Clinical Scenario #1

- A 54 year old woman 3 yr s/p hysterectomy for fibroids presents with abdominal distention, vomiting and obstipation for 24 hours. There are no peritoneal signs. WBC and lactate are normal. CT shows proximal distended loops of small bowel with a transition point. Which is true?
Serum Lactate and SBO

• Liver efficiently converts lactate to pyruvate through the Cori cycle.
• Circulatory hypoperfusion impairs tissue oxygen delivery with resultant mitochondrial hypoxia.
• Improved lactate clearance can be used as a surrogate for correction of shock.
  – PROCESS Team NEJM 370:1683-93;(2014)
Clinical Scenario 1

- A. She has a less than 10% chance that this condition will recur
- B. She will likely not require an operation on this admission
- C. Decompression with a long tube is indicated
- D. Most likely cause is intussusception
- E. IV antibiotics are indicated
Clinical Scenario #1

- Classify SBO as extrinsic, intramural, intraluminal
- >90% are adhesions (most common), hernias, tumors
- 70-80% SBO resolve with medical management
- Long tube no better than regular NGT
- 30% recur, recurrent obstruction an indication for surgery
Clinical Scenario 2

• An 87 y/o ♂ presents to the ED with nausea and emesis for 48 hrs. CT shows air in the gallbladder, air-fluid levels in the small intestine, and a transition point in the distal ileum Operative management will require which of the following?
Clinical Scenario #2

- A. Cholecystostomy
- B. Stricturoplasty
- C. Enteroscopy
- D. Enterotomy
- E. Cholecystectomy
Clinical Scenario #2

- Gallstone ileus is a complication of gallstones
- Classic triad is small bowel dilation, pneumobilia, and an intestinal gallstone
- Fistula is usually large, recurrence is rare, cholecystectomy and fistula takedown generally not needed
- Exploration requires a proximal enterotomy to extract the stone
Clinical Scenario #3

- 30 y/o ♀ has 24 hr intractable nausea and bilious emesis. Prior surgical history includes antrectomy and roux-en-Y for GIST. Which of the following is the next step in management?
Clinical Scenario #3

- A. NGT decompression and medical Rx
- B. Barium upper GI study
- C. Esophagogastroduodenoscopy
- D. Laparotomy and small bowel reduction
- E. Laparotomy and small bowel resection
Clinical Scenario #3

• Intussusception causes ~5% of adult SBO
• In adults, a pathologic lead point in present in > 90%
• In small bowel, 70% are benign (polyps, Meckel’s, benign tumors) 30% are malignant
• Classic CT finding is ‘target sign’
• Reduce intussuscipiens to limit bowel resection
Clinical Scenario #4

• Which of the following is true regarding risk factors for postsurgical adhesive bowel obstruction?
Clinical Scenario #4

• A. Rate of SBO after open app’y higher than after lap app’y
• B. Separate closure of the peritoneum decreases adhesion formation
• C. Open adnexal operations have the highest rate of adhesion-related admissions
• D. Age and gender are strong predictors of SBO
• E. Presence of cancer increases postoperative SBO
Clinical Scenario #4

- Adhesion-related SBO occurs in ~5% of patients who undergo abdominal surgery
- Rates similar with open and lap app’y
- Age, gender, presence of cancer do not affect adhesion formation

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open adnexal</td>
<td>23</td>
</tr>
<tr>
<td>IPAA</td>
<td>19</td>
</tr>
<tr>
<td>TAH-BSO</td>
<td>15</td>
</tr>
<tr>
<td>Colectomy</td>
<td>9</td>
</tr>
</tbody>
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Clinical Scenario #5

- 35 y/o ♂ presents to outpatient office with CT obtained for vague abdominal pain. No prior surgical history. Which of the following is best next step?
Clinical Scenario #5

• A. Reassurance
• B. Upper GI barium study with SBFT
• C. Diagnostic laparoscopy
• D. Laparotomy
• E. Double balloon enteroscopy
Clinical Scenario #5

- Intestinal rotational abnormalities may be complete or incomplete
- Classic malrotation
  - Ligament of Treitz not fixed to posterior abdominal wall
  - Cecum does not migrate to RLQ
  - Narrow mesenteruy
- Non-rotation (cecum in LLQ, SB mesentery wide
- Ladd procedure
  - Eviscerate bowel and reduce volvulus
  - Divide Ladd’s bands
  - Broaden the narrow pedicle
  - Appendectomy
Clinical Scenario #6

• A 56-year-old man presents to the emergency department with a 2-day history of increasing abdominal pain and nausea. He began vomiting today and notes that he has not had a bowel movement since the pain began. An abdominal x-ray is suspicious for intestinal obstruction. He has a history of previous open appendectomy. After resuscitation, laboratory tests, and placement of a nasogastric tube, the decision is made that the patient should undergo a trial of nonoperative management.

• What is the critical next test for this patient?
Clinical Scenario #6

- A. Computed tomography (CT) scan with intravenous (IV) contrast and water-soluble contrast medium per nasogastric tube
- B. Small bowel follow-through with barium
- C. Repeat abdominal x-rays every 3 hours
- D. Enteroclysis
- E. No further studies are needed
Clinical Scenario #6

• Any patient presenting with acute intestinal obstruction with a trial of non-operative management should undergo CT scan with IV contrast routinely to assess for signs of ischemia.

• Water-soluble contrast medium, if shown in the colon (KUB) within 24 hours of administration, predicts non-operative resolution with greater than 90% specificity and sensitivity.

• Neither SBFT or AXR are helpful in this scenario.

• The patient should be reexamined frequently (every 3 hours), ideally by the same examiner.
Clinical Scenario #7

- The patient is taken for an upright abdominal x-ray at 24 hours and is found to have no contrast or air in the right colon.
- **What is the best next step in the management of this patient?**
Clinical Scenario #7

• A. Continued observation for 12 additional hours
• B. Transfer to the intensive care unit (ICU) for frequent abdominal examinations
• C. Trial of laparoscopic adhesiolysis with a low threshold for conversion
• D. Repeat dose of water-soluble contrast medium per nasogastric tube
• E. Remove the nasogastric tube and start a clear liquid diet
Clinical Scenario #7

- This patient had an uncomplicated bowel obstruction that was given a trial of nonoperative management.
- He failed to pass a water-soluble contrast medium challenge and is therefore extremely unlikely to resolve with any amount of continued observation.
- His operation could be laparoscopic or open.
- There is no evidence to support repeat dosing of water-soluble contrast medium.
- He is not ready to resume a clear liquid diet given that he failed to pass the contrast into the colon.
Clinical Scenario #8

- A 63-year-old woman presents with left lower quadrant abdominal pain and obstipation. She is minimally tender and not tachycardic and has a lactate of 1.0. AXR shows a dilated sigmoid colon consistent with sigmoid volvulus.

- What is the best management approach for this patient?
Clinical Scenario #8

• A. Immediate sigmoid colectomy
• B. Admission to the ICU for frequent abdominal examinations
• C. Colonoscopic decompression followed by elective sigmoid colectomy in 6 weeks
• D. Colonoscopic decompression followed by sigmoid colectomy during the same hospitalization
• E. Placement of a long rectal tube for decompression
Clinical Scenario #8

- Immediate sigmoid colectomy for volvulus is indicated only when toxicity or signs of ischemia are present (e.g., bloody rectal discharge, decreased wall enhancement on CT, free air).

- Colonoscopic decompression should be attempted followed by operation during the same hospitalization, not in 6 weeks' time, as sigmoid volvulus is prone to recur.
Clinical Scenario #9

• A 55-year-old man is postoperative day 5 status post–sigmoid colectomy with coloproctostomy for adenocarcinoma. He has had increasing abdominal distention, nausea, and abdominal pain over the last several days. Today he has several bouts of emesis, and a nasogastric tube is placed with 600 cc of bilious drainage. He had an abdominal x-ray 2 days ago demonstrating diffuse dilation of small bowel and colon and a large gastric bubble with no air-fluid levels.

• Which of the following is the most appropriate next step in the management of this patient?
Clinical Scenario #9

• A. Nasogastric lavage until the aspirate is clear
• B. CT scan with IV contrast to rule out abscess
• C. Exploratory laparotomy
• D. Repeat abdominal x-ray
• E. Colonoscopy
Clinical Scenario #9

• This patient has had ileus for 5 days, and a postoperative complication such as pelvic abscess must be ruled out as the cause.

• Nasogastric lavage is helpful in the setting of gastrointestinal bleeding.

• An exploratory laparotomy may be indicated depending on the results of the CT scan but is not indicated without diagnostic studies in a stable patient.

• A colonoscopy may be able to demonstrate a leak but would not be able to diagnose an abscess, which must be drained.
Clinical Scenario #10

- A 77-year-old woman presents with abdominal pain, nausea, and vomiting for several days. On further questioning, she admits to a 1-month history of decreasing stool caliber, mild abdominal pain, and a 15 lb weight loss. A computed tomographic (CT) scan reveals dilated colon to the level of the proximal sigmoid, where there appears to be an obstructing lesion.

- **What is the next best step in the management of this patient?**
Clinical Scenario #10

- A. Exploratory laparotomy and sigmoid colectomy with end descending colostomy (Hartmann procedure)
- B. Colonoscopy with self-expanding metallic stent placement followed by a full staging workup
- C. Colonoscopy with stricture dilation self-expanding metallic stent placement followed by a full staging workup
- D. Laparoscopic lysis of adhesions
- E. Water-soluble contrast medium challenge
Clinical Scenario #10

- A Hartmann procedure is indicated in cases of significant patient toxicity, ischemia, perforation, and peritonitis.
- In a nontoxic patient, colonoscopy to characterize the lesion and stenting will allow time for a proper staging workup and to determine resectability.
- Lesions should **not** be dilated prior to stenting as this has been associated with increased rates of perforation.
- Water-soluble contrast medium is a critical step in the nonoperative management of adhesive small bowel obstruction.