

Small Bowel Obstruction

Scar tissue from past surgery is the most common reason the small bowel gets blocked.

THE STORY IN ONE SENTENCE

Scar tissue from past surgery is the most common reason the small bowel gets blocked.

“Small bowel obstruction means nothing by mouth, a nose tube to drain the stomach, intravenous fluids to replace what you are losing, and emergency surgery if the bowel twists or blood supply is cut off.”

Normal anatomy — the body's job

The small bowel is a twenty-foot-long muscular tube that moves food from the stomach to the large intestine, absorbs most of the water and nutrients your body needs, and keeps everything flowing in one direction.

BODY'S JOB

The small bowel's job is to push food along in rhythmic waves (like squeezing toothpaste from the bottom of the tube), soak up water and nutrients through its inner lining, and deliver the leftover slurry to the colon for final processing.

1. Food leaves the stomach and enters the duodenum (the first short loop of small bowel, about ten inches long, where bile and pancreatic juice mix in).
2. Waves of muscle contraction (peristalsis) push the food forward through the jejunum (the middle section, about eight feet long, where most nutrients are absorbed).
3. The food continues into the ileum (the final twelve feet, which absorbs vitamin B12, bile salts, and the last of the water).
4. The liquid leftover (chyme) empties through the ileocecal valve into the cecum (the pouch at the start of the large intestine).
5. The small bowel stays open and smooth inside—no kinks, no tight rings, no blockages—so food and fluid flow freely downstream.

What breaks

Something pinches, twists, blocks, or narrows the small bowel so food and fluid cannot pass through.

CLINICAL TERM

Small bowel obstruction: mechanical blockage of the lumen (the tube's inner space) or external compression that stops the normal flow of intestinal contents.

How the body compensates

The bowel tries to push past the blockage with stronger waves, the body pulls fluid from the bloodstream to replace what is trapped in the bowel, and blood pressure stays normal for hours—until the bowel wall stretches too far, blood vessels collapse, or bacteria leak through dying tissue.

1. {'what': 'The bowel contracts harder and more often (hyperperistalsis) to try to force food past the blockage.', 'why': 'You feel this as waves of crampy pain every few minutes, often with high-pitched bowel sounds (like tinkling or rushing water) as the intestine squeezes against resistance.'}
2. {'what': 'Fluid and gas back up behind the blockage, stretching the bowel like a water balloon.', 'why': 'The stretched wall triggers more cramping, and the swelling (distension) makes your belly tight and round; the pressure can also squeeze the blood vessels in the bowel wall, cutting off oxygen.'}
3. {'what': 'The body pulls water and salt from the bloodstream into the bowel to try to dilute and push the backed-up contents.', 'why': 'This process (third-spacing) leaves less fluid in the circulation, but blood pressure stays stable at first because the kidneys hold onto salt and the heart pumps faster to keep up.'}
4. {'what': 'The stomach empties backward (vomiting) to relieve pressure upstream.', 'why': 'First you vomit food and stomach acid, then green bile (from the duodenum backing up), and finally brown, foul-smelling liquid (feculent vomit) if the blockage is low and bacteria-rich bowel contents reflux all the way to the stomach.'}
5. {'what': 'No stool or gas passes because nothing can get through the blockage.', 'why': 'The rectum empties out in the first few hours (so you may still pass old stool early on), but then obstipation (complete stop of stool and gas) confirms the obstruction is complete.'}
6. {'what': 'Vital signs look stable while compensation is working.', 'why': 'Heart rate may be normal or slightly elevated, blood pressure holds steady, and the patient looks uncomfortable but not crashing—this is the dangerous middle, because it hides how close you are to the tipping point.'}

7. {'what': 'The crash point arrives when the bowel wall loses blood flow (strangulation), dies (necrosis), and tears open (perforation).', 'why': 'Once the bowel wall dies, bacteria spill into the abdomen (peritonitis), toxins flood the bloodstream (sepsis), blood pressure drops, and the window to save the patient closes fast—this is why you watch for fever, constant (not crampy) pain, fast heart rate, and signs of shock before they happen.'}

Domino effect

1. Something blocks the small bowel—most often a band of scar tissue (adhesion) from past surgery that kinks the tube shut. — Adhesions form whenever the abdomen is opened or inflamed; they act like internal rubber bands that can pull or twist loops of bowel together, creating a mechanical blockage.
2. Food, fluid, and gas pile up behind the blockage, stretching the bowel wall upstream. — The bowel keeps producing digestive juice and swallowing air, but nothing can move forward, so pressure builds like water behind a dam and the bowel swells (distends).
3. The stretched bowel triggers waves of crampy pain as it contracts harder to try to push past the blockage. — The intestinal muscle squeezes in rhythmic waves (peristalsis) every few minutes, and each wave hurts because the bowel is squeezing against a closed door; you hear high-pitched, tinkling bowel sounds (borborygmi) as fluid and gas rush against the obstruction.
4. The backed-up fluid refluxes into the stomach, triggering vomiting—first food and acid, then green bile, then brown feculent liquid if the blockage is low. — The body empties the stomach to relieve upstream pressure; green vomit means bile is backing up from the duodenum (so the blockage is below that point), and brown, foul-smelling vomit means bacteria-rich contents from the lower small bowel have refluxed all the way to the stomach.
5. The bowel pulls water and salt from the bloodstream to dilute its contents, and the body loses liters of fluid into the gut (third-spacing). — The swollen bowel acts like a sponge, trapping fluid inside instead of absorbing it; this dehydrates the bloodstream, drops urine output, and can lead to shock if not replaced with intravenous fluids.
6. If the blockage twists the bowel or a hernia squeezes it, the blood vessels collapse (strangulation), cutting off oxygen to the bowel wall. — The veins are squeezed shut first (they are thin-walled and collapse easily), so blood flows in through the arteries but cannot drain out; the bowel wall swells, turns purple, and starts to die (necrosis) within hours.
7. Dead bowel tissue leaks bacteria into the abdomen (perforation and peritonitis) and dumps toxins into the bloodstream (sepsis). — Once the bowel wall dies, it loses its barrier function; bacteria and digestive enzymes spill into the sterile abdominal cavity, triggering widespread infection, inflammation, and organ failure.

8. The patient crashes—fever spikes, pain becomes constant instead of crampy, heart rate races, blood pressure drops, and confusion sets in. — Sepsis triggers a whole-body inflammatory response (cytokine storm) that dilates blood vessels (dropping blood pressure), starves organs of oxygen, and shuts down the kidneys, brain, and heart—once you reach this point, even emergency surgery may not save the patient, so the key is to recognize strangulation (tenderness that does not let up, fever, fast heart rate, high white blood cell count) and operate before perforation happens.

Symptoms · what the patient feels, and why

- Crampy belly pain that comes and goes in waves: The small intestine is a muscular tube that squeezes food along in a wave-like motion called the gut's squeezing waves (peristalsis). When something blocks the tube—like scar tissue from old surgery, a twist, or a trapped loop—the bowel squeezes harder and harder trying to push past the blockage. Each big squeeze causes a sharp cramp, then the muscle relaxes for a moment, then it tries again. That's why the pain comes in waves every few minutes instead of staying steady.
- Belly swelling (distention) and a tight, drum-like feel: When the small bowel is blocked, food, liquid, and swallowed air pile up behind the blockage like cars stacking up behind a closed highway exit. Gas made by gut bacteria also gets trapped. All that trapped material stretches the bowel like a balloon, and your belly swells outward. The stretched loops push against the belly wall, making it feel tight and drum-like when tapped.
- Throwing up, often green or yellow-brown and foul-smelling: The blockage stops food and liquid from moving forward toward the colon. As more food and digestive juices (bile from the liver and pancreatic fluid) pile up, the backed-up material has nowhere to go but up. Early on, you vomit partly digested food. Later, as bacteria multiply in the stagnant bowel contents, the vomit turns green or yellow-brown from bile and smells like stool because it contains the same bacteria. The higher the blockage in the small bowel, the sooner and more often vomiting starts.
- No bowel movements and no passing of gas: The blockage acts like a dam—nothing can get past it to reach the colon and exit as stool or gas. At first, you might still pass a small amount of stool or gas that was already sitting downstream in the colon before the blockage happened. But once that empties out, nothing more comes. This complete stop of both stool and gas—called obstipation—is a strong clue that the bowel is fully blocked rather than just slow.

- High-pitched, tinkling bowel sounds early on, then silence later: Early in an obstruction, the small bowel squeezes extra hard trying to force contents through the narrow or blocked spot. Those vigorous squeezes push gas and liquid through tight spaces, making high-pitched, tinkling, or even musical sounds you can hear with a stethoscope—like water rushing through a kinked garden hose. But if the bowel stays blocked for hours or days, the muscle gets exhausted and stops squeezing altogether. Then the belly goes silent—a worrying sign that the bowel may be dying or perforated.
- Severe, constant belly pain (not crampy waves anymore): If crampy, wave-like pain suddenly changes to severe, steady, unrelenting pain, it means the bowel wall itself is in trouble. The obstruction may have strangled a loop of intestine—twisting or pinching its blood supply so tightly that the tissue isn't getting enough oxygen (ischemia). Without oxygen, the bowel wall starts to die (infarction), and dying tissue triggers severe, constant pain. This is a surgical emergency.
- Fever and fast heart rate: When a loop of blocked bowel loses its blood supply or when bacteria from the bowel leak through a weakened or perforated wall into the belly, the body's immune system launches an inflammatory response. White blood cells flood the area, releasing chemicals called cytokines that reset the body's thermostat in the hypothalamus (the brain's temperature control center), causing fever. The heart pumps faster to deliver more oxygen and immune cells to fight infection—this is called a fast heart rate (tachycardia). Together, fever and fast heart rate signal that infection or tissue death may be underway.
- Severe tenderness in one spot, with guarding or rebound pain: When you press gently on the belly and the person tenses their muscles hard (guarding) or feels sharp pain when you let go quickly (rebound tenderness), it means the peritoneum—the thin, sensitive lining inside the belly—is inflamed. This happens when a loop of obstructed bowel dies and leaks bacteria and digestive juice into the belly cavity, causing peritonitis (infection and inflammation of the belly lining). Localized severe tenderness, especially with guarding or rebound, is a red flag that the bowel may have perforated and requires emergency surgery.

Focused exam

- Crampy belly pain that comes and goes in waves, worse then better then worse again: This wave pattern is the signature of small bowel obstruction. The intestine is squeezing hard, trying to push food and fluid past the blockage, then relaxing, then squeezing again. It tells you the bowel is still alive and fighting.
- Belly swelling and tympany (sounds hollow like a drum when you tap it): Gas and fluid are trapped above the blockage because nothing can move down. The small intestine is stretching and filling like a balloon.

- High-pitched tinkling or rushing bowel sounds early, then silence later: Early in small bowel obstruction, the intestine makes loud rushing sounds as it tries to push through. Later, silence means the bowel is exhausted or the wall is starting to die.
- Green vomit (bilious), then brown vomit that smells like stool: Green vomit means bile is backing up from the small intestine. Brown feculent vomit means the bowel has been blocked so long that bacteria are growing in the trapped fluid and it is backing all the way up to the stomach.
- Hard, rigid belly with guarding (the muscles tighten when you press): Guarding and rigidity mean the bowel wall is dying or has torn open (perforated). This is strangulation, the emergency version of small bowel obstruction.
- No stool or gas passed for hours to days (absolute constipation): In complete small bowel obstruction, nothing can get past the blockage, so nothing comes out the other end. This confirms the path is truly closed.

Diagnostics · every test answers a question

- Complete blood count (CBC) → Is the bowel dying? Are white blood cells rising to fight infection or tissue death?
- Serum lactate → Is the bowel wall getting enough oxygen, or is tissue dying and spilling acid into the blood?
- Basic metabolic panel (BMP) → Did vomiting drain the body of water, salt, potassium, or chloride? Is the kidney holding up?
- Abdominal X-ray (supine and upright or left lateral decubitus) → Can you see the classic air-fluid levels and dilated loops of small bowel that prove obstruction?
- CT scan of the abdomen and pelvis with IV contrast → Where exactly is the blockage, what is causing it, and is the bowel wall still alive?
- Water-soluble contrast study (Gastrografin challenge) → Is this a partial blockage that might clear on its own, and how fast is contrast moving through?

Treatment logic

- NPO (nothing by mouth) + IV fluids (normal saline or lactated Ringer's) + electrolyte replacement → Stops the swollen intestine from filling more by resting it. Replaces water, salt, potassium, and chloride lost from vomiting. Keeps the kidneys and heart working while the blockage clears or you prepare for surgery.
- Nasogastric (NG) tube decompression → Sucks out the backed-up bile and fluid trapped in the stomach and upper small bowel. Relieves nausea and vomiting, lowers pressure inside the intestine so the wall can rest, and reduces the risk of breathing vomit into the lungs.

- Water-soluble contrast study (Gastrografin challenge) → The contrast shows exactly where the blockage is on X-ray AND acts like a mild laxative that can pull water into the bowel and sometimes move a partial blockage through. Works as both a test and a treatment.
- Surgery (exploratory laparotomy or laparoscopy): cut adhesions, repair hernia, remove tumor, untwist bowel, or resect dead bowel → Physically removes or fixes the cause (adhesion, hernia, tumor, twist, stricture, or dead segment) so intestinal flow restarts and the person can digest food again. Saves the bowel if done before the wall dies.
- Pain control with IV opioids (morphine, hydromorphone) or regional anesthesia → Lets the patient rest comfortably while the team watches to see if the blockage clears on its own. Makes monitoring exams and waiting safer to do.

Medications

NPO (nothing by mouth) with IV fluids and electrolyte replacement · Supportive care - fluid and electrolyte resuscitation

When the bowel is blocked, swallowed food and liquid pile up above the blockage and can't move forward. The body also pushes fluids into the swollen, backed-up bowel, which pulls water and salts (sodium, potassium, chloride) out of the bloodstream. Stopping all food and drink by mouth lets the bowel rest. An IV drip puts clean fluid and the missing salts directly into the veins to keep blood volume up, blood pressure steady, and cells working normally.

1. Stop all oral intake so nothing adds to the pile-up above the blockage.
2. Insert an IV catheter into a vein.
3. Infuse isotonic saline (0.9% NaCl) or lactated Ringer's solution to restore blood volume.
4. Measure serum sodium, potassium, chloride, and bicarbonate; replace what is low (common losses: potassium from vomiting, chloride from gastric fluid).
5. Monitor urine output (via Foley catheter) to confirm kidneys are getting enough flow; aim for at least 0.5 mL/kg/hour.

SAFETY WATCH

Too much fluid too fast can overload the heart and lungs (pulmonary swelling (edema), swelling in the lungs); watch for shortness of breath, crackles in the chest. · Too little fluid leaves the patient dehydrated, kidneys can fail (acute kidney injury from low blood flow). · Potassium must be replaced carefully; too high causes dangerous heart rhythms (peaked T-waves on ECG, risk of cardiac arrest), too low causes weakness and arrhythmias. · Check labs (basic metabolic panel) every 12–24 hours until stable.

Nasogastric (NG) tube decompression · Supportive care - mechanical decompression

A blocked small bowel fills with swallowed air, saliva, stomach acid, and backed-up digestive juice. The pressure stretches the bowel wall, causes pain, and triggers vomiting. A thin plastic tube is passed through the nose, down the esophagus, and into the stomach. Suction gently pulls the fluid and gas out, lowering the pressure. This eases pain, stops vomiting, and reduces the risk that the patient will breathe vomit into the lungs (aspiration).

1. Measure from the nose to the earlobe to the xiphoid process (bottom of the breastbone) to estimate tube length.
2. Lubricate the tube and pass it gently through one nostril, asking the patient to swallow if awake.
3. Confirm position by aspirating gastric contents (green or tan fluid, pH < 5) and with a chest X-ray (tip should be in the stomach, below the diaphragm).
4. Connect the tube to low intermittent suction (60–120 mmHg).
5. Measure and record the volume drained every shift; typical output is 500–1500 mL/day in obstruction.

SAFETY WATCH

Tube can kink, clog, or pull back into the esophagus; recheck position if drainage stops or vomiting returns. · Rarely, the tube can be misplaced into the airway (trachea, lung); always confirm with X-ray before using. · Prolonged suction removes acid and chloride, leading to metabolic alkalosis (the blood turning too alkaline) (high blood pH, low chloride); replace with IV saline and potassium chloride. · Nasal irritation, sore throat, and nosebleeds are common; use water-soluble lubricant and the smallest effective tube size.

Opioid analgesics (morphine, hydromorphone, fentanyl) · Opioid receptor agonists

A blocked bowel stretches and the walls cramp hard trying to push contents forward, causing severe colicky pain (waves of cramping). Opioids are strong pain relievers that lock onto mu-opioid receptors in the spinal cord and brain. This blocks pain signals traveling from the bowel to the brain and raises the brain's pain threshold, so the patient feels much less discomfort.

1. Opioid binds to mu-receptor on the surface of pain-transmitting neurons.
2. Receptor activation opens potassium channels (K^+ flows out) and closes calcium channels (Ca^{2+} stays out).
3. The neuron becomes hyperpolarized (harder to fire) and releases less glutamate and substance P (pain messengers).
4. Pain signal does not reach the brain, and the brain's own pain-control circuits are boosted.

5. Patient reports lower pain score within 5–15 minutes (IV) or 30–60 minutes (oral).

SAFETY WATCH

Slows gut motility further (acts on opioid receptors in the bowel wall), which may worsen distension; use the lowest dose that controls pain. · Can drop respiratory rate and oxygen saturation (respiratory depression); monitor breathing, especially if also sedated or elderly. · Causes nausea, vomiting, and constipation once the obstruction resolves. · Risk of dependence with prolonged use; taper and switch to non-opioid analgesia as soon as safe. · Hold or reduce dose if respiratory rate < 10/min, severe sedation, or new confusion.

Gastrografin (diatrizoate meglumine and diatrizoate sodium oral solution) · Hyperosmolar water-soluble contrast agent

Gastrografin is a thick, salty liquid contrast dye. When given through the NG tube or by mouth, it does two jobs. First, it is hyperosmolar—much saltier than body fluid—so it pulls water from the bowel wall and bloodstream into the bowel lumen by osmosis, like pouring salt on a slug. This extra fluid softens and lubricates the blockage and may flush it forward. Second, Gastrografin shows up bright white on X-rays and CT scans, letting doctors track whether it passes through the bowel in 24 hours. If it reaches the colon, the partial obstruction will likely resolve without surgery. If it does not pass, surgery is usually needed.

1. Give 50–100 mL of Gastrografin via NG tube or by mouth (if no NG tube and patient not vomiting).
2. Hyperosmolar solution (1900 mOsm/L, about six times blood osmolarity) draws water into the bowel by osmosis.
3. Increased luminal fluid softens stool, dilutes the obstruction, and increases intraluminal pressure, which may help open a partial blockage.
4. Take abdominal X-rays at 4, 8, and 24 hours; if contrast reaches the right colon by 24 hours, obstruction is likely resolving.
5. If no contrast in colon at 24 hours, obstruction is complete or high-grade; prepare for surgery.

SAFETY WATCH

Hyperosmolar fluid can pull so much water into the bowel that the patient becomes dehydrated and blood sodium rises (hypernatremia); give IV fluids during and after Gastrografin. · Do NOT use barium in suspected obstruction—if the bowel perforates, barium causes severe peritonitis and cannot be washed out. · Rare aspiration risk if patient vomits during administration; ensure NG tube position is confirmed and patient is not actively vomiting. · Iodine allergy is a relative concern, but Gastrografin is not IV so systemic reaction is rare; still ask about shellfish or prior contrast allergy.

Antibiotics (broad-spectrum: cefoxitin, cefotetan, piperacillin-tazobactam, or meropenem) · Beta-lactam antibiotics (cephalosporins, penicillin combinations, carbapenems)

If the bowel is strangled (blood supply cut off) or perforated (hole in the wall), bacteria from inside the gut spill into the normally sterile abdominal cavity, causing peritonitis (infection of the belly lining) and sepsis (body-wide infection). These broad-spectrum antibiotics kill both aerobic bacteria (like *E. coli*, which need oxygen) and anaerobic bacteria (like *Bacteroides*, which live without oxygen) by blocking cell-wall building. Without a cell wall, bacteria burst and die, stopping the infection from spreading.

1. Antibiotic enters the bloodstream via IV and distributes into infected tissue.
2. Drug binds to penicillin-binding proteins (PBPs) on the bacterial cell membrane.
3. PBPs normally cross-link peptidoglycan strands to build the rigid cell wall.
4. With PBPs blocked, new cell wall is weak and incomplete.
5. Osmotic pressure causes the bacteria to swell and lyse (burst).
6. Bacterial count drops, inflammation decreases, and infection is controlled.

SAFETY WATCH

Allergic reactions: rash, hives; rare but serious anaphylaxis (difficulty breathing, low blood pressure) especially with penicillin allergy history. · *Clostridioides difficile* colitis: antibiotics kill normal gut flora, allowing *C. diff* to overgrow and cause severe diarrhea, fever, and abdominal pain; watch for watery stools during and after treatment. · Kidney injury: some beta-lactams (especially high-dose penicillins and carbapenems) can harm the kidneys; monitor creatinine, adjust dose in renal impairment. · Drug interactions: carbapenems lower seizure threshold, especially in patients with brain disease or on other seizure-risk drugs.

Red flags

- Severe, constant belly pain instead of crampy waves—suggests strangulation (blood supply cut off) or dead bowel
- Fever, fast heart rate, or signs of shock (low blood pressure, confusion, cold skin)—suggests infection, perforation, or dying tissue
- Severe tenderness in one spot with guarding or rebound pain—suggests peritonitis from a perforated or dead loop of bowel
- Bloody stool or vomit—suggests bleeding from damaged bowel wall or starved blood flow (ischemia)
- Sudden silence of bowel sounds after they were active—suggests the bowel has stopped working (ileus) or has perforated

Nursing priorities

1. Place two large-bore IV catheters (18-gauge or larger) and start isotonic fluid resuscitation with normal saline or lactated Ringer solution at the ordered rate, usually 125 to 250 mL per hour initially — The obstructed bowel leaks fluid and electrolytes into the belly and causes vomiting, leading to severe dehydration and hypovolemia (low blood volume) that can drop blood pressure and harm kidneys; large IVs allow rapid fluid replacement
2. Keep the patient NPO (nothing by mouth), remove all food and water from the bedside, and explain that eating or drinking will cause more vomiting and worsen the blockage — Food and liquid cannot pass through the obstruction and will collect above the blockage, increasing pressure, stretching the bowel wall, causing more pain and vomiting, and raising the risk of perforation or aspiration (breathing vomit into the lungs)
3. Insert or maintain a nasogastric tube (NG tube) on low intermittent suction and measure output every 4 hours, reporting if output is greater than 200 mL per hour or if the patient vomits with the tube in place — The NG tube removes swallowed air and backed-up stomach contents, which decompresses (reduces pressure in) the bowel, relieves nausea and vomiting, and prevents aspiration; high output tells the team the obstruction is severe
4. Monitor vital signs every 2 to 4 hours, watching for fever above 100.4°F (38°C), heart rate above 110, blood pressure drop, or decreased urine output below 30 mL per hour, and notify the provider immediately if any occur — Fever and fast heart rate signal infection from dead bowel or perforation; low blood pressure and dark concentrated urine mean severe dehydration or sepsis (body-wide infection); these changes require urgent surgery or ICU care

5. Assess the abdomen every 4 hours for bowel sounds, firmness, increasing distension (swelling), and tenderness, and immediately report if the belly becomes rigid, silent, or if rebound tenderness develops — High-pitched or tinkling bowel sounds mean the bowel is working against the blockage; absent sounds may mean the bowel is tired or dying; rigidity and rebound tenderness signal peritonitis from perforation or strangulation, requiring emergency surgery
6. Track and document all fluid output including NG tube drainage, urine, vomit, and any stool, and monitor lab results for potassium, sodium, chloride, and lactate levels — Large fluid losses through the NG tube and vomiting cause dangerous electrolyte imbalances, especially low potassium (which causes heart rhythm problems) and metabolic alkalosis (the blood turning too alkaline) (blood too basic); rising lactate signals bowel starved blood flow (ischemia) (dying tissue)
7. Give prescribed pain medication promptly, using the pain scale every 2 to 4 hours, but immediately tell the provider if pain suddenly worsens or becomes constant instead of crampy — Crampy pain is expected with obstruction as the bowel squeezes, but sudden severe constant pain suggests strangulation or perforation; adequate pain control is humane and helps the patient rest, but we must not mask warning signs of complications
8. Position the patient with the head of the bed elevated at least 30 degrees and encourage turning side to side every 2 hours if not contraindicated by surgical plans — Head elevation reduces the risk of aspirating stomach contents or vomit into the lungs, which can cause aspiration pneumonia; position changes promote comfort and prevent pressure injuries during the wait-and-see period before potential surgery

Sources

- EAST Practice Management Guidelines for Small Bowel Obstruction (2012)
- American College of Surgeons
- World Journal of Emergency Surgery consensus guidelines
- UpToDate Clinical Guidelines

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