STENTING OF THE GASTROINTESTINAL TRACT
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Key Points

- As the majority of the gastrointestinal tract consists of luminal structures, strictures can develop that result in luminal obstruction.
- Stenting is being utilized commonly in human medicine to recanalize structures that have been obstructed allowing for food passage or the passage of fluids such as bile and pancreatic secretions.
- Stenting of gastrointestinal tract structures now occurs in veterinary patients and the option of stenting for both benign and malignant diseases exists.

Stents are devices placed into a luminal structure or “passage” to counteract a disease-induced stricture. The use of stents is commonplace in medicine, and the disease processes treated by “stenting” are constantly expanding. Strictures can occur along any length of the gastrointestinal tract (including the esophagus) or in the ducts of the organs that empty into the intestines (pancreatic ducts and common bile duct).

Benign Strictures

**Esophagus:** The large majority of esophageal strictures are presumed to occur secondary to gastroesophageal reflux during anesthesia. (Leib 2001, Adamama 2002, Bissett 2009) Risk factors for the development of benign esophageal strictures include gender (females more likely than males), a recent history of anesthesia, having received an oral antibiotic and having a history of vomiting. (Bissett 2009) Clinical signs generally seen with esophageal strictures include regurgitation, gagging, weight loss, decreased appetite, pytalism, lip licking, and odynophagia. (Leib 2001, Glazer 2008, Bissett 2009)

Generally, initial treatment of benign esophageal strictures consists of progressive and serial dilation of the stricture with either esophageal bougienage or balloon dilation. In one study, outcomes in dogs and cats who underwent esophageal bougienage were considered good in 70% and 75% of cases, respectively. (Bissett 2009) In a separate study, 88% of dogs and cats treated with balloon dilation were considered to have a successful outcome. (Leib 2001)

In cases refractory to either esophageal bougienage or balloon dilation, esophageal stenting may be considered. Esophageal stenting involves the placement of a dissolvable stent made of polydioxanone or a permanent stent that may or not be covered. The stents are often anchored with a suture either cranial or caudal to prevent migration.

**Biliary Outflow Tract:** Obstruction of the biliary tree can occur from both primary hepatobiliary disease as well as external compression from other abdominal organs. While surgical bypass and the placement of both plastic and metal stents have been described in human patients, the endoscopic placement of metal stents is considered the treatment of choice. Biliary stenting for relief of benign obstructions (mostly pancreatitis) in dogs and cats has been described. (Mayhew 2006, Mayhew 2008) In a report of 13 dogs (10 with extrahepatic biliary obstruction), choledochal tube stenting was found to be effective for the decompression of the extrahepatic portion of the biliary tract. (Mayhew 2006) The use of choledochal stenting in a
small series of cats was determined to result in greater morbidity (as compared to dogs). (Mayhew 2008)

**Malignant Strictures**

**Esophagus:** Greater than 50% of human patients will have unresectable esophageal neoplasia at the time of diagnosis. (Burstow 2009) The median survival time for these patients is between 3-6 months and palliative treatments are often pursued due to the grave prognosis. (Sabharwal 2005, Wilkes 2007) The palliation of dysphagia is essential to the patient’s quality of life, and esophageal stents are often placed in an attempt to achieve this goal. (Sabharwal 2005, Wilkes 2007, Burstow 2009) Esophageal stents have been shown to be an effective means of relieving malignant dysphagia secondary to malignant obstructions. (Sabharwal 2005, Wilkes 2007, Burstow 2009) Esophageal stenting for neoplastic obstruction has not been described in companion animals. In one reported case of esophageal stenting in a dog, the clinical signs associated with an esophageal tumor were improved post-stenting.

**Colorectal:** The most common masses affecting the colon and rectum of the dog include adenocarcinoma, adenomatous polyps and carcinoma in situ. (Patnaik 1977, Patnaik 1980, Holt 1985, Birchard 1986) Surgery is considered the treatment of choice for most non-lymphomatous tumors and several surgical treatments have been developed to resect both small and large tumors. (Anson 1988, Yoon 2008, Aronson 2006) Chemotherapy is considered in cases of colorectal lymphoma.

Colorectal stenting has been extensively described in human medicine for the treatment of both benign and malignant colorectal tumors. Colorectal stents in humans have 2 primary indications: as a “bridge to surgery” which allows for patient stabilization prior to undergoing an elective procedure or to palliate clinical signs. (Watt 2007, Davies 2004, Kim 2008) In the “bridge to surgery” group, stent placement prior to undergoing an elective procedure has been shown to improve outcome (less complications, less unnecessary operations). (Santos-Martinez 2002) As opposed to major surgical resection or colostomy stoma formation, some patients elect to have a stent placed to palliate clinical signs. (Athreya 2006)

Two reports of companion animals undergoing colonic stent placement can be found in the veterinary literature. (Hume 2006, Culp 2011) In 2 cats, colonic obstruction was relieved after stent placement, and both cats maintained fecal continence. The authors reported that colonic stenting provided an effective palliative option for those 2 cases. (Hume 2006) In 1 canine case, a stent was placed to palliate a colorectal obstruction secondary to a benign tumor that underwent malignant transformation. In that dog, clinical signs improved for over 200 days; however, severe obstipation eventually developed and the dog was euthanized. (Culp 2011)

**References**