

Ileal Lavage

R. B. TURNBULL JR. MD WOC NURSING EDUCATION PROGRAM

For the person with an ileostomy, whether permanent or temporary, the colon is either removed or bypassed, and the absorptive function of the colon has been lost. A potential complication resulting from this is food bolus. This can be a full or a partial blockage of the ileum, and causes this person a range of uncomfortable symptoms.

Objectives

- Distinguish between a food bolus and other types of obstruction
- Demonstrate the steps of an ileal lavage
- Plan dietary teaching guidelines to prevent food bolus obstruction

The learning objectives for this lesson are to distinguish between a food bolus and other types of obstruction, demonstrate the steps of ileal lavage, and plan dietary teaching guidelines to prevent food bolus obstruction.

Ileal lavage: Definition and terminology

■ Ileal lavage

- Used when a small bowel obstruction is caused by a food bolus
- Gradually dislodge the fibrous mass (food bolus) through repetitive saline instillations



When a lavage is ordered, the request is for instillation of normal saline, in small amounts at a time, using a catheter, in order to break up a mass, or bolus, of undigested material present within the last 6 inches of the terminal ileum. Remember, undigested food is not the only cause of an obstruction, so patients presenting with small bowel obstruction symptoms should be carefully evaluated to rule out other causes prior to this procedure being performed.

Types of obstruction

- Food blockage
- Mechanical
- Both can be partial or complete



<https://www.britannica.com/science/volvulus>

There are two major categories of ileal obstruction, food bolus obstruction or a mechanical obstruction. Both types of obstruction can be complete, meaning no effluent is able to traverse the full length of the intestine or partial, meaning some effluent may be able to get through. In the event of no stoma output, the patient should take no food or fluids by mouth, physician should be notified, and the patient sent to the ED for evaluation of the cause.

Pathophysiology of food blockage

- Ileum with a relatively narrow lumen
- Narrowed further with edema or if scar tissue develops at the fascial layer
- Undigested fibrous residue accumulates and can lead to complete or partial obstruction of the bowel lumen



With a food bolus obstruction, also called a food blockage, undigested fibrous material accumulates at the fascial layer immediately behind the stoma. The lumen of the ileum is most narrow in this area and can trap this undigested material, similar to how twigs and debris are trapped at a narrow part of a creek. This undigested material then blocks off the lumen of the ileum and the symptoms of blockage begin to appear.

Mechanical intestinal obstruction

- Adhesions
- Herniation
- Severe edema
- Twist in the bowel

Upright abdominal X-ray demonstrating a small bowel obstruction.
Note multiple air fluid levels



Photo by James Heilman, MD - Own work, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=15997133>

A mechanical intestinal obstruction, on the other hand, can be caused by a band of adhesions or scar tissue that narrows the intestinal lumen; a hernia can also cause an obstruction as can a twist or kink (volvulus) in the intestine. Excessive edema may also cause an occlusion to the lumen of the small intestine.

Food blockage: Diagnosis

- Usually occurs at fascia level
- Obtain diet history from last 24-48 hours
- Frequently identified by digital examination
- Ability to insert the catheter 8-10 cm. without difficulty usually indicates a more proximal obstruction
- Medical management
 - Blood tests
 - Abdominal x-ray
 - Endoscopy
 - CT scan

A small bowel obstruction as seen on CT

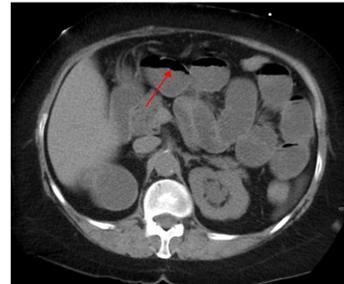


Photo by James Heilman, MD - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=15997133>



When a patient arrives with a bowel obstruction, it is always important to obtain an accurate diet history, particularly for the past 24-48 hours. A food bolus obstruction occurs at the fascial level and can sometimes be identified by inserting a well lubricated pinkie finger gently into the lumen of the stoma. A work-up for obstruction occurs and includes blood work and a flat plate of the abdomen. Further testing may include a CT scan or endoscopy. Based on a good history and negative flat plate, an initial diagnosis of food bolus obstruction can be made by the LIP. At that point, the WOC nurse may be asked to lavage the patient with an LIP order. This can be a diagnostic test as well as treatment.

Ileal obstruction: Symptoms

By Armanjain011 - Made by hand while studying, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=25891777>

Begin with stoma and abdominal assessment	Abdominal Examination
Silent bowel sounds	<p>1) Exposure 2) Lighting and Position</p> 
Edematous stoma	<p>3) INSPECTION</p> 
Abdominal cramping	<p>4) PALPATION</p> 
Abdominal assessment	<p>5) PERCUSSION</p> 
Nausea and vomiting	<p>6) AUSCULTATION</p> 
High-pitched, tinkling bowel sounds	
Absence of stoma output for 4-6 hours, or, watery, foul-smelling, clear output	



Individuals will complain of abdominal cramping, sometimes extreme. There may be no output, or the effluent may be highly liquid and clear with a very foul odor. This occurs as the intestine pulls fluid into the lumen in the hope of dislodging whatever is causing the blockage. There may be high-pitched tinkling bowel sounds or the abdomen may be silent. The stoma is usually edematous, but this is variable. The individual relays a history of eating some type of fibrous food within the last 24 hours, abdominal cramping or pain, nausea, vomiting, and change in the quality/quantity of the ileal output. The individual's abdomen may also be distended.

Food bolus obstruction: Problem foods

Assess food intake over last 24-72 hours

▪ Popcorn, mushrooms,	▪ Raw cabbage, coleslaw
▪ Large seeds – watermelon seeds	▪ Dried fruits
▪ Non-digestible, fibrous peels	✓ Raisins, dried figs, apricots
✓ Grapes, apple skins, potato peels	▪ Nuts
▪ Meats with casings	▪ Stringy, fibrous foods
✓ Bologna, sausage, hot dogs	✓ Corn, coconut, raw celery, Chinese vegetables
▪ Any food that would remain hard if left in water overnight	



There are a wide varieties of food that can cause a food bolus obstruction. These include stringy fibrous food, such as Chinese vegetables (remain crunchy when cooked), raw celery, coconut, corn, or any food that stays hard if left overnight in water. Peels (such as from potatoes, grapes, apples, peaches), raw cabbage, dried fruit, nuts, popcorn, meats with casings, and large seeds are also culprits. We will talk about prevention in a moment.

Food bolus: Conservative care

■ Conservative management

- Walk
- Avoid solid foods
- Drink warm fluids
 - ***If no output, no fluids***
- Peristomal massage
- Warm tub bath to relax abdominal muscles



Conservative management of a suspected food bolus obstruction are undertaken to relax the abdominal muscles, stimulate peristalsis, and not worsen the situation. As long as there is output, fluids can be taken in moderation; warm fluids tend to cause more relaxation of the muscles. A warm bath can help with muscle relaxation as well. The individual should avoid solid foods, and walk. Abdominal massage in the area of the stoma increases the pressure behind the blockage and may help to “pop” the blockage out. If symptoms worsen, or if no improvement occurs within 24 hours, the individual should go to their surgeon’s office or the local emergency department for further evaluation and treatment.

Food bolus: Medical management

- Medical management
 - Lavage
 - NG tube
 - IV fluids
 - Surgery



Medical management is dependent upon the extent of the symptoms. IV fluids are standard to ensure adequate hydration. Work-up to determine the cause of the obstruction and administration of pain medications are also fairly standard. Antiemetics may be given and a nasogastric tube may be inserted if vomiting is persistent. If testing indicates, surgery to relieve a mechanical reason for an obstruction, such as lysis of a band of adhesions, may be necessary.

If history indicates a possible food blockage, an ileal lavage will be ordered. The first step is to have the patient medicated, if that has not been done, so as to relax the abdominal muscles and make the procedure easier on the patient. There should be no pain with the lavage, but patients can be anxious and scared and already experiencing pain all of which further tighten the abdominal muscles.

Lavage: Needed equipment



- *Soft 14-16 Fr. Catheter
- *Water soluble lubricant
- *Appropriate PPE



- *Irrigation set with bulb or piston syringe
- *Irrigation sleeve/ostomy pouch

Many WOC nurses prefer a 16-18 Fr. Catheter, mainly because the lumen of a 14 Fr. may be too small for the food and debris to flow through



- *Normal saline
- *Bed protection pads
- *Drainage receptacle



The equipment required is listed on this slide. Remember if this is a true food bolus obstruction, the larger the “eyes” of the indwelling catheter, the easier it will be for the food particles to pass through. If you do not have an irrigation sleeve readily available, cut a small hole at the top of the pouch, let the spout rest in a container. Then change the entire system when the lavage is complete. Be sure to adequately protect the bed linen.

Ileal lavage: Procedure

Explain procedure to patient

- Wash hands
- Pre-medicate for relaxation and/or cramping
- Assemble equipment at the bedside
- Position the patient to supine position
- Protect bed linen
- Apply non-sterile gloves and other PPE
- Position drainage receptacle next to the patient
- Direct drainage spout of pouch into the receptacle



The initial steps of the procedure are outlined on this slide. The better prepared you have your area, the better. Placing the fluid container on an over bed table or tray will make your job easier.

Ileal lavage: Procedure

- Lubricate the catheter tip and connect to syringe filled with **40-60** cc of saline
- Insert the catheter into the stoma while gently injecting **40-60** cc of saline
- A maximum volume of **100** cc may be instilled at one time
 - a. If no resistance is met, slowly advance the catheter using an “*in – and – out*” motion
 - b. The catheter may be advanced its entire length as long as no resistance is encountered



Begin by using 40-60 cc of saline at a time; you may use 100 cc at once, but never more. Insert the catheter into the stoma lumen; gently instill the normal saline while the catheter is being advanced. Periodically disconnect the syringe from the catheter to allow any material to flow out; the catheter can be inserted its full length if no resistance is met. If this can be done, by definition, a food bolus is not present. There may be blockage higher in the intestine, but a lavage will not help. However, 250-500cc of solution is usually instilled even if no food particles are observed. If the returns are clear, discontinue the lavage when this volume of fluid is instilled (Carmel & Scardillo, 2022)

Ileal lavage: Procedure

- Disconnect the catheter from the syringe to allow irrigant and food particles to return.
- Remove the catheter intermittently to assess catheter patency.
- Repeat lavage steps until there is relief or a negative response.
 - a. A positive response = progressive discoloration of the returned solution or effluent containing fiber or food particles. A maximum of 1,000 cc of saline in increments of 40-60 cc can be used.
 - b. Negative response = clear return of the solution after 500 cc of solution used.

If food particles are obtained, this procedure, that is instillation of 40-100cc of normal saline while the indwelling catheter is moved with an in and out motion, is continued until there is a steady output flow or 1000cc of solution has been used. If the blockage is from a food bolus, once the food begins to break up, the result is something like a volcanic eruption. The effluent can come out with some force and will flow steadily until the back-up of effluent clears.

Ileal lavage: Procedure

- When lavage is completed, apply clean pouching system.
- Remove gloves.
- Discard waste in appropriate container.
- Wash hands.
- Notify LIP of results
- Document the procedure in the medical record.



When the lavage is complete, remove the old pouching system, measure the stoma. This is critical as the stoma becomes edematous secondary to the intestines efforts to push the blockage out. Repouch with the appropriate size aperture. If the stoma is edematous, it will generally be at its usual size by the next pouch change. Have the patient remeasure before application of his or her usual size.

Be sure to inform the LIP of the results as this will dictate the next step of care. If the blockage is broken, the patient is discharged to home. If the results were negative, that is, no food particles with a clear return, another reason for the blockage needs defined and a hospital admission may occur. And, as always, document the procedure in the medical record.

Food bolus obstruction: Prevention

- Monitor response to new foods
- Eat smaller, more frequent meals
- Omit high-fiber foods for the first six (6) weeks after surgery
- Add high-fiber foods one at a time in small amounts
- Chew food well and drink plenty of fluids

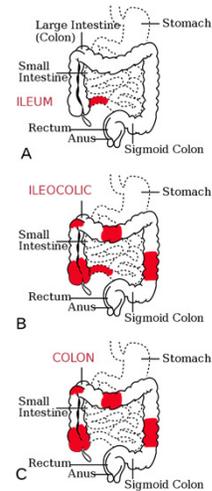


There are things a patient can do to prevent a food bolus obstruction. It is recommended that high fiber foods be omitted for the first 6 weeks after surgery. Foods that are high in fiber should be gradually introduced into the diet one food at a time. Food should be chewed thoroughly and interspersed with fluids. Smaller, more frequent meals are encouraged. A rule of thumb to help determine if a food should be eaten: if it has the ability to be smashed/flattened with a fork, it is okay to eat. An example may help: one can take a raw carrot and it cannot be flattened with a fork. However, the carrot can be cooked until it softens to the point it can be flattened.

Obstruction in IBD

- More likely to occur in Crohn's than MUC
- Chronic inflammation of the intestinal wall raises risk of obstruction
- Minimize flare-ups of Crohn's disease

Schematic of patterns of disease in Crohn's disease (CD).
Based on diagram of human intestine in GFDL.



By Samir, vectorized by Fvasconcellos - w:Image:Patterns of CD.jpg, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=1359310>

Individuals with Crohn's disease tend to be more prone to obstructions than those with MUC. However, any patient with an ileostomy can have a food bolus obstruction.

Reference

Baiu, I., & Hawn, M. T. (2018). Small bowel obstruction. *JAMA Patient Page*, 319(20), 2146.

<https://doi.org/10.1001/jama.2018.5834>

Carmel, J., & Scardillo, J. (2022). Adaptations, rehabilitation, and long-term care management

issues. In J. Carmel, J. Colwell, & M. T. Goldberg (Eds.), *Wound, Ostomy, and Continence*

Nurses Society core curriculum: Ostomy management (2nd ed., pp. 201-222). Wolters Kluwer.



This ends the lesson on ileal lavage. For more information, check the listed references.
Thank you for your attention.