Chapter 39
Postoperative Ileus

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KEY POINTS

Postoperative ileus is when gut dysmotility persists beyond the expected period for a given surgery.

Differential diagnosis includes small bowel obstruction (SBO), acute colonic pseudo-obstruction, and other significant intra-abdominal pathology—imaging is required to distinguish these.

Treatment is supportive:

NPO, intravenous fluid (IVF), and nasogastric (NG) tube only if significant pain, distension, or vomiting
Attention to electrolytes and medications, minimizing opiates
Reimage only if clinically indicated

Consider prevention strategies such as epidural local anesthetics, avoidance of systemic opioids, early postoperative feeding, and chewing gum. Do not routinely place a nasogastric tube.

BACKGROUND

Some degree of postoperative gut dysmotility is normal—on the order of hours for the stomach and small intestine and days for the colon—and can even occur after non-abdominal procedures. Postoperative ileus (POI) is when the dysmotility is prolonged, causing discomfort and preventing oral intake. Inhibitory neural reflexes, inflammation from intestinal manipulation and trauma, neurohumoral peptides, and systemic opioids are all thought to contribute to POI [1].

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EVALUATION

HISTORY

Suspect POI when the symptoms of postoperative ileus—abdominal distension and pain, nausea and vomiting, and inability to pass flatus or stool or tolerate a normal diet—persist for several days beyond when they were expected to resolve (this varies by type of surgery). Note whether the patient has a history of constipation, diabetic neuropathy or gastroparesis, and prior surgeries (which may make SBO more likely), and review their medications (with attention to anticholinergics, opiates, and laxatives or suppositories).

EXAM

Decreased bowel sounds, distension, mild diffuse tenderness, and tympany are common. Severe pain or peritoneal signs suggest a more severe problem (see "Differential Diagnosis" below).

LABS

Complete blood count—elevated WBC suggests infection, hemoglobin/hematocrit drop may reflect intra-abdominal or retroperitoneal bleeding.

Basic metabolic panel and magnesium—looking for renal dysfunction and electrolyte imbalance.

Consider a liver injury panel, amylase and lipase based on history, exam, and other test results.

IMAGING

In general, begin with supine and upright plain abdominal radiographs (also known as an "obstruction series"), but recognize that SBO or other serious pathology may not be apparent on these images. If you have clinical suspicion for a more serious problem, or plain imaging is indeterminate, consider obtaining a CT abdomen/pelvis with oral contrast.

DIFFERENTIAL DIAGNOSIS

It is important to differentiate postoperative ileus from more serious intra-abdominal pathology. The presence of any of the following signs

or symptoms should prompt appropriate lab tests and imaging, and may require surgical evaluation:

Severe pain
Bilious or feculent vomiting
Fever
Tachycardia
High-pitched bowel sounds
Peritoneal signs
Air-fluid levels on radiographs

Consider the following differential:

SBO
Bowel perforation or anastomotic leak
Acute colonic pseudo-obstruction (dilation of the cecum and right hemicolon without an obstructing lesion, also known as Ogilvie's syndrome)
Sepsis or intra-abdominal infection (including appendicitis or cholecystitis)
Pancreatitis
Intra- or retroperitoneal hemorrhage
Constipation or stool impaction

TREATMENT

Treatment is supportive.

NPO except sips of clears.
IVF as needed.
Replete potassium and magnesium as needed.
Treat any constipation with appropriate agents.
Do not routinely place an NG tube, but if the patient has significant vomiting, distension, or pain consider inserting one and putting it on low-intermittent wall suction (after checking with the surgical team to ensure that it is safe to do so).
Replace gastrointestinal fluid losses with attention to electrolytes.
Minimize opiates as tolerated, and consider standing acetaminophen and judicious NSAID use (avoiding gastrointestinal and renal toxicity).
Perform serial clinical evaluations and reimage for worsening or persistence.
Once bowel function returns, remove the NG tube and advance the diet as tolerated, beginning with clear liquids.

PREVENTION

Several strategies are commonly used in combination to prevent postoperative ileus:

Epidural local anesthetic—Thoracic infusion for several days postoperatively reduces spinal inhibitory signals to the gut [2].

Avoidance of systemic opioids—Acetaminophen, NSAIDs, and other non-opioid pain medications can minimize the need for opioids. NSAIDs must be used with caution due to potential gastrointestinal and renal toxicity.

Early postoperative feeding—Some patients may suffer nausea or vomiting, but overall, early feeding does not appear harmful and may reduce the length of the hospital stay, although its effects on return of bowel function are not clear [3].

Routine laxative use—Data are limited but suggest that some benefit with no obvious harm [4].

Chewing gum—Meta-analyses reveal shortened time to first flatus and stool, and decreased length of stay, with no increase in complications [5].

Surgical technique—Laparoscopic surgery is associated with a shorter time to recovery of bowel function although it is not clear if this is because of the technique itself or because patients need less opiate pain control postoperatively [6], and animal data shows that less intestinal manipulation is associated with less postoperative dysmotility [7].

UNPROVEN INTERVENTIONS

Peripherally acting mu-opioid receptor antagonists or PAM-ORs (including alvimopan and methylnaltrexone) hold some promise but studies have not consistently shown benefit.

INEFFECTIVE OR HARMFUL INTERVENTIONS

Promotility medications have been studied (including metoclopramide, erythromycin, and neostigmine) but the available evidence is limited and/or has shown no benefit [8].

Routine postoperative NG tube placement (i.e., in all patients, as opposed to only those with vomiting, abdominal pain, or distension) delays return of normal bowel function, and may increase pulmonary complications, discomfort, and length of stay [9].

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