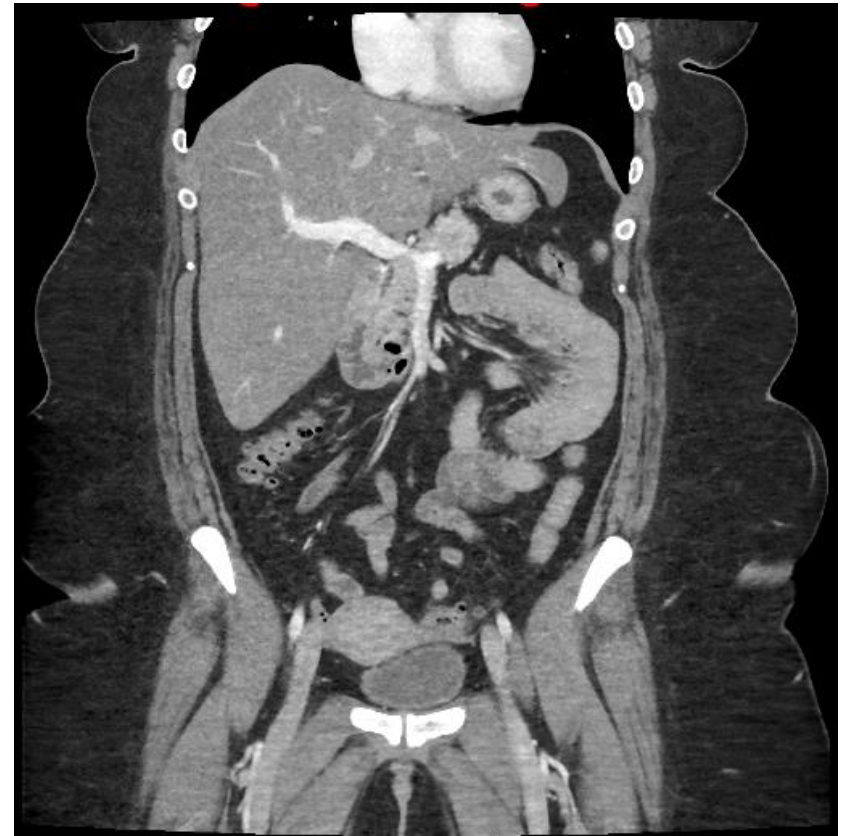


- <https://pubs.rsna.org/doi/full/10.1148/radiol.10090908>

Abdomen and Pelvis with IV Contrast



Non-Contrast



Contrast Enhanced



Clinical Scenario

Patient presents with suspected bowel
obstruction

Abdomen and Pelvis with IV and Oral Contrast

- When do we use Oral Contrast?
 - Oral contrast should be used as often as possible
- Specific scenarios when oral contrast is not indicated:
 - Small Bowel Obstruction
 - Bowel Ischemia
- In our ED, oral contrast is almost never given due to acuity and limited time
- How long does oral contrast take to fill bowel sufficiently?
 - 60 – 100 minutes



Types of Oral Contrast

- Positive oral contrast
 - Distends the bowel to delineate bowel pathology
 - Specific scenarios when this is not indicated:
 - SBO
 - Bowel ischemia
 - This WILL obscure bowel wall enhancement
- Negative oral contrast
 - Distends the bowel without obscuring bowel wall enhancement
 - Used to evaluate pancreatic, hepatic, melanoma, and carcinoid metastasis
 - Used to evaluate mesenteric ischemia
 - Water is a negative oral contrast agent

Abdomen and Pelvis with IV and Oral Contrast



Negative Oral Contrast



Positive Oral Contrast



Clinical scenario

Patient with a recent history of
pancreatitis is acutely ill



Pancreatitis Protocol: 3 Phase

- Indication: Initial pancreatitis evaluation and associated complications
 - Each phase is used to identify specific complications.
- Three Phases
 1. Non-Contrast
 - Pancreatitis
 2. Arterial
 - Abscess
 - Pseudocyst
 - Vessel erosion
 - Necrosis
 3. Venous (70 seconds)
 - Splenic vein thrombus
 - Vessel erosion

Pancreatitis Protocol: 3 Phase Abdomen/Pelvis

Non-contrast, arterial, venous



Non-contrast



Arterial

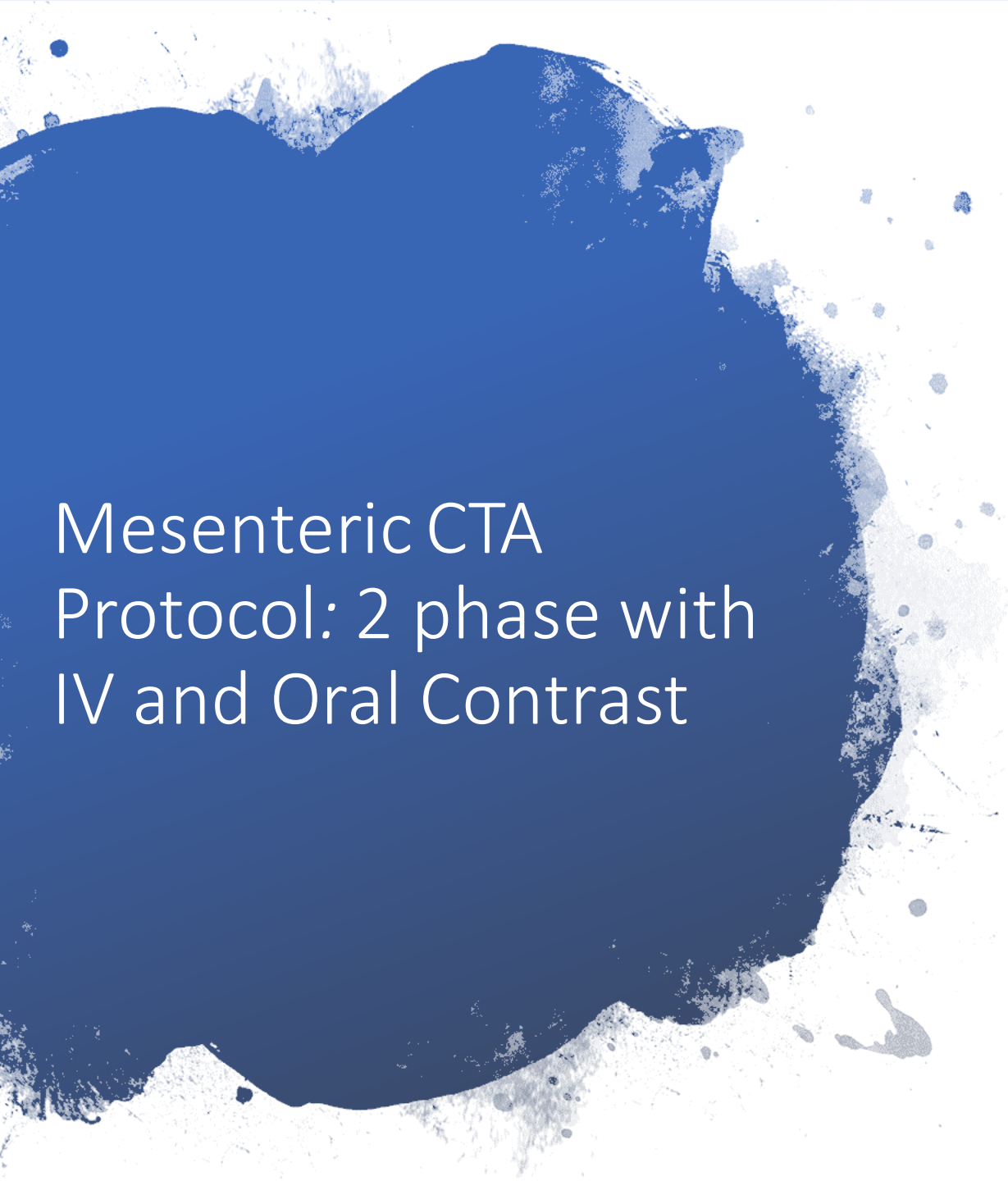


Venous



Clinical scenario

Elderly patient presents with diarrhea
and abdominal pain out of proportion to
physical examination



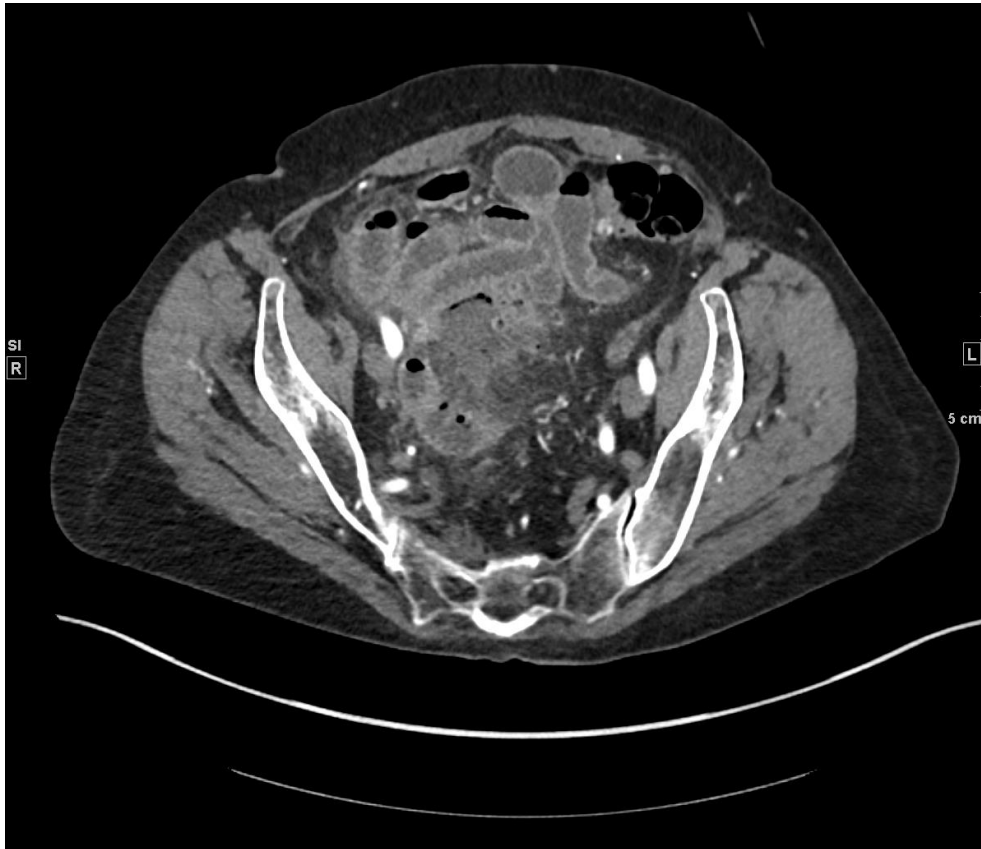
Mesenteric CTA

Protocol: 2 phase with IV and Oral Contrast

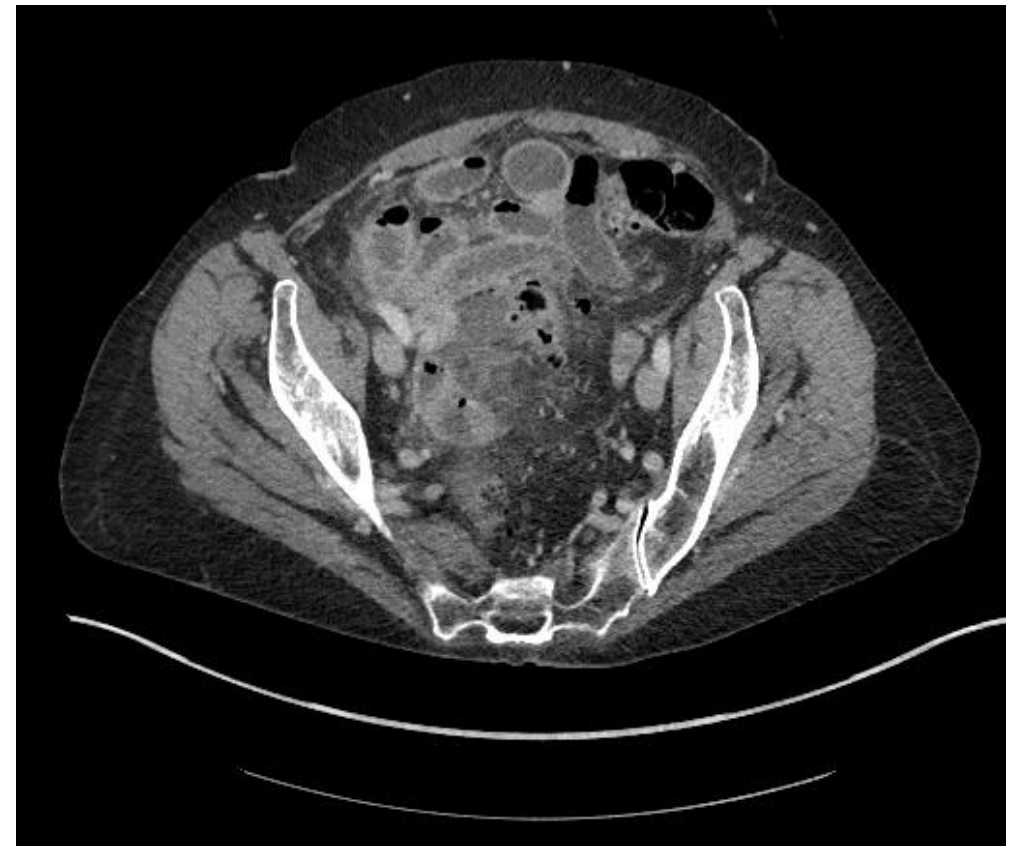
- Indication: Concern for mesenteric ischemia or ischemic bowel
 - Each phase is used to identify specific complications.
- 2 phases
 1. Arterial Phase
 - Ischemia
 - Inflammation
 2. Delayed (70 second)
 - Venous Occlusion
 - Ischemia
 - Inflammation
- Oral Contrast
 - Negative oral contrast only!

Mesenteric CTA Protocol: 2 phase with IV and Oral Contrast

Arterial and 70 second delay



Arterial




Venous (Delay)



Clinical scenario

78 year old female is found to have a hematocrit of 9. Fecal occult blood test is positive.



GI Hemorrhage Protocol: 3 phase

- Indication: Suspicion for upper or lower gastrointestinal bleed
 - Each phase is used to identify specific complications.
- 3 phases
 1. Non-contrast
 - To show preexisting intraluminal hyperattenuation
 2. Arterial
 - Hemorrhage
 3. Delay (120 second)
 - Persistent Hemorrhage
- Oral Contrast
 - Water, if tolerated

GI Hemorrhage Protocol:
3 phase Abdomen and Pelvis
Non-contrast, Arterial and 120 second Delay



Non-contrast



Arterial



Delay