

# REGURGITATION

## (RETURN OF FOOD OR OTHER CONTENTS FROM THE ESOPHAGUS, BACK UP THROUGH THE MOUTH)

### BASICS

#### OVERVIEW

- Passive, backward movement or return of food or other contents from the esophagus (part of the digestive tract, the tube running from the throat to the stomach) into the throat (pharynx) or mouth

#### GENETICS

- Regurgitation due to an enlarged esophagus (known as “megaesophagus”) can be inherited in wire fox terriers (autosomal recessive) and miniature schnauzers (autosomal dominant or 60% penetrance autosomal recessive)

#### SIGNALMENT/DESCRIPTION of ANIMAL

##### **Species**

- Dogs (more commonly) and cats

##### **Breed Predispositions**

- Dogs—wire fox terriers, miniature schnauzers; other susceptible breeds include Great Danes, German shepherd dogs, Irish setters, Labrador retrievers, Newfoundlanders, Chinese shar peis
- Cats—Siamese and Siamese-related

##### **Mean Age and Range**

- Congenital (present at birth) cases are identified soon after birth, or at weaning from liquid to solid foods
- Acquired (present later in life/after birth) cases may be seen at any age, depending on the cause

##### **Predominant Sex**

- No predominant sex has been identified as being more likely to regurgitate

#### SIGNS/OBSERVED CHANGES in the ANIMAL

- Owners often report “vomiting;” veterinarian must differentiate vomiting (forceful ejection of stomach contents up through the esophagus and mouth) from regurgitation (passive, backward movement or return of food or other contents from the esophagus [part of the digestive tract, the tube running from the throat to the stomach] into the throat [pharynx] or mouth)
- Regurgitation—passive; little to no abdominal effort; regurgitated material has increased amounts of thick mucus in it
- Vomiting—active process; forceful ejection of stomach contents up through the esophagus and mouth; vomited material has increased bile staining (yellowish staining) in it
- The shape of the expelled material, presence of undigested food, and length of time from ingestion to regurgitation or vomiting are less helpful to differentiate between regurgitation and vomiting
- Difficulty swallowing (known as “dysphagia”)
- Coughing
- Ravenous appetite
- Weight loss; may be extreme weight loss with muscle wasting (known as “cachexia”)
- Other signs, depending upon underlying cause
- Swelling may be noted in the neck
- Excessive salivation/drooling (known as “ptyalism”)
- Bad breath (known as “halitosis”)
- Increased breathing noises
- Discharge from the nose
- Fever, if animal also has pneumonia
- Weakness

#### CAUSES

##### **Congenital Pharyngeal Problems (problems involving the throat, present at birth)**

- Cleft or short palate
- Cricopharyngeal achalasia (neuromuscular disorder of young dogs in which the function of the muscles in the throat and upper esophagus is abnormal, leading to swallowing difficulties)
- Myasthenia gravis (a disorder of neuromuscular transmission characterized by muscular weakness and excessive fatigue)

##### **Congenital Esophageal Problems (problems involving the esophagus, present at birth)**

- Persistent right aortic arch (abnormal development of major arteries of the heart, resulting in the esophagus being trapped by the blood vessels causing obstruction)
- Enlarged esophagus (megaesophagus)

- Glycogen-storage diseases (inherited diseases in which normal glycogen [the body's carbohydrate reserve] metabolism is altered)
- Diverticulum (a pouch or sac, opening from the esophagus)
- Abnormal opening between a bronchus (airway) and the esophagus (known as "bronchoesophageal fistula")

#### **Acquired Pharyngeal Problems (problems involving the throat, develop later in life)**

- Foreign bodies
- Cancer
- Rabies
- Poisoning or toxicity (botulism)
- Muscle disease (known as "myopathy") and/or nervous system disease (known as "neuropathy")

#### **Acquired Esophageal Problems (problems involving the esophagus, develop later in life)**

- Enlarged esophagus (megaesophagus)
- Myasthenia gravis (a disorder of neuromuscular transmission characterized by muscular weakness and excessive fatigue)
- Abnormal narrowing of the esophagus (known as a "stricture")
- Tumor or cancer
- Hormonal or endocrine disease
- Hiatal hernia
- Folding of part of the stomach into the esophagus (the tube running from the throat to the stomach; condition known as "gastroesophageal intussusception")
- Backward or reverse flow of stomach contents into the esophagus (known as "gastroesophageal reflux")
- Tumors around the esophagus
- Dysfunction of the autonomic nervous system (known as "dysautonomia")
- Muscle disease (myopathy) and/or nervous system disease (neuropathy)
- Foreign bodies
- Disease characterized by the formation of nodules (known as "granulomatous disease") involving the esophagus
- Poisoning or toxicity (lead)
- Unknown cause (known as "idiopathic" disease)
- 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")
- Parasitic infection—*Spirocerca lupi*; *Spirocerca lupi* is a parasitic worm that lives in nodules in the esophagus; the nodules are known as "granulomas"
- Abnormal opening between a bronchus (airway) and the esophagus (known as "bronchoesophageal fistula")

#### **RISK FACTORS**

- Possible risk of backward or reverse flow of stomach contents into the esophagus (gastroesophageal reflux) with general anesthesia

## **TREATMENT**

#### **HEALTH CARE**

- Therapy for underlying cause should be instituted
- Most important are meeting nutritional requirements and preventing or treating aspiration pneumonia
- Aspiration pneumonia may require oxygen therapy; administration of medication in a fine spray (known as "nebulization") and efforts to dislodge secretions in the lungs and to induce coughing (known as "coughage"); fluid therapy with balanced electrolyte solution
- These animals may be recumbent and require soft bedding and should be maintained up on their chests (in sternal recumbency) or turned to alternate down side every 4 hours

#### **ACTIVITY**

- Depending on cause, restricted activity usually is not necessary

#### **DIET**

- Experiment with different food consistencies—liquid gruel, small meatballs, food slurries made by using a kitchen blender
- Some cases benefit from tube feeding
- Food and water should be elevated, and the animal should be maintained in an upright position 10 to 15 minutes after eating or drinking

#### **SURGERY**

- Surgical intervention is indicated for treatment of abnormal development of major arteries of the heart, resulting in the esophagus being trapped by the blood vessels causing obstruction (abnormal arteries known as a "vascular ring anomaly"); neuromuscular disorder of young dogs in which the function of the muscles in the throat and upper esophagus is abnormal, leading to swallowing difficulties (cricopharyngeal achalasia)—surgical treatment is a "cricopharyngeal myotomy;" abnormal opening between a bronchus (airway) and the esophagus (bronchoesophageal fistula); and other congenital (present at birth) lesions

- Balloon dilation (procedure in which an instrument with an expandable balloon is inserted into the esophagus and the balloon is expanded to open the narrowing or stricture) is indicated for cases of esophageal stricture

## 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.

- Antibiotics for aspiration pneumonia (broad spectrum or based on bacterial culture and sensitivity from transtracheal wash [TTW] or bronchoalveolar lavage [BAL]; TTW and BAL are techniques in which samples from within the respiratory tract are collected for evaluation by microscope and/or bacterial culture and sensitivity testing)
- Specific therapy for underlying cause, if indicated
- Drugs that improve the propulsion of contents through the stomach and intestines (known as “gastrointestinal prokinetic agents”)—metoclopramide may increase tone of the muscle between the stomach and esophagus (gastroesophageal sphincter), increases stomach motility, and may increase movement of the esophagus; **cisapride** is more effective for preventing backward or reverse flow of stomach contents into the esophagus (known as “gastroesophageal reflux”) than metoclopramide; however, it slows the time for materials to move through the esophagus (known as “esophageal transit time”); may be more helpful in cats due to increased smooth muscle in the lower esophagus
- Other motility agents (such as nizatidine) have not been evaluated for effects on esophageal motility
- H<sub>2</sub>-blockers for inflammation of the esophagus (known as “esophagitis”)—ranitidine, cimetidine, famotidine

## FOLLOW-UP CARE

### PATIENT MONITORING

- Animals with aspiration pneumonia should have chest X-rays and complete blood counts (CBCs) checked until resolution, or if recurrence is suspected
- Animals should be monitored and weighed to ensure adequate caloric intake

### POSSIBLE COMPLICATIONS

- Aspiration pneumonia
- Others depending on presence of other diseases (such as inadequate production of thyroid hormone [known as “hypothyroidism”])

### EXPECTED COURSE AND PROGNOSIS

- An older animal with enlarged esophagus of unknown cause (known as “idiopathic megaesophagus”) has a poor prognosis
- Aspiration pneumonia is the typical cause of death or euthanasia

## KEY POINTS

- Regurgitation is the passive, backward movement or return of food or other contents from the esophagus (part of the digestive tract, the tube running from the throat to the stomach) into the throat (pharynx) or mouth
- Most cases of enlarged esophagus (megaesophagus) require lifelong therapy, even if an underlying cause is found
- Client dedication is important for long-term management
- Most animals will succumb to aspiration pneumonia