SPONTANEOUS BARRETT ESOPHAGUS-LIKE LESION IN A DOG

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INTRODUCTION

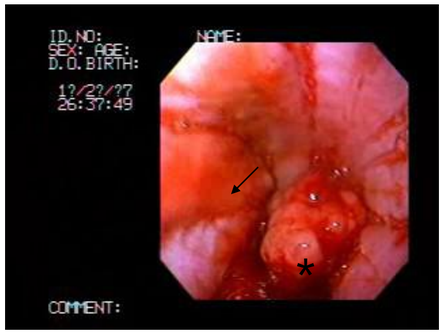
Barrett esophagus in humans is a result of chronic gastroesophageal reflux and occurs in up to 10% of people with gastroesophageal reflux disease (GERD). It is the single most important risk factor for esophageal adenocarcinoma in humans. This report describes a spontaneous case of Barrett esophagus-like lesion in a dog.

SIGNALMENT AND HISTORY

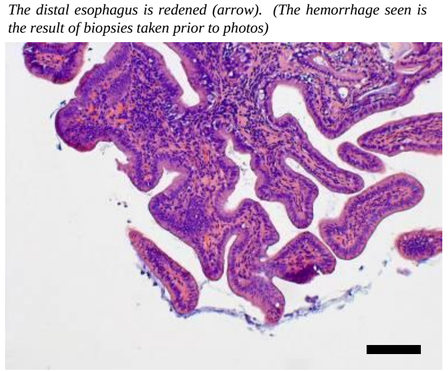
A thirteen year-old, castrated male, Standard Poodle dog presented for painful swallowing. Endoscopy showed the distal esophagus to be inflamed with a smooth, broad based, mass protruding into the lumen approximately 1cm proximal to the cardiac sphincter

MICROSCOPIC FEATURES

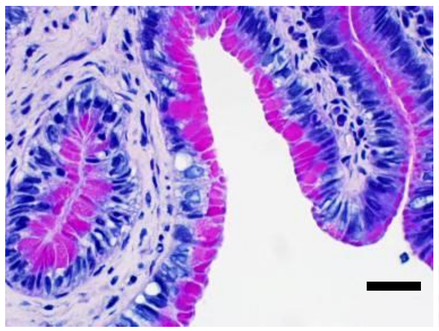
Microscopically, the normal stratified squamous mucosa was absent and replaced by multiple frond-like, papillary projections of well differentiated, pleomorphic simple columnar epithelium supported by a fibrous stroma. Most of the columnar cells had oval, hyperchromatic, tightly packed, basal nuclei with eosinophilic cytoplasm and occasionally contained a large light blue apical vacuole. Occasionally there were regions of epithelial cells with large oval, hypochromatic, open-faced nuclei and scant amphophilic vacuolated cytoplasm. Clusters of atypical (dysplastic) cells extended through the basal lamina and into the submucosa forming small packets of polygonal cells with stacked nuclei. There was marked anisokaryosis and anisocytosis with moderate inflammation of the lamina propria consisting of lymphocytes, plasma cells and occasional mast cells.



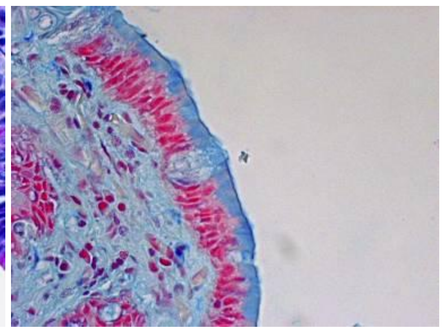
A smooth, lobulated, broad based mass (asterisk) protruds into the lumen of the distal esophagus, 1 cm orad to the cardiac sphincter. The distal esophagus is redened (arrow). (The hemorrhage seen is the result of biopsies taken prior to photos)



Papillary projections are lined by a combination of gastric mucous producing cells, intestinal absorptive cells and goblet cells. (H&E) (Bar = 120µm)



Papillary projections and pits are lined by tall columnar cells that contain large apical vacuoles containing carbohydrate. These cells resemble gastric mucous cells, intestinal absorptive cells and occasional goblet cells. (PAS) (Bar = 40µm)



A goblet cell and the surface mucopolysaccharides are highlighted. (Alcian Blue) (Bar = 40µm)

DISCUSSION

There are two criteria for the diagnosis of Barrett esophagus: 1) Endoscopic evidence of columnar epithelium above the gastro-esophageal junction, and 2) histologic evidence of intestinal metaplasia. Barrett esophagus-like lesions have been described experimentally in dogs that have undergone surgical intervention to induce gastro-esophageal reflux.

Multiple, small endoscopic biopsy samples of the esophageal mass exhibited microscopic features that were consistent with gastric and intestinal metaplasia. Small foci of dysplasia and invasion into the underlying connective tissue were seen. No history of regurgitation or esophageal reflux was noted by the owner, but the dog had multiple systemic problems including heart failure, hyperadrenocorticism, and a splenic mass. The dog was euthanized and the owner did not consent to a post mortem examination.

The pathogenesis of Barrett esophagus is unclear, but is thought to result from differentiation of stem cells within the esophageal mucosa. True absorptive enterocytes are not observed, but admixed with mucin-secreting goblet cells are columnar cells exhibiting both secretory and absorptive features. This unique feature is not observed elsewhere in the alimentary tract. To the author's knowledge, this is the first described spontaneous Barrett esophagus-like lesion in a dog.

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