
Laser Treatment for Brachycephalic Airway Syndrome

Brachycephalic airway syndrome is a well-described condition involving abnormal anatomic development of the upper airway of specific short-nosed dog and cat breeds. Classic features include stenotic nares, elongated soft palate, everted laryngeal sacculae, laryngeal collapse, and tracheal hypoplasia. The nasal cavity and its potential role in airway obstruction has received little focus.

This 2-part study investigated breed-specific anatomic considerations of the nasal cavity and a novel laser-assisted turbinectomy (LATE) for obstructive intranasal tissue. In part 1, computed tomography (CT) and rhinoscopy were performed on 132 brachycephalic dogs

(66 pugs, 55 French bulldogs, and 11 English bulldogs) with severe respiratory distress. Rostral and caudal aberrant turbinates were found in 72.0% and 66.7% of cases, respectively. Septum deviation was noted in 55.3% of dogs. Rhinoscopy confirmed aberrant turbinates and points of mucosal contact in 91.7% of dogs. In part 2, LATE was performed in 158 dogs with a diode laser to remove obstructive nasal conchae. Other traditional surgical treatments for brachycephalic syndrome were performed concurrently, depending on the case. Transient hemorrhage occurred in 32.3% of dogs, and the perioperative mortality rate was 1.6%. Dogs were hospitalized for 1 week postoperatively, at which time CT and endoscopy were repeated to confirm nasal patency. Turbinate regrowth required resection of potentially reobstructive tissue in 15.8% of dogs. The authors conclude that LATE is a feasible, effective method for removing obstructing turbinate tissue in dogs.

Commentary

This is the first study to document substantial intranasal obstructive pathology

and laser treatment in dogs with brachycephalic airway syndrome. The visual differences noted on CT and rhinoscopy between the clinically affected patients in this study and a German shepherd dog included for comparison were striking. A laser was used to remove obstructive nasal turbinates, similar to commonly performed procedures in humans and horses. This procedure appeared to be safe and effective for treating obstructive intranasal pathology, an underappreciated component of brachycephalic airway syndrome in dogs. Further investigation is warranted to understand the breed-specific components identified in this study and the long-term outcomes associated with this treatment.—*Jason Bleedorn, DVM, DACVS*

Sources

Oechtering GU, Pohl S, Schlueter C, et al. A novel approach to brachycephalic syndrome.

1. Evaluation of anatomical intranasal airway obstruction. *Vet Surg.* 2016;45(2):165-172.

Oechtering GU, Pohl S, Schlueter C, Schuenemann R. A novel approach to brachycephalic syndrome.

2. Laser-assisted turbinectomy (LATE). *Vet Surg.* 2016;45(2):173-181.

Age, Genetics, & FIPV Resistance

Natural immunity to feline infectious peritonitis virus (FIPV) is considered poor, as most cases of naturally occurring feline infectious peritonitis (FIP) are fatal. However, not all cats experimentally exposed to FIPV develop FIP, and the incidence of FIP may be affected by various cofactors, the contribution of which to immunity and disease incidence is not clear. This study aimed to identify cofactors involved with natural resistance to FIPV infection. Study design eliminated as many agent, environmental, and host factors as possible by using a group of specific-pathogen-free (SPF) cats from the same breeding stock and housed in a laboratory facility. This allowed researchers to focus on the cats' sex, age at exposure,

and genetic susceptibility.

The 111 cats studied were used in various other studies over 5 years, from which the infection outcome data and DNA used came. The cats were exposed 1 or more times to virulent strains of FIPV, and their disease course was closely monitored. Affected cats were euthanized once their disease was considered terminal, and their cause of death was confirmed via necropsy. Of the 111 cats, 40 survived the first challenge exposure with serotype 1 FIPV, 36 survived a second challenge, and 11 of 13 survived a third challenge.

Sex was not a significant factor in FIP incidence. Age, however, had significant influence, with >80% of cats exposed at <6 months of age dying of FIP as compared with <45% of cats >1 year of age. Genome-wide association studies indicate that inherited FIP resistance is highly complex.

Commentary

A practical understanding of predisposing factors to FIP continues to be elusive. Environmental, agent, and host risk factors impacting progression to disease are complex and not clearly understood. The use of SPF feline patients in this study helped clarify some host risk factors, including sex, age, and genetics. For example, the documentation of increased disease resistance in patients >6 months of age is of practical clinical application. The continued study of SPF feline patients may also facilitate the identification of specific gene(s) or genetic loci that may contribute to disease resistance.—*Kelly St. Denis, MSc, DVM, DABVP (Feline Practice)*

Source

Pedersen NC, Liu H, Gandolfi B, Lyons LA. The influence of age and genetics on natural resistance to experimentally induced feline infectious peritonitis. *Vet Immunol Immunopathol.* 2014;162(1-2):33-40.
