Common gastric upsets: treatment and prevention methods

Categories : Clinical, RVNs

Date : March 9, 2016

ABSTRACT

Vomiting is a common presentation in veterinary practice that can have a vast differential list. This article will discuss common gastric problems, as well as treatment and prevention, if applicable.

The stomach lies on the left side of the abdomen. Its walls are thick and highly distensible, and are covered in mucous membrane – the gastric mucosa – which is lined with deep folds or rugae. Rugae enable the stomach to stretch when filled with food.

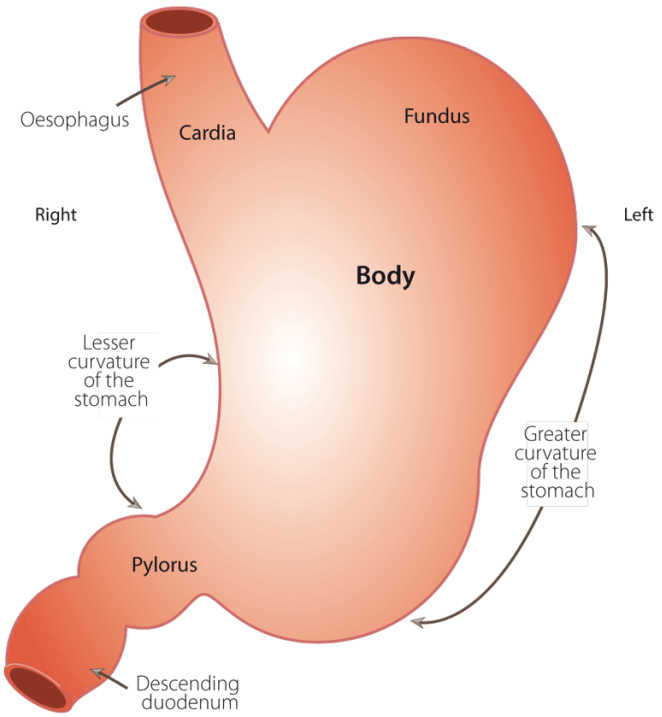

Figure 1. Diagram of a canine stomach.

When empty, the stomach lies underneath the ribs; when full, it can occupy as much as half of the abdomen. It can be divided into three areas:

- Cardia – the area where the oesophagus enters the stomach.
- Fundus – the body of the stomach.
- Pylorus – the most distal part of the stomach that connects to the duodenum. This is divided into two parts – the antrum, which connects to the body of the stomach, and the pyloric canal, which connects to the duodenum (**Figure 1**).

Vomiting

Vomiting is the forceful expulsion of food from the stomach and proximal small intestine, of which many causes exist. It can occur as a result of localised irritation of the gastrointestinal (GI)tract, diseases of the stomach or small intestine, or stimulation of the vomiting centre in the brain.

Common causes of vomiting include:

- dietary indiscretion
- dietary intolerance
- inflammation/infection from gastritis, inflammatory bowel disease (IBD), neoplasia, foreign material, Helicobacter, ulceration or drugs (for example, NSAIDs)
- obstruction from foreign bodies (FBs), neoplasia or pyloric mucosal hypertrophy
- motility disorders from gastric dilatation volvulus (GDV), bilious vomiting syndrome or opioids electrolyte disturbances (for example, hypokalaemia)
- systemic disease, such as pancreatitis, hepatic disease, renal disease, pyometra or infectious

Acute vomiting is often self-limiting and generally improves after 24 to 48 hours. It is typically associated with dietary indiscretion, infectious disease or toxin ingestion. Vomiting is usually considered as chronic if it has been ongoing for at least five days.

Acute vomiting is often treated symptomatically without a diagnosis, but, in more severe or chronic cases, investigations may include blood tests to rule out systemic disease and to monitor metabolic effects, radiographs, ultrasonography and endoscopy.

Symptomatic management in acute cases should include withholding food for 24 hours and providing adequate fluid intake either orally or parentally. This should be followed up with the introduction of small bland meals. Starvation is contraindicated in puppies and toy breeds due to the risk of hypoglycaemia. If vomiting is persistent then identification and treatment of the primary cause is essential.

Investigation of vomiting

When a patient is presented with vomiting, the vet must first clarify if it is vomiting rather than regurgitating. Drug or toxin exposure must be excluded, as well as a thorough clinical assessment for systemic disease, abdominal pain and/or distension and mass lesions:

- Obtain a complete history.
- Complete a full clinical examination (oral, abdominal palpation and rectal examination).
- Biochemistry, haematology and urinalysis to exclude systemic disease and assess hydration status.
- Species-specific pancreatic lipase immunoreactivity to investigate for pancreatitis.
- Diagnostic imaging – radiography with/without contrast studies to detect FBs and motility disorders.
- Abdominal ultrasonography to rule out gastric neoplasia and other abdominal disease where vomiting can be indicated – for example, pancreatic, pyometra or prostatitis. Ultrasonography will also aid evaluation of the bowel for abnormal wall layers, obstruction and mass lesions.
- Endoscopy to identify gastric ulceration and obtain biopsies.

Dietary indiscretion

Figure 2. Dietary indiscretion can result from ingestion of inappropriate foodstuffs, such as table scraps or leftovers. Image: Fotolia/Soloviova Liudmyla.

Dietary indiscretion is a term used to describe a medical condition in which an animal's GI tract is irritated and inflamed due to consumption of rich or unusual foods. This condition is usually an isolated event, unless the pet happens to get access to the offending food more than once.

Dietary indiscretion can lead to pancreatitis, gastroenteritis and colitis. It can result from ingestion of:

- spoiled or raw food

- non-food items, such as garbage, cat litter, foreign objects and plants
- exposed toxins, moulds and fungi
- inappropriate foodstuffs, such as table scraps or leftovers (**Figure 2**)
- large quantities of food

The best way to prevent both acute and chronic gastritis is to try to prevent dogs from scavenging and eating inappropriate and indigestible things. Food and medications a dog is known to be sensitive to should be avoided whenever possible.

Gastritis

Gastritis is a term used to describe a syndrome of acute or chronic vomiting secondary to inflammation of the gastric mucosa. Gastritis is a common cause of chronic vomiting that may be associated with IBD, dietary indiscretion, FB and toxin ingestion, NSAID usage, metabolic disease and gastric (viral, bacterial, protozoal, fungal and helminth) infection (Simpson, 2005).

Irritation, infection, antigenic stimulation or injury (such as chemical, erosion or ulceration) of the gastric mucosa stimulates the release of inflammatory and vasoactive mediators, which disrupts gastric epithelial cells, increasing gastric acid secretion and impairing the gastric barrier function. As a result, visceral receptors sensitive to gastric distention, inflammation and tonicity of gastric contents send impulses to the vomiting centre of the medulla oblongata, stimulating the vomiting reflex.

In acute gastritis, sudden onset of vomiting is presumed or confirmed to be secondary to inflammation of the gastric mucosa. Causes can include dietary indiscretion or intolerance, drug or toxin ingestion, systemic illness, endoparasitism or viral infection. Vomiting of sudden onset is characteristic.

Where gastritis is the cause of vomiting, nutritional requirements are determined by whether this is an acute or chronic disorder. Following acute severe vomiting, water, potassium, sodium, chloride and bicarbonate are lost in significant quantities. The priority is to manage fluid and electrolyte imbalances and persistent vomiting beyond 72 hours may require the use of parenteral nutrition.

Diagnosis is usually based on a thorough history, clinical findings and response to symptomatic treatment. A specific diagnosis should be sought if the animal had access to foreign objects or toxins, if clinical signs do not resolve within two days of symptomatic therapy, if haematemesis or melena is present, if the animal is systemically unwell or if abnormalities are noted on abdominal palpation.

Dogs may signal the presence of cranial abdominal discomfort by adopting a “praying” posture, which seems to provide some sense of relief. Diagnostic imaging, including plain and/or barium contrast abdominal radiographs and abdominal ultrasound, may be indicated.

Acute gastritis treatment is generally symptomatic and supportive. Small amounts of oral fluids can be given frequently, with the volume increasing as vomiting subsides. Oral intake should be discontinued for 24 hours, with the introduction of small amounts of a bland, low-fat, easily digestible diet fed frequently, with gradual transition to the usual diet over three to five days.

If dehydration is moderate to severe or the clinical condition of the animal warrants IV fluid therapy, a more extensive diagnostic evaluation is indicated. Antiemetic drugs should be used to control vomiting only after an aetiologic diagnosis has been made, or if vomiting is protracted or severe enough to cause dehydration or electrolyte imbalances. It is contraindicated in confirmed or suspected GI obstructions.

Chronic gastritis

Chronic gastritis should be considered in animals with intermittent or persistent vomiting that lasts more than seven days and that cannot be attributed to dietary indiscretion or intolerance, drugs, toxins or FB ingestion, systemic illness, endoparasitism, infection or neoplasia. The most common clinical sign is intermittent vomiting of food or bile, which often occurs in the morning.

Systemic illness, weight loss and GI ulceration are infrequent and should raise suspicion of a more serious condition or diffuse GI inflammation (for example, IBD). Histologic evaluation of endoscopic or surgical gastric biopsies is required for prolonged gastritis.

Gastric ulceration

Gastric ulceration may be associated with use of NSAIDs, irritant FBs, renal diseases and neoplasia. It can also be associated with poor gastric motility and emptying. Treatment includes removing the underlying cause, treating renal disease and withdrawing drug therapies.

It is also important to reduce gastric acid PH with H^2 blockers (cimetidine, ranitidine and famotidine) or proton pump inhibitors (omeprazole) under the cascade. Sucralfate can also be used to protect the mucosa.

Obstructive disorders/FBs

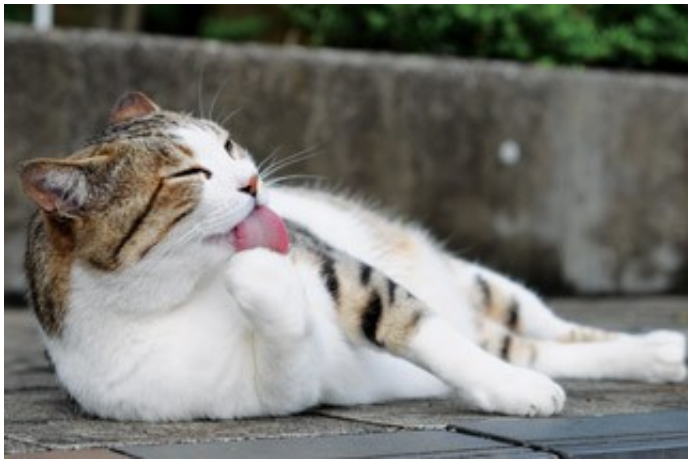

Figure 3. In most cases, foreign material consists of accumulations of fur swallowed from grooming. Image: Wikimedia Commons/Hisashi.

The severity of clinical signs associated with gastric FBs varies vastly and is dependent on the degree of gastric outflow obstruction. Most patients will present with vomiting, anorexia and depression. Cats frequently develop acute onset vomiting as a result of FB ingestion.

In most cases, the foreign material consists of accumulations of fur swallowed from grooming (**Figure 3**). FBs that obstruct the gastric outflow can cause acute abdominal crisis with metabolic disorders and electrolyte imbalances developing following an obstruction at the pylorus. Treatment includes retrieval via endoscopy
or gastrotomy.

Gastric neoplasia

Gastric neoplasia is relatively uncommon. Malignant tumours are more common than benign. The lesser curvature and pyloric regions are typically affected and metastatic spread is common, giving a poor prognosis. Lymphoma
is the most common gastric neoplasia in cats and dogs.

Gastric *Helicobacter*

Helicobacter species are related to Campylobacter species and are pathogens affecting the stomach. Unlike many bacterial pathogens, *Helicobacter* species are able to survive in the extremely low pH environment in the stomach. Discovery of the association of *Helicobacter pylori* with gastritis, peptic ulcers and gastric neoplasia has led to fundamental changes in the understanding of gastric disease in humans.

Such an association in cats and dogs has not yet been proven. In general, *Helicobacter* is treated if the organism is present in the gastric mucosa with associated inflammatory changes. Antibiotic

(amoxicillin, metronidazole and omeprazole) use is indicated for the treatment of gastric ulcers related to *Helicobacter*.

Motility disorders – GDV

GDV is a syndrome of gaseous distention that can lead to the stomach's body rotating on its axis to an abnormal position, causing hypovolaemic shock, intense pain and death, if not treated quickly and effectively. Early studies showed mortality rates between 33% and 68% for dogs (Muir, 1982), whereas recent studies have reported mortality rates between 10% and 26.8% (Mackenzie et al, 2010).

Gastric dilatation usually presents acutely in medium to large deep-chested dog breeds, but can be seen in smaller breeds. The aetiology is not known, but many predisposing factors exist, such as:

- rapid ingestion of large meals
- vigorous exercise on a full stomach
- increased population of gas from fermenting food
- reduced expulsion of gas
- delayed gastric emptying as a result of a motility disorder

Treatment includes shock rate fluid therapy to counteract vascular collapse. Pressure on the stomach must be relieved by either passing a stomach tube or by trocharisation. Surgical treatment (gastropexy) is required to return the stomach to its normal anatomical position and help prevent recurrence.

Owners of predisposed breeds should be advised of preventive measures, which can include dividing the daily diet into small, frequent meals, feeding from a raised level, avoiding exercise around feeding, slowing feeding down by using toys/games, anti-gulp bowls, avoiding excess water consumption during feeding, reducing competitive feeding, and feeding a combination of dry and wet diets.

Treatment for gastric upsets

When treating gastric upsets, consider the following:

- Withhold food for 24 hours if indicated.
- Offer small amounts of water or oral rehydration products frequently during the first 24 hours (if fluids cannot be given orally without inducing vomiting, inform a vet).
- If no vomiting occurs for 24 hours, feed a small amount of a highly-digestible, low-fat food.
- Resume feeding, with small meals given frequently (usually about half of the normal daily amount of food divided into four to six meals).
- Gradually increase the food amount over the next two to three days.

Prevention

For gastric upset prevention, consider:

- Avoiding sudden changes in diet, feeding rich human food or excessive treats.
- Dietary management may include adjusting the type, volume, location and/or frequency of food offered. This often plays a key role in solving digestive disorders.
- Prebiotics or probiotics to help balance bacteria in the gut, although only anecdotal evidence exists to support their use.
- Fluid therapy.
- Use of faecal regulators if diarrhoea is also present. These include binders (such as kaolin), softeners (such as lactulose) or lubricators (such as liquid paraffin-based compounds).
- Antibiotics may sometimes be indicated for the control of some infectious diseases.
- Treatment of any underlying systemic disease.
- Surgery may be needed to remove a FB or neoplasia.
- Chemotherapy may be indicated for certain types of neoplasia.
- Stress management of cats and some dogs may help in the control of irritable bowel disease and other GI diseases.
- Attempt to slow pets down that eat too fast (for example, use food enrichment activities).
- Regular cat grooming to help manage excessive hairballs.

Conclusion

Vomiting is a common presentation in practice and, due to a vast number of underlying causes, a definitive diagnosis should be sought. Veterinary nurses often triage vomiting patients and must be aware of possible causes of gastric upset.

- Please note drugs mentioned in this article are used under the cascade.
- Article reviewed by Mark Oversend and Helen Stoneman.