

# STOMACH (GASTRIC) MOTILITY DISORDERS

## (ABNORMALITIES IN STOMACH EMPTYING)

### BASICS

#### OVERVIEW

• Stomach (gastric) motility disorders result from conditions that directly or indirectly disrupt normal stomach emptying, which in turn may cause abnormal retention of food and fluid in the stomach (known as “gastric retention”), stomach distention, and subsequent signs, such as lack of appetite (anorexia), nausea, and vomiting

#### SIGNALMENT/DESCRIPTION of ANIMAL

##### *Species*

- Dogs and cats

##### *Mean Age and Range*

- Signs occur at any age, though it is uncommon to observe primary stomach (gastric) motility disorders in young animals

#### SIGNS/OBSERVED CHANGES in the ANIMAL

- Clinical signs often are secondary to the primary cause of the stomach (gastric) motility disorder
- The major clinical sign is chronic vomiting of food following a meal (known as “postprandial vomiting”); the stomach normally should be empty after an average size meal in approximately 6 to 8 hours in dogs and 4 to 6 hours in cats (note: normal emptying times are influenced by meal volume, caloric density and fiber content); vomiting of undigested food greater than 10 to 12 hours following the meal suggests a stomach (gastric) motility disorder or blockage of the stomach or upper small intestine, preventing movement of the stomach contents out of the stomach (known as “outflow obstruction”)
- Vomiting can occur anytime following eating
- Distension of the stomach, nausea, lack of appetite (anorexia), belching, eating of nonfood items (known as “pica”), and weight loss
- Other signs and physical examination findings relate to the underlying cause of the disorder
- The veterinarian may detect decreased stomach sounds on listening to the abdomen with a stethoscope (known as “abdominal auscultation”)

#### CAUSES

- Primary stomach (gastric) motility disorders are often of unknown cause (known as “idiopathic gastric motility disorders”); they may arise from defects in normal electrical activity of muscle (known as “myoelectric activity”)
- Most motility disorders occur secondary to other primary conditions
- Metabolic disorders include low blood potassium levels (known as “hypokalemia”); excess levels of urea and other nitrogenous waste products in the blood (known as “uremia”); nervous system disorder caused by accumulation of ammonia in the system due to inability of the liver to rid the body of ammonia (known as “hepatic encephalopathy”); and inadequate levels of thyroid hormone (known as “hypothyroidism”)
- Nervous inhibition, as the result of stress, fear, pain or trauma
- Drugs, such as the anticholinergics (used as preanesthetics or to treat diarrhea, such as atropine); beta-blockers (used to treat heart and lung disease, such as isoproterenol), and narcotics
- Primary stomach disease, such as blockage of the stomach or upper small intestine, preventing movement of the stomach contents out of the stomach (outflow obstruction); inflammation of the stomach (gastritis); stomach ulcers; parvovirus infection
- Stomach surgery
- “Bloat” or gastric dilatation-volvulus syndrome (GDV)—a disease in dogs in which the stomach dilates with gas and/or fluid (known as “gastric dilatation”), and subsequently rotates around its short axis (known as “volvulus”)—is suspected to result from a primary motility disorder of abnormal muscle electrical and mechanical activity; dogs may continue to have signs of decreased stomach motility (known as “gastric hypomotility”) following surgical correction (known as a “gastropexy,” surgical attachment of the stomach to the abdominal wall)
- Backward or reverse flow of stomach contents into the esophagus (known as “gastroesophageal reflux”) and backward or reverse flow of intestinal contents into the stomach (known as “enterogastric reflux”) may result from decreased stomach motility (gastric hypomotility)
- Syndromes involving abnormal function of the autonomic nervous system (known as “dysautonomia syndromes”) have decreased stomach motility (gastric hypomotility) as part of a generalized disease process

#### RISK FACTORS

- Any potential stomach disease may result in secondary decreased motility (hypomotility)

### TREATMENT

## HEALTH CARE

- Most patients are treated as outpatients
- With severe vomiting or dehydration and electrolyte imbalance, hospitalization and specific therapy are necessary; electrolytes are chemical compounds, such as sodium, potassium, chloride, necessary for normal body function
- Dehydration with fluid and electrolyte imbalance requires appropriate fluid replacement

## ACTIVITY

- Restrictions are based on the underlying disease

## DIET

- Dietary manipulation is important in the management of primary stomach (gastric) motility disorders
- Diets should be formulated that are of liquid or semi-liquid consistency and low in fat and fiber content
- Small-volume meals, with frequent feeding, should be given
- Often dietary manipulation alone is successful in managing patients with delayed stomach (gastric) emptying from a motility disorder

## SURGERY

- Dogs with chronic bloat (GDV) syndrome and retention of stomach contents (gastric retention) should have a surgical procedure (gastropexy) performed
- Following any stomach surgery, it may take as long as 14 days for motility to return to normal
- Patients with blockage of the stomach or upper small intestine, preventing movement of the stomach contents out of the stomach (“outflow obstruction”), require surgical correction

## 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.

### ***Gastric Prokinetic Agents (drugs that improve the propulsion of contents through the stomach and into the intestines)***

- **Metoclopramide** (Reglan®) improves stomach motility and coordinates stomach and upper small intestinal (duodenal) motility; also may prevent vomiting (known as an “antiemetic effect”)
- **Cisapride** works directly on gastrointestinal smooth muscle, stimulating motility; improves gastric emptying, and promotes increased motility of both the small and large intestine
- **Tegaserod** (Zelnorm®) is a newer prokinetic agent; it has similar prokinetic effects as cisapride; limited clinical experience in using this drug in the dog and cat
- **Erythromycin** given at low doses promotes stomach emptying
- H<sub>2</sub>-blockers, such as ranitidine and nizatidine, have significant prokinetic effects on stomach motility similar to cisapride; neither cimetidine nor famotidine affects gastric emptying

## FOLLOW-UP CARE

### PATIENT MONITORING

- Response to therapy varies, according to the underlying cause of the stomach (gastric) motility disorder
- Failure to respond medically necessitates further investigation for mechanical obstruction

### EXPECTED COURSE AND PROGNOSIS

- The length of treatment depends on the ability to resolve the underlying disorder or on response to therapy
- It may take stomach-surgery or parvovirus-infection cases 10 to 14 days to regain normal stomach function
- Cases involving generalized abnormal function of the autonomic nervous system (known as “generalized dysautonomia”) have grave prognoses

## KEY POINTS

- Stomach (gastric) motility disorders result from conditions that directly or indirectly disrupt normal stomach emptying, which in turn may cause abnormal retention of food and fluid in the stomach (known as “gastric retention”), stomach distention, and subsequent signs, such as lack of appetite (anorexia), nausea, and vomiting
- Response to therapy varies, according to the underlying cause of the stomach (gastric) motility disorder
- Failure to respond medically necessitates further investigation for mechanical obstruction