Radiographic Procedures III (RAD228)

Barium Enema – Single Contrast

Large Intestine vs. Small Intestine

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

Large bowel—peripheral location
Small bowel—central location

Taenia coli (bands of longitudinal muscle)

Large Intestine Anatomy

1. Ascending colon
2. Transverse colon
3. Descending colon
4. Sigmoid colon

Colon vs. large intestine
### Summary of Lower Digestive System Functions

<table>
<thead>
<tr>
<th>Small intestine</th>
<th>1 Digestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Duodenum and jejunum (primarily)</td>
<td>• Absorption (nutrient, H2O, salts, proteins)</td>
</tr>
<tr>
<td></td>
<td>3 Reabsorption (95% of H2O and salts)</td>
</tr>
<tr>
<td>Large intestine</td>
<td>(Some reabsorption of H2O [5%] and inorganic salts)</td>
</tr>
<tr>
<td></td>
<td>Vitamins B and K</td>
</tr>
<tr>
<td></td>
<td>Amino acids</td>
</tr>
<tr>
<td></td>
<td>Produced by bacterial action, releases gases (flatus)</td>
</tr>
<tr>
<td></td>
<td>4 Elimination (defecation)</td>
</tr>
</tbody>
</table>

### Barium Enema

**Pathologic Indications**

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

![Advanced carcinoma of colon](image)

### Ulcerative Colitis
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: A substance that produces frequent, soft or liquid bowel movements
- Two types: irritant and saline
  - Irritant: castor oil (rarely used)
  - Saline: Citrate magnesium

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 vs. room temperature water 85 – 90 degrees
- Colloidal suspension – mix well before use 15-25% w/v
- Glucagon optional (if spasm occurs)
- Topical anesthetic may be added to contrast media

Enema Tips

Single-Stage Procedure
Barium Enema Preparation

Sims Position
• Left side
• Right leg flexed

Enema Tip Insertion
• Communicate with patient
• Wear gloves
• Drain air from enema tubing
• Lubricate enema tip
Summary of Safety Concerns (Barium Enema Procedure)

- Review chart
- Never force enema tip
- Maximum 3 – 4 cm (1 – 1.5"
- Height of enema bag no higher than 24 in. above table
- Verify water temperature of contrast media
- Escort patient to rest room
- Water soluble contrast
- Perforation
- Surgery post BE

PA and/or AP Barium Enema

- No body rotation
- CR to iliac crest
Criteria: (PA/AP Barium Enema)

- Entire large intestine demonstrated
- Transverse colon filled with barium
- No rotation
- Optimal exposure factors

AP Axial & AP Axial Oblique

- LPO: rotate 30-40°
- 30-40° cephalad
LPO and RPO Barium Enema

Basic
- PA (AP)
- RAO
- LAO
- LPO (RPO)

- 35-40° R and L oblique
- CR to iliac crest and 1 in. (2.5 cm) lateral to elevated side of MSP

Criteria: (LPO and RPO)

- Optimal exposure factors

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

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

Criteria: (Lateral Rectum)

- Rectosigmoid region is demonstrated
- No rotation
- Optimal exposure factors
PA (AP) Post-Evac

- On cart or table
- CR to iliac crest

- Entire large intestine included
- No rotation
- Optimal exposure factors