

## **Definition:**

A blockage of the gastrointestinal tract. The most common causes are eating non digestible material such as plastic, wood, plant material and stones. Other diseases include twisted bowel, cancer and thickened stomach muscle

## **Signs:**

They vary but generally include abdominal pain, off food and reduced or no bowel movements

## **Advice:**

A life threatening situation. Seek veterinary advice sooner than later. Diagnosis can be difficult, but early surgery usually has good results.

## **OVERVIEW**

- “Gastro-” refers to stomach; “intestinal” refers to the intestines
- “Gastrointestinal obstruction” is a partial or complete blockage or obstruction of the flow of solid or liquid nutrients taken into the body (known as “ingesta”) and/or secretions from the stomach into the small intestines (known as “gastric outlet obstruction”) and through the small intestines (known as “small intestine obstruction”); the blockage may involve the stomach or the small intestines or both
- “Pylorus” is the area where the stomach and upper small intestine (known as the “duodenum”) join together
- The small intestines include the duodenum (upper small intestine), jejunum (the longest section, located in the middle of the small intestines), and the ileum (the shortest section, which joins with the large intestines; the ileum is the lower small intestine)

## **GENETICS**

- Unknown

## **SIGNALMENT/DESCRIPTION OF PET**

### **Species**

- Dogs
- Cats
- Foreign bodies more common in dogs, due to their tendency to eat objects indiscriminately

### **Breed Predispositions**

- Congenital (present at birth) narrowing of the area where the stomach and upper small intestine join together (area is the “pylorus”; condition known as “pyloric stenosis”)—more common in short-nosed, flat-faced (known as “brachycephalic”) breeds (such as boxers, Boston terriers) and Siamese cats
- Acquired (condition that develops sometime later in life/after birth) long-term (chronic) disease characterized by thickening of the stomach at the area where the stomach and upper small intestine join together (condition known as “hypertrophic gastropathy”)—more common in Lhasa apsos, Shih tzus, Pekingese, and poodles
- Stomach dilates with gas and/or fluid (known as “gastric dilatation”), and subsequently rotates around its short axis (known as “volvulus”)—condition known as “gastric dilatation-volvulus” or “bloat”—more common in large-breed dogs (such as German shepherd dogs, Great Danes)

### **Mean Age and Range**

- Foreign bodies—more common in young pets but can occur at any age
- Pyloric stenosis (narrowing of the area where the stomach and upper small intestine join together)—occurs most often in young pets
- Long-term (chronic) hypertrophic gastropathy (disease characterized by thickening of the stomach at the area where the stomach and upper small intestine join together)—more common in middle-aged and older pets
- Folding of one segment of the intestine into another segment (known as “intussusception”)—most common in young pets

## **SIGNS/OBSERVED CHANGES IN THE PET**

- Vomiting—hallmark sign; may occur soon after eating, especially with blockage at the area where the stomach empties into the upper small intestine (known as “gastric outlet obstruction”); if vomiting occurs greater than 8 hours after eating, delayed stomach emptying may lead to severe vomiting that may be characterized as “projectile vomiting”
- Other variable clinical signs—lack of appetite (known as “anorexia”); sluggishness (lethargy); general signs of discomfort and “not feeling well” (known as “malaise”); excessive salivation (known as “ptyalism”); diarrhea; black, tarry stools (due to the presence of digested blood; condition known as “melena”); and weight loss
- Pet may continue to have bowel movements, even with intestinal obstruction
- Physical examination findings can vary from “normal” to the pet being in a “life-threatening crisis”—signs may include dehydration, shock, presence of a foreign body, abdominal discomfort or pain, and abdominal mass
- Linear foreign bodies (such as string)—careful examination under the tongue is essential for detection; although more common in cats, linear foreign bodies occur in dogs

## CAUSES

### Gastric Outflow Obstruction

- Blockage at the area where the stomach empties into the upper small intestine
- Foreign bodies
- Pyloric stenosis (narrowing of the area where the stomach and upper small intestine join together)
- Long-term (chronic) hypertrophic gastropathy (disease characterized by thickening of the stomach at the area where the stomach and upper small intestine join together)
- Tumor or cancer
- Stomach dilates with gas and/or fluid (gastric dilatation), and subsequently rotates around its short axis (volvulus)—condition known as “gastric dilatation-volvulus” or “bloat”
- Inflammation of the stomach and/or intestines, characterized by the presence of nodules (known as “granulomatous gastritis” [stomach] or “granulomatous gastroenteritis” [stomach and intestines]), such as pythiosis (infection caused by *Pythium*, a water mold)

### Small Intestinal Obstruction

- Foreign bodies
- Folding of one segment of the intestine into another segment (intussusception)
- Defect or tear in the muscular wall of the abdomen, allowing intestines to slide into an abnormal location and become trapped (known as a “hernia with incarceration”)
- Twisting of the support tissues of the intestines (known as “mesenteric torsion or volvulus”)
- Tumor or cancer
- Inflammation of the intestines, characterized by the presence of nodules (known as “granulomatous enteritis”)
- Abnormal narrowing of the small intestine (known as an “intestinal stricture”)

## RISK FACTORS

- Exposure to and tendency to eat foreign bodies (such as rocks, string, or cloth)
- Folding of one segment of the intestine into another segment (intussusception)—associated with intestinal parasites and viral infection of the intestines (known as “viral enteritis,” such as parvovirus infection)

# TREATMENT

## HEALTH CARE

- Inpatient—for diagnosis, initial supportive medical care, and relief of the blockage or obstruction (usually with surgery)
- Delay in diagnosis may result in death of intestinal tissue (known as “intestinal necrosis”), abnormal opening or hole in the stomach or intestines (known as a “perforation”), and bacterial infection of the lining of the abdomen (known as “septic peritonitis”) and increased risk of death
- Intravenous fluids—necessary to treat dehydration, to provide circulatory support, and to correct acid–base and electrolyte abnormalities
- Colloids may be beneficial; “colloids” are fluids that contain larger molecules that stay within the circulating blood to help maintain circulating blood volume, examples are voluven and hetastarch
- Potassium supplementation

## ACTIVITY

- Restricted

## DIET

- Nothing by mouth until relief of blockage or obstruction and resolution of vomiting; then feed bland low fat diet for 1–2 days, with gradual return to normal diet
- Tube feeding may be necessary during surgical recovery

## SURGERY

- Surgery—sudden (acute) intestinal blockages or obstructions are emergencies, and surgery will be performed as soon as possible after immediate supportive medical care

### Gastric Outflow Obstruction

- Surgical widening of the pylorus, the area where the stomach and upper small intestines join together (procedure known as a “pyloroplasty”) or a surgical incision into the muscle of the pylorus (procedure known as a “pyloromyotomy”)—for pyloric stenosis (narrowing of the area where the stomach and upper small intestine join together) or chronic hypertrophic pyloric gastropathy (disease characterized by thickening of the stomach at the area where the stomach and upper small intestine join together)
- Surgical incision into the stomach (known as a “gastrotomy”)—for foreign bodies that cannot be removed using a special lighted instrument called an “endoscope” that is passed into the

esophagus and stomach through the mouth (general term for procedure is “endoscopy”)

- Surgical removal of a section of the stomach and upper small intestine—for nodular inflammation (granulomatous gastroenteritis) or masses
- Surgical attachment of the stomach to the abdominal wall (known as a “gastropexy”)—for gastric dilatation-volvulus or bloat (condition in which the stomach dilates with gas and/or fluid [gastric dilatation], and subsequently rotates around its short axis [volvulus])

### **Intestinal Obstruction**

- Surgical incision into the intestines (known as an “enterotomy”)—used to remove intestinal foreign bodies
- Surgical removal of a section of the intestines, with connection of the ends of the remaining sections of the intestines (known as an “intestinal resection and anastomosis”)—used for treatment of reduced blood flow to part of the intestinal tract, usually due to some type of blockage in a blood vessel, leading to decreased oxygen in the tissues (condition known as “intestinal ischemia”) and subsequent death of intestinal tissues (intestinal necrosis)
- Opening into the abdomen to allow flushing of the abdomen and lining of the abdomen (known as “open peritoneal lavage”)—treatment of abnormal opening or hole in the stomach or intestines (perforation) and bacterial infection of the lining of the abdomen (septic peritonitis), closed suction drainage may also be opted for
- Surgical attachment of the intestines to the abdominal wall (known as an “enteropexy”)—treatment of folding of one segment of the intestine into another segment (intussusception)

## **MEDICATIONS**

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all-inclusive

- Broad-spectrum antibiotics—examples are ampicillin or ticarcillin/clavulanate and an aminoglycoside (such as gentamicin, amikacin) or a fluoroquinolone (such as enrofloxacin, ciprofloxacin)
- Short-acting steroids—for shock; such as dexamethasone sodium phosphate or prednisolone sodium succinate
- Medications to control nausea and vomiting (known as “antiemetics”)—metoclopramide (may be given *after* the blockage or obstruction has been relieved) or maropitant
- H2-blockers (such as ranitidine), proton pump inhibitors (such as pantoprazole) and/or stomach-lining protectants (such as sucralfate)—may be used in pets with ulcers of the stomach and/or intestines

# FOLLOW-UP CARE

## PATIENT MONITORING

- Monitoring of hydration, packed cell volume (PCV, a means of measuring the percentage volume of red-blood cells as compared to the fluid volume of blood) and total solids (a quick laboratory test that provides general information on the level of protein in the fluid portion of the blood), and electrolyte (such as sodium, potassium, chloride) status closely will be done; the veterinarian will adjust fluid therapy accordingly
- Monitoring postoperatively for signs of inflammation of the lining of the abdomen (peritonitis) will be done

## PREVENTIONS AND AVOIDANCE

- Some pets with tendencies to eat foreign bodies may do so repeatedly; therefore, keep the pet away from foreign bodies, if possible
- Efforts to prevent eating of foreign bodies are important

## POSSIBLE COMPLICATIONS

- Aspiration pneumonia (inflammation of the lungs, caused by accidentally inhaling food, vomit, or liquids)
- Bacterial infection of the lining of the abdomen (septic peritonitis)
- Death of intestinal tissue (intestinal necrosis)
- Abnormal opening or hole in the stomach or intestines (perforation)
- Splitting open or bursting along the incision line (known as “dehiscence”)
- Lack of normal intestinal motility (known as “ileus”) and/or weakened or decreased muscular movement of the stomach (known as “gastroparesis”)

## EXPECTED COURSE AND PROGNOSIS

- Uncomplicated cases—prognosis good to excellent
- Abnormal opening or hole in the intestines (intestinal perforation) and bacterial infection of the lining of the abdomen (septic peritonitis)—prognosis guarded initially
- Blockage from inflammation of the stomach and/or intestines, characterized by the presence of nodules (obstructive granulomatous gastroenteritis)—prognosis guarded to poor, especially with pythiosis (infection caused by *Pythium*, a water mold)
- Twisting of the support tissues of the intestines (known as “mesenteric torsion or volvulus”)—prognosis poor to grave (most pets die despite surgery)

## KEY POINTS

- Pets with the tendency to eat foreign bodies often are repeat offenders; all reasonable efforts to prevent access to foreign bodies should be made
- Sudden (acute) intestinal blockages or obstructions are emergencies, and surgery should be performed as soon as possible after immediate supportive medical care

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