ORAL CONTRAST

TO BE OR NOT TO BE FOR PET-CT
WHEN TO CONSIDER

- ALWAYS
  - ON-STOP-EXAM
- SOMETIMES
  - WHEN ABDOMINAL DISEASE IS POSSIBLE
- NEVER
  - ?????
IF SOMETIMES, WHEN

- GI MALIGNANCIES
- GYN MALIGNANCIES
- OTHER MALIGNANCIES THAT MAY METASTASIZE TO MESENTERY/PERITONEUM
WHY?

- OPACIFICATION OF SMALL BOWEL
- FACILITATE IDENTIFICATION OF MESENTERIC/OMENTAL/SEROSAL DISEASE
- HELP DIFFERENTIATE BOWEL FROM OTHER STRUCTURES
  - PELVIC ORGANS
  - PHYSIOLOGIC ACTIVITY
- HELP ACCELERATE CT LEARNING CURVE
WHY NOT?

- YOU’RE SO GOOD THAT YOU DON’T NEED IT
- PATIENT CONDITION
- FACILITY ISSUES
  - ADDITIONAL RADIATION EXPOSURE TO TECHNOLOGISTS
    - SCHMITT. J NUCL MED 2007 [ .10mrem - .19 mrem]
TYPES

- BARIUM BASED
  - LOW-DENSITY SUSPENSIONS
  - COST: APPROX $6.00
- IODINE BASED
  - GASTROGRAPHIN
  - COST: APPROX $6.00
- NEGATIVE CONTRAST
  - WATER
  - MANNITOL-LOCUST BEAN GUM [CAROB]
    - ANTOCH. RADIOLOGY 2004
  - MILK
    - KOO. AJR 2008
CONTRAST INDUCED ARTIFACTS?

- CAN BE AN ISSUE WITH HIGH-DENSITY BARIUM
  - WATER RESORPTION IN GUT
- NEGLIGIBLE WITH LOW-DENSITY BARIUM
- NO ISSUE WITH NEGATIVE CONTRAST
METHOD: BARIUM/IODINE BASED

- 1-2% SOLUTION
- APPROX 900 CC
- OVER 60-90 MINUTES – DURING UPTAKE PERIOD
- IF DESIRED – ADDITIONAL 200 CC JUST BEFORE START OF EXAM TO OPACIFY STOMACH

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METHOD: NEGATIVE CONRAST

- 2 LITERS PLAIN WATER
- 2 LITERS 2.5% MANNITOL + 0.2% LOCUST BEAN GUM
- ADMINISTRATION OVER SAME TIME PERIOD- 60-90 MINUTES
WHY ONE OR THE OTHER

- POSITIVE CONTRAST
  - THIN PATIENTS
- NEGATIVE CONTRAST
  - BETTER IF IV CONTRAST ALSO USED
  - BUT CAN INDUCE DIURETIC EFFECT
  - CO-MORBID CONDITIONS MAY PROHIBIT
ALLERGIES

- BARIUM-BASED
  - NOT ABSORBED
  - REACTION TO ADDITIVES - RARE
- IODINE BASED
  - IODINE ALLERGY
  - USUALLY MILD – SKIN REACTIONS
- LOCUST BEAN
  - MILD-SEVERE
POSITIVE CONTRAST

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POSITIVE CONTRAST

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POSITIVE CONTRAST
NO CONTRAST
CONCLUSION

- DO WHAT YOU NEED TO DO TO BE ABLE TO MAKE A DIAGNOSIS
- PERFORM THE OPTIMAL SCAN FOR EACH PATIENT
QUESTION

What should you consider when using water as a negative contrast media?

- A. Use with intravenous contrast
- B. Evaluate patient’s renal and cardiovascular status
- C. Anticipate artifacts on PET
- D. Have the patient void prior to scan
Water is the most cost conscious contrast agent but as it provides negative contrast within the bowel lumen, it is helpful to enhance the bowel by intravenous contrast administration, thereby best delineating the full thickness of the bowel wall. A fluid load of approximately 1000 cc may not be tolerated by all patients and careful pre-test evaluation of the patient's clinical condition, particularly cardiovascular and renal status is required. The quantity of water administered for optimal bowel filling will induce a diuretic effect and it is particularly important to have the patient void prior to imaging.