Radiographic Procedures III (RAD 228)

Barium Enema
Single Contrast

Large Intestine Anatomy
- Colon versus large intestine

Rectum (Lateral View)
Large Intestine versus Small Intestine

- Three differences
  - Internal diameter
  - Haustra (taenia coli)
  - Relative location

Body Habitus
(Stomach and Large Intestine Locations)

Lower GI Procedures

1. Single-contrast barium enema
2. Double-contrast barium enema
3. Evacuative proctography (defecography)
Barium Enema of Large Intestine

Barium Enema Clinical Indications
- Colitis (ulcerative)
- Diverticulosis/diverticulitis
- Neoplasms (apple core or napkin ring lesions)
- Volvulus (can lead to necrosis)
- Intussusception
- Appendicitis

Contraindications
- Contraindications to BaSO₄
  - Presurgical patients
  - Perforated hollow viscus
  - Large intestine obstruction
- Contraindications to water-soluble iodinated contrast media
  - Young or dehydrated patients
  - Sensitivity to iodine
Neoplasm

- "Napkin-ring" or "apple-core" sign

CT Colonography

- Arrows indicate presence of small polyp

Diverticulosis of Large Intestine

- What is the difference between a diverticulum and a polyp?
Barium Enema—Patient Preparation

- Light evening meal prior to exam
- Bowel-cleansing cathartics
- NPO after midnight (8 hours minimum)
- No gum chewing
- No smoking
- Enema morning of exam

Barium Enema—Cathartics

- Cathartics: substance that produces frequent, soft, or liquid bowel movements
- Two types:
  - Irritant (rarely used)
  - Saline
- Contraindications to cathartics:
  - Gross bleeding
  - Severe diarrhea
  - Obstruction
  - Inflammatory lesions

Room Preparation

- Fluoroscopy room setup
- Table horizontal
- Cassettes available
- Contrast media prepared
- Towels and linen available
Contrast Media for Barium Enema

- Single-use, closed-system kit
- Cold versus room temperature water
- Colloidal suspension—mix well before use
- Glucagon optional (if spasm occurs)
- Topical anesthetic may be added to contrast media

Enema Tips

Sims’ Position

- Left side
- Right leg flexed
Enema Tip Insertion

1. Communicate with patient.
2. Wear gloves.
3. Drain air from enema tubing.
4. Lubricate enema tip.

Summary of Safety Concerns (Barium Enema Procedure)

1. Review chart.
2. Never force enema tip.
   - Maximum 3 – 4 cm (1 – 1.5”)
3. Height of enema bag should be no higher than 24 inches above the table.
4. Verify the water temperature of the contrast media.
5. Escort patient to the restroom.
Barium Enema Series

- Routine
  - PA and/or AP
  - RAO and LAO (double-contrast)
  - LPO and/or RPO
  - Lateral rectum
  - R and L lat decub (double-contrast)
  - PA postevac

- Special
  - AP axial or AP axial oblique
  - PA axial or PA axial oblique

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PA and/or AP Barium Enema

- No body rotation
- CR to iliac crest

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Evaluation Criteria
PA/AP Barium Enema

- Entire large intestine demonstrated
- Transverse colon filled with barium
- No rotation
- Optimal exposure factors
AP Axial and AP Axial Oblique

LPO: rotate 30°-40°

30°-40° cephalad

AP Axial

AP Axial oblique (LPO)

LPO and RPO Barium Enema

- 35° - 40° R and L oblique
- CR to iliac crest and 1 inch (2.5 cm) lateral to elevated side of MSP
### Evaluation Criteria (LPO and RPO)

**Optimal exposure factors**

**LPO**
- Right colic flexure, ascending, and rectosigmoid colon open
- Entire large intestine demonstrated, including rectal ampulla

**RPO**
- Left colic flexure and descending colon open
- Entire large intestine demonstrated

### Evaluation Criteria

**Lateral Rectum**

- Rectosigmoid region demonstrated
- No rotation
- Optimal exposure factors

### PA (AP) Postevac

- On cart or table
- CR to iliac crest
- Entire large intestine included
- No rotation
- Optimal exposure factors
Lab Script

- Speak with a CI; bring the following information written or transcribed to lab.
  - Fluoro room set up requirements
  - Patient gowning instructions
  - All patient questions asked by technologist prior to procedure
  - Exam explanation
  - Contrast media types used & exact preparation
  - Positioning protocol for procedure (Overhead images)
  - Post exam instructions given to patient