BRACHYCEPHALIC DOGS PREDISPOSITION TO FOLLICULAR GASTRITIS: A RETROSPECTIVE STUDY OF 55 CASES (2006 - 2011)

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Abstract

Upper respiratory syndrome in brachycephalic dogs (BDs) has been associated with histiocytic lesions of the gastric. The aim of this retrospective study was to assess the prevalence of follicular gastritis (FG) in BDs compared to other breeds. FG is defined by presence of lymphoid aggregates or follicles in the gastric mucosa (involving more than 5% of the biopsy area).

The medical records of all the dogs referred for vomiting and undergoing a gastro-duodenoscopy at the Clinique Alliance, Bordeaux, France, between January 2006 and February 2011 were reviewed. Breed, age, sex, weight, presence of Helicobacter spp and histological diagnosis were recorded. Based on gastric histology, dogs were divided into 2 groups, group A suffering from FG (n=55) and group B in which no histological lesion of FG were found (n=100). All biopsies were performed by the same investigator (VF) and all the slides reviewed by the same pathologist (AP) according to the 2008 WSAVA Gastrointestinal Standardization Group Criteria. Chi-square tests were used for comparison of proportions. ANOVA tests were used to compare age and weight of dogs with or without FG.

Group A included 29 males and 26 females. Group B, 58 males and 42 females. Mean (±SD) weight in group A and B was 17 (±12.5) kg and 16.4 (±11.8) kg respectively. Mean age in dogs affected with FG (3.6 (±3.3) y.) was significantly lower (p<0.001) than in group B (7.0 (±4.6) y.). FG was significantly (p<0.001) more frequent in BDs (61.9%), than in other breeds (25.7%). French Bulldogs accounted for 27.8% of the FG. Helicobacter spp were identified in 34.6% (19/55) of the gastric samples of dogs with FG against 16.0% (16/100) of the dogs without FG (p< 0.008).

Results of the present study show that BDs, and especially French bulldog (this breed represents only 2.5% of the litter in France) are predisposed to FG. 2 FG affects young dogs 3 and is associated with Helicobacter spp.

Introduction

Upper airway obstruction has frequently been described in brachycephalic dogs (BDs). The prevalence of gastrointestinal problems in 73 brachycephalic dogs presented with upper respiratory syndrome has been clinically and endoscopically studied in a previous report (Poujade et al. 2006). Post endoscopic histologic evaluation of digestive biopsies revealed inflammatory lesions as gastritis. Follicular gastritis (FG) is defined by presence of lymphoid aggregates or follicles in the gastric mucosa (involving more than 5% of the biopsy area) associated with other histologic changes : mucosal fibrosis and/or atrophy and diffuse infiltrate. Endoscopic description consists in characteristic diffuse or localised multiple mucosal erythematous punctations. This histologic entity is poorly described in dogs.

The aim of this retrospective study was to describe population characteristics of the dogs presenting follicular gastritis.

Material and Methods

- Animals: the study was based on the histological results of upper digestive biopsies of all the dogs referred for a gastro-duodenoscopy for a Veterinary Clinic in Bordeaux (V. Freiché) between February and January 2011.
- Breed, sex, age, weight, presence of Helicobacter spp on histological examination and histological diagnosis of the animals were recorded.
- Admission and gastro-duodenoscopy: all the dogs were medically managed by the same operator (V. Freiché) Olympus Videos-Endoscope GVL-160). All tests, six biopsies were performed in the different parts of the stomach and the duodenum. Macrophagic appearance of the lesions was described.
- Histopathological analysis: Endoscopic biopsy samples were fixed in 4% neutral buffered formalin, parafin embedded and routinely processed. 4µm-thick four-micron sections were cut and stained with hematoxylin and eosin for histologic evaluation. All slides were examined and graded by a single pathologist (A. Pougjade) according to the WSAVA Gastrointestinal Standardization Group Histopathological Standardization of the gastric mucosa diagnosis for gastrointestinal inflammation (2008).
- Statistical analysis: Chi-square tests were used for comparison of proportions. ANOVA tests were used to compare age and weight of dogs with or without FG.

Results

- 155 dogs were included in the study and divided into two groups, classified according to histologic results:
  - Group A (n=55) suffering from FG: Group B (n=100) without FG.
- Mean age in dogs affected with FG (3.6 (±3.3) y.) was significantly lower (p<0.001) than in group B (7.0 (±4.6) y.).
- Helicobacter spp were identified in 34.6% (19/55) of the gastric samples of dogs with FG against 16.0% (16/100) of the dogs without FG (p< 0.008).

Discussion

- Follicular gastritis well known in human medicine but is less described in the dog. Gastric infection with Helicobacter spp is common in dogs, with a prevalence ranging from 67 to 100% in healthy dogs, and 74 to 100% in dogs presented with vomiting. Its association with follicular gastritis (FG) has been investigated, and gastric lymphoid infiltrates seemed to represent an immune response in the gastric mucosa to the bacterial antigens.
- In this study, vomiting was the most common clinical sign to indicate gastro-duodenoscopie investigation. It was not specific of the gastritis type.
- Histologic analysis showed that BDs and particularly French bulldogs accounted for 27.8% of the FG, among the 8.7 millions of dogs in France. French Bulldogs are poorly represented (2.6%).
- As FG affects younger dogs, and particularly French bulldogs, further studies are needed to know if Helicobacter spp and FG are commonly found in young dogs of other breeds, and could represent a normal trait in gastric immune maturation.

Conclusion

The main conclusions are that:
- Brachycephalic dogs, and especially French Bulldog are predisposed to follicular gastritis (this breed represents only 2.6% of the litters in France).
- Follicular Gastritis affects young dogs.
- Follicular gastritis was significantly associated with Helicobacter-type bacteria in this study.

References


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