

Endoscopic investigation of the gastroesophageal junction dynamics in dogs with brachycephalic syndrome.

Vangrinsven E¹, Broux O², Claeys S², Clercx C¹, Billen F¹.

¹Internal Medicine of companion animals, Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Liège, Belgium.

²Surgery of companion animals, Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Liège, Belgium.

Gastroesophageal (GE) symptoms are commonly reported in dogs with brachycephalic upper airway obstructive syndrome (BS). Since GE symptoms frequently occur during situations of increased inspiratory effort (excitement, respiratory distress), dynamic disorders of the GE junction (GEJ) are probably involved, due to transient increased negative intrathoracic pressure. However, according to a previous study, only few dynamic abnormalities of the GEJ are observed during gastroscopy. We hypothesized that both anaesthesia and endotracheal intubation during gastroscopy lead to underestimation of GEJ abnormalities.

The aim of this study was to improve detection of dynamic GEJ abnormalities during gastroscopy using obstructive manoeuvres mimicking and reproducing upper airway obstruction of variable severity.

Twenty-six dogs presented with BS were prospectively included. Respiratory and digestive symptoms as well as endoscopic abnormalities were scored at initial diagnosis and at control one month after surgery. During each endoscopy, GEJ was assessed and scored (based on esophagitis, GEJ atony, GE reflux, cranial displacement of the GEJ) in the 3 consecutive situations: (1) absence of obstruction with the dog intubated (Ob-0), (2) presence of natural obstruction with the dog extubated (Ob-Nat) and (3) during complete manual obstruction of the endotracheal tube during up to 3 spontaneous breathings (Ob-Compl).

Spearman's rank test was used to assess correlations between the different clinical and endoscopic scores.

Taking all endoscopic procedures together, the severity of respiratory symptoms correlated significantly with the severity of respiratory endoscopic abnormalities ($p < 0.001$, $r = 0.6$) and the severity of digestive symptoms ($p = 0.039$, $r = 0.24$). At diagnosis, 23 dogs (89%) presented digestive symptoms while endoscopic GEJ abnormalities were observed in 17 (65%), 24 (92%) and 26 (100%) dogs during Ob-0, Ob-Nat and Ob-Compl respectively. GEJ atony, GE reflux, cranial displacement of the GEJ and sliding hiatal hernia were present in 9 (34,6%), 2 (7,7%), 9 (34,6%) and 0 dogs during Ob-0, in 19 (73,1%), 5 (19,2%), 23 (88,5%) and 4 (15,5%) dogs during Ob-Nat and in 21 (80,8%), 6 (23,1%), 26 (100%) and 10 (38,5%) dogs during Ob-Compl, respectively. A significant correlation was found between digestive and endoscopic GEJ scores during Ob-Compl ($r = 0.55$, $p = 0.003$) as well as during Ob-Nat ($r = 0.41$, $p = 0.03$) but not during Ob-0.

It can be concluded that in dogs with BS (1) GEJ abnormalities are dynamic and related to the degree of upper airway obstruction; (2) the use of obstructive manoeuvres during gastroscopy improves the detection of GEJ abnormalities.

Conflicts of interest: No conflicts of interest reported