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ESOPHAGEAL ESTENOSIS IN CATS
Alicia Valdés, DVM, MSc, Assistant Professor
Department of Clinical Sciences, University of Chile
avaldes@uchile.cl

Esophageal stricture is an abnormal narrowing of the esophageal lumen. Common causes of a stricture are injury from swallowed caustic chemicals, esophageal foreign bodies, esophageal surgery, and intraluminal or extraluminal mass lesions (neoplasia or abscesses). Stricture formation occurs when inflammation extends into the submucosal and muscular layers of the esophagus and stimulates production of fibrous connective tissue. Reduction in the esophageal luminal diameter impedes delivery of food into the stomach and results in regurgitation and malnutrition.

Anesthesia, poor patient preparation, and poor patient positioning during anesthesia are risk factors for gastro-esophageal reflux, esophagitis, and subsequent stricture formation. Fibrosis and mass compression are the most important pathogenetic mechanisms involved in esophageal stricture formation.

Diagnosis
The presence of esophageal strictures can be suspected from the animal's history; regurgitation develops about 5-15 days after anesthesia or a vomiting episode or else after recent ingestion of a foreign body or caustic substance. The predominant sign is regurgitation of solid food shortly after feeding. Liquid meals are often better tolerated than solid meals. Other common clinical signs are dysphagia and salivation. With progressive esophageal narrowing and inflammation, affected animals develop complete anorexia, weight loss, and malnutrition. Some animals also develop aspiration pneumonia resulting in wheezing and coughing.

The diagnosis is based on history and radiographic and endoscopic findings. Survey radiographs are usually non-remarkable in animals with benign fibrosing strictures whereas intraluminal or extraluminal mass lesions may be visible with compressive esophageal strictures.

Barium contrast radiography: segmental or diffuse narrowing is observed. There may also be some esophageal dilation proximal to the stricture site. In some cases barium mixed with canned food is required to demonstrated an esophageal stricture, since liquid barium may pass easily through a stricture without delineating its presence.

Endoscopy allows evaluation of the appearance and pliability of the esophageal wall and luminal diameter. Stricture length can be assessed by advancing endoscopic biopsy forceps through the stricture and then opening the cups once the instrument has been passed. As the biopsy instrument is then retracted, the open cups will stop at the distal border of the stricture. A similar determination can be made by insufflating air into the esophagus with the endoscope and then making lateral survey thoracic radiograph. The stricture is an increased opacity at the stricture site as compared with the surrounding air.

Treatment
Treatment options are surgical procedures (less than 50% success rate), bougienage technique (50 – 75% success rate) and balloon catheter dilatation. This last option is safer than dilation with traditional bougienage techniques. Balloon catheters create radial stretch as a stationary force, which is considered less damaging than the longitudinal shear produced by bougienage techniques. Surgical resection of esophageal strictures has been reported, but resections are complicated by inadequate surgical exposure, lengthy resections, tension on the anastomosis, and poor healing properties of the thoracic esophagus. Surgical correction by jejunal interposition or by creation of a traction diverticulum has been attempted, but only in a small number of cases. Recent developments with bioresorbable collagen or extracellular matrix scaffolds may help to facilitate repair following esophageal resection.

Initial veterinary studies reported balloon dilation with fluoroscopic guidance, whereas more recent reports described direct visualization during endoscopy. The limited availability of fluoroscopic
Equipment in veterinary practices makes endoscopically directed dilation advantageous, because it is available at a larger number of locations.

Balloon catheters are available commercially in various sizes (6 – 25 mm). The smaller balloon dilators can be passed through a 2.6 mm endoscope work channel. The balloon can be inflated with dilute iodinated contrast material or water.

With the patient under general anesthesia, the dilator is advanced under endoscopic guidance and positioned with the middle part of the balloon in the centre of the stricture. Routinely is used a 2 – 4 minute dilation period, using 2 minutes at the first time and 4 minutes when the previous procedures have not resolved the problem.

Mild to moderate hemorrhage around the stricture site is normal postdilation and if there is not hemorrhage, the procedure was not effective. Multiple re-dilations at 3 to 7 days intervals may be necessary until the stricture is resolved.

When the stricture is severe, oral feedings are withheld and a temporary gastrostomy tube is placed at the time of esophageal dilation as a means of providing continuous nutritional support.

Medical therapy to treat the inflammatory component of a stricture is considered adjunctive therapy to mechanical dilatation. Sucralfate suspension: 0.5-1.0 grams PO q 8 hr. Gastric acid secretory inhibitors such as ranitidine (1.0-2.0 mg/kg PO, IV q 8-12 hr), famotidine (0.1-0.5 mg/kg PO, IV q 12 hr), or omeprazole (0.7 mg/kg PO q 24 hr).

It is reported the use of anti-inflammatory doses (e.g. Prednisolone: 0.5-1.0 mg/kg PO q 12 hr) administered at the time of stricture dilation may be beneficial in reducing the risk of recurrence. Corticosteroids must be avoided if concurrent aspiration pneumonia is present.

Factors that help to determine the number of dilation procedures that will be necessary include severity and length of the stricture, number of strictures and the ease of their initial stricture dilation.

Sometimes mild permanent narrowing remains at the stricture site, but this is usually clinically insignificant if the cat can eat canned food.

**Prevention**

Esophageal retention of dry tablets has been demonstrated to occur commonly in cats and may be associated with esophagitis and subsequent stricture formation. To avoid this, a small oral bolus of water (6 ml) administered to cats following tablet administration has been shown to significantly hasten passage into the stomach.

Cases of esophageal stricture subsequent to doxycycline administration are reported. All cases reported were young to middle age (median age 3 years; range 1-7 years), and either domestic shorthair or domestic longhair breed. In all cases the predominant clinical sign was regurgitation, which developed at variable times after doxycycline administration. In all cases the reason for doxycycline use was treatment or prophylaxis of suspected infections (*Mycoplasma haemofelis, Chlamydia felis* or *Bordetella bronchiseptica*), and the duration of therapy was variable.

**References:**


