

ABSTRACT, ACVIM 2009:

ABSENCE OF A BACTERIAL ASSOCIATION IN YORKSHIRE TERRIERS WITH PROTEIN-LOSING ENTEROPATHY AND CYSTIC INTESTINAL CRYPTS. M Craven, GE Duhamel, NB Sutter, KW Simpson. College of Veterinary Medicine, Cornell University, Ithaca, NY

Yorkshire Terriers' (YT) are predisposed (OR 4.2-10.1) to protein-losing enteropathy (PLE). Intestinal pathology of YT-PLE typically includes lymphangiectasia and mucosal lymphocytic plasmacytic infiltrates. Lesions described as "dilated intestinal crypts" (JVIM 14:298-307, 2000) or "mucoid cryptal ectasia" (JAAHA 39:187-191, 2003) consisting of cystic crypts filled with mucus and necrotic cellular debris, and occasional crypt abscessation have been reported in PLE. We sought to further describe the clinical and pathological features of YT-PLE and to explore a possible relationship between mucosal histopathology and mucosal bacteria

14 YT with PLE were identified between 1999-2008 (8M, 6F: 4 prospective, 10 retrospective). Clinical features and outcome were available for 12 dogs and intestinal biopsies for 14 (8 endoscopic, 6 surgical). Mucosal histopathology was examined by a blinded pathologist (GED) and inflammatory infiltrates, lymphangiectasia and crypt abnormalities were scored as normal-0, mild-1, moderate-2 or severe-3. Fluorescence in situ hybridization (FISH) with a eubacterial probe was used to ascertain the presence and distribution of bacteria in duodenal biopsies.

The median age and bodyweight at presentation were 96mo, and 3.1kg, respectively. Vomiting (7), diarrhea (6) and inappetance (6) were the most frequent clinical signs. Biventricular effusions were present in 5 dogs, and ascites alone in 3. Hypoalbuminemia (< 3.1g/dl) was present in all 12 dogs (median 1.6g/dl), and hypoglobulinemia (<1.9g/dl) in 7 (median 1.7g/dl). Additional biochemical abnormalities included hypocalcemia (12), hypocholesterolemia (11) hypomagnesemia (9), hypokalemia (5) and hypochloremia (5). Hematological abnormalities included mild anemia (5), thrombocytosis (8), mature neutrophilia (6), and neutrophilia with a left shift (n=3). Anti-thrombin III was low (<75%) in 4/6 dogs evaluated (mean 62%). Duodenal biopsies from all affected YT contained cystic intestinal crypts. Lymphangiectasia (median, range; 2,0-3), crypt hyperplasia (2,1-3) and villus blunting (4 dogs), were less consistent features. Mucosal infiltration of lymphocytes and plasma cells (villus 2,1-3; crypt 3,2-3) and eosinophils (1.5,1-2) was common. Empirical therapy with corticosteroids (11/12), azathioprine (2/12), antibiotics, plasma and diuretics was associated with a poor outcome. 7/12 cases died or were euthanased within 3m of diagnosis. Long-term survival occurred in 3 dogs, (36, 24, and 8m), and 2 are alive at 3m and 4m after diagnosis. FISH analysis showed no evidence of a bacterial association with crypt cysts or with mucosal inflammation.

We conclude that YT suffer a severe and often fatal form of PLE that is consistently associated with cystic intestinal crypts. The absence of a bacterial association suggests that this may be a primary morphogenetic disorder with or without a secondary environmental trigger. Further work is required to ascertain the etiopathogenesis of crypt lesions and their relationship to enteric protein loss.