Breed association of endoscopically diagnosed gastric neoplasia and metaplasia in purebred dogs
A retrospective study

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INTRODUCTION

Gastric cancer is a rare pathologic finding, corresponding to one percent of all neoplasias identified in dogs.¹,² The most common type is adenocarcinoma, which is diagnosed at around 10 years of age, having initial clinical signs similar to those of other chronic gastrointestinal disorders.²,³ In humans, such tumors evolve from superficial, flat changes classified as metaplastic or dysplastic according to their degree of cellular differentiation.³,⁴ However, their role as early changes in canine gastric carcinogenesis remains undetermined. Previous studies have shown breed predisposition to gastric neoplasia in Tervuren, Bouvier des Flandres, Groenendael, Collie, Poodle and Norwegian Elkhound, which implies a genetic background.¹,³ In Finland, information about breed association to gastric cancer has been lacking.

AIM OF STUDY

- To investigate which pure breeds are most commonly subject to gastroduodenoscopy (GDS) at the Small Animal Hospital at the University of Helsinki, a regional referral veterinary hospital.
- To determine the probability of dogs in different breeds to be diagnosed with gastric metaplasia or neoplasia.

MATERIALS & METHODS

- Pure breeds undergoing GDS:
  - Pure breeds with five or more GDS patients:
  - 19 breeds = 150 dogs = 44% of all GDS.
  - Pure breeds with higher likelihood to undergo GDS (Table 1):
    - Wire-haired dachshund and collies.

- Metaplasia and neoplasia:
  - Metaplasia (n = 6) / Carcinoma n = 6 (Table 2).
  - Tervuren found at significantly higher risk for gastric neoplasia as compared to other breeds: RR = 29 (7.7-109).

- Tervuren undergoing GDS were found at a 29 times higher risk to have gastric carcinoma, further corroborating breed predisposition.
- High OR for wire-haired dachshund and collies to undergo GDS might indicate a higher prevalence of gastrointestinal disorders beside neoplasia, warranting further studies.
- Metaplasia of the mucosa was as rare as gastric cancer, with no breed predisposition. Nonetheless, metaplasia can present as discrete, flat changes that are easily overlooked and possibly underdiagnosed, considering the limitations of current white light endoscopy techniques and non-directed sampling procedures.
- Future prospective studies in predisposed breeds should aim at applying more advanced endoscopic approaches such as chromoendoscopy or narrow band imaging (Fig. 2) to help improve the diagnostic yield of metaplastic areas.

RESULTS

Endoscopic and histopathological diagnosis:
Examples of metaplasia (Fig. 1), dysplasia (Fig. 2) and neoplasia (Figs. 3-4). Visual enhancement techniques like chromoendoscopy and narrow band imaging (Fig. 2) can help improve the diagnostic yield of metaplastic areas.

CONCLUSIONS

- Endoscopic and histopathological diagnosis
  - Examples of metaplasia (Fig. 1), dysplasia (Fig. 2) and neoplasia (Figs. 3-4). Visual enhancement techniques like chromoendoscopy and narrow band imaging (Fig. 2) can help improve the diagnostic yield of metaplastic areas.

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