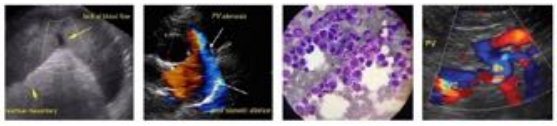


PATIENT

Ziggy Hedges

SPECIES

Canine

BREED

Yorkie

SEX

Neutered male

AGE

5 years

WEIGHT

4.7 kg

INTERPRETED BY

Dr Brittany Sinclair, BVSc(hons), DACVECC

IMAGING PERFORMED BY

Kelly Reschny

HOSPITAL NAME

Norwich VS

REFERRING VET

Dr. DePaulo

INVOICE

46594

DATE

8/14/23

PRESENTING CLINICAL SIGNS

History: I find his abdomen quite bloated and gassy. Owner notes that he is flatulent at home. I can't appreciate any mass or mass effect. Cranial abdomen just palpates full. Unintentional weight loss. 1 month history of intermittent vomiting and diarrhea Otherwise normal exam. Ddx pancreatitis, food intolerance, inflammatory bowel, dietary indiscretion, toxicity, liver or kidney disease, other. Abnormal PE/Chem/CBC/UA Results: CALCIUM 1.9 2.2 - 2.8 mmol/L LOW CHLORIDE 123 108 - 119 mmol/L HIGH TOTAL PROTEIN 33 55 - 75 g/L LOW ALBUMIN 15 27 - 39 g/L LOW GLOBULIN 18 24 - 40 g/L LOW ALANINE TRANSAMINASE 15 18 - 121 IU/L LOW CHOLESTEROL 2.2 3.4 - 8.9 mmol/L LOW FREE T4 6.0 7.7 - 47.6 pmol/L LOW HEMATOCRIT 0.58 0.38 - 0.57 L/L HIGH RETICULOCYTE-ABSOLUTE 132.6 10.0 - 110.0 x10E3/uL HIGH

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder, trigone, and visible pelvic urethra were of normal thickness. The ureters were not visible which is normal. There was normal wall layering with no masses, uroliths or abnormal thickening visualized. Urine was anechoic. No evidence of inflammatory or neoplastic changes were noted.

The kidneys were both normal size and structure, with smooth capsule and normal corticomedullary definition and ratio (cortex 1/3 of medulla). Medullary structure differed distinctly from that of the cortex. No evidence of pelvic dilation was present. The right kidney measured 4.18 cm. The left kidney measured 3.64 cm.

Adrenal Glands

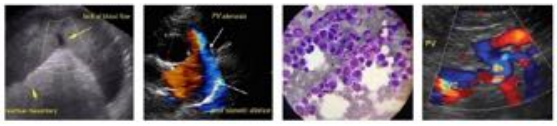
Both adrenal glands were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The left adrenal gland measured 1.91 cm in length and 0.4 cm at the cranial pole and 0.35 cm at the caudal pole. The right adrenal gland measured 2.15 cm in length, 1.33 cm at the cranial pole.

Spleen

The spleen was normal with a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma and smooth capsule, with normal splenic vasculature with no signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarct changes were noted.

Liver

The liver is subjectively normal in size with normal contours and structure. There is appropriate echogenicity and echotexture. No overt structural evidence of inflammatory, infiltrative or regenerative pathology is evident. Vascular and biliary tracts are of normal volume with no evidence of congestion. No pathological hepatic lymphadenopathy observed. Gallbladder is moderately distended with normal wall thickness and anechoic contents. Common bile duct is non-distended and tapers normally.



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Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

The visualized areas of duodenum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Multiple loops of jejunum have increased thickness with hyperechoic mucosal patches. Bowel loops have hazy wall layering with no specific masses visualized. There were no focal lesions consistent with obstruction or a mass effect observed.
Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

Pancreas

The base and limbs of the pancreas were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour and parenchyma were normal. No overt evidence of active inflammatory or neoplastic disease was noted.

Lymph Nodes

No clinically significant lymphadenopathy or abnormalities noted.

Free Abdomen

Scant anechoic effusion in cystocolic view was noted.

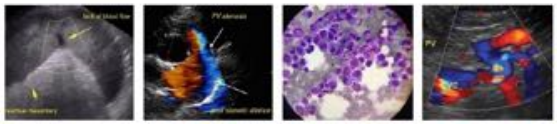
ULTRASONOGRAPHIC FINDINGS

Primary Findings

1. Thickened jejunum with mucosal patches and decreased wall layering
2. Scant abdominal effusion

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

These small intestinal changes, along with free fluid, panhypoproteinemia, hypocholesterolemia and the patients signalment are most consistent with a protein losing enteropathy caused by infiltrative small intestinal disease such as inflammatory bowel disease or lymphangectasia, or small intestinal neoplasia such as lymphoma. GI biopsy is recommended to further define these changes. Endoscopic biopsy is less invasive but may miss lesions due to inability to obtain samples from all sections of the GI tract, especially the jejunum which is the site of ultrasonographic disease. Surgical biopsies are more likely to be diagnostic but are more invasive. A GI panel (TLI/PLI/cobalamin/folate) will help determine the severity of SI dysfunction, and need for vitamin supplementation. Due to panhypoproteneima and effusion a bile acid profile and baseline cortisol are recommended to rule out liver dysfunction and hypoadrenocorticism as causes, though these are considered less likely. An echocardiogram could be considered for completeness to rule out right sided heart disease causing the abdominal effusion if clinically warranted, though this is considered less likely unless other signs of right sided heart disease such as a murmur, positive heartworm test and/or cardiomegaly are present.



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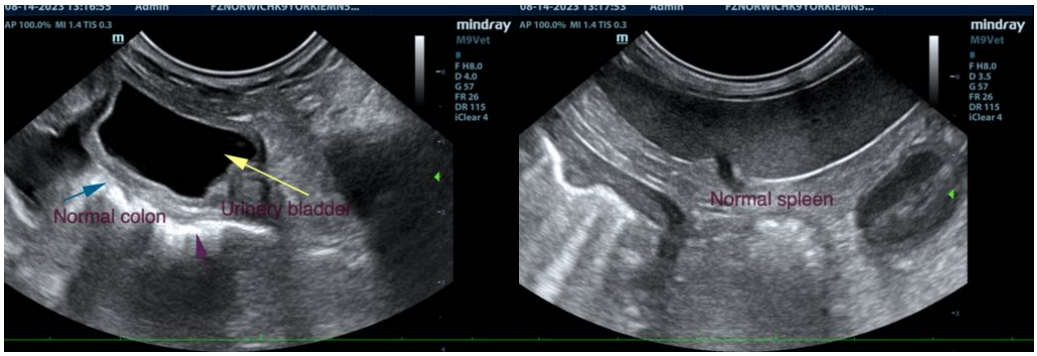
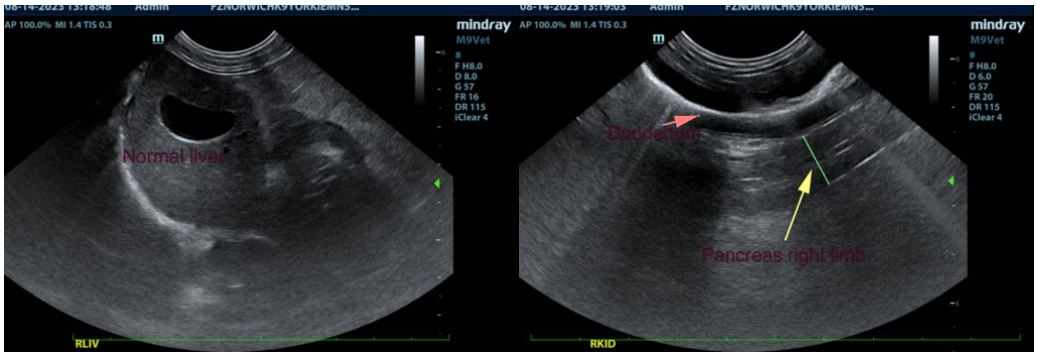
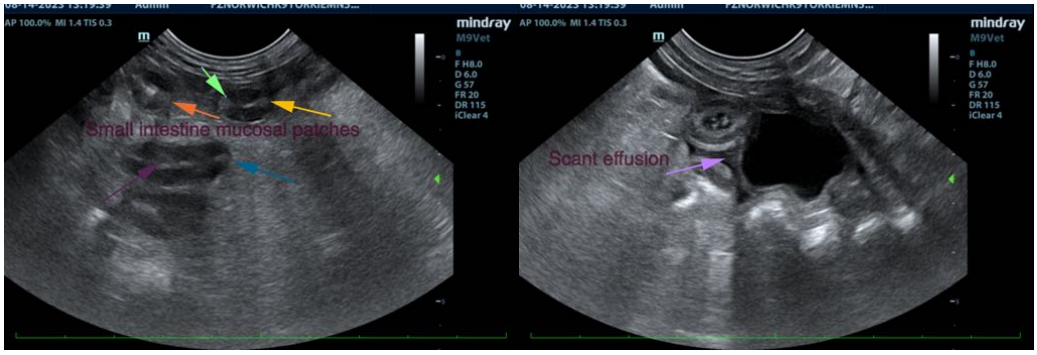
Empiric treatment for IBD includes diet trial with either hydrolyzed or select protein diet, vitamin b-12 supplementation, GI support as needed (anti-nausea, appetite stimulant). Treatment with steroids (budesonide vs prednisolone) is often required – biopsies should be acquired prior to treatment with steroids. Steroids may ultimately be tapered to the lowest effective dose or discontinued in some cases.

Empiric treatment for lymphangiectasia involves dietary restriction of fat. A calorie dense, easily digestible diet with <20% fat calories on a metabolizable energy basis is recommended. Medium chain triglyceride supplementation is no longer recommended. Cobalamin deficiency is common and supplementation is recommended. Prednisone therapy at 1mg/kg/day is recommended, with tapering off or down to the lowest effective dose based on clinical signs. Other immunomodulating medications may be required.

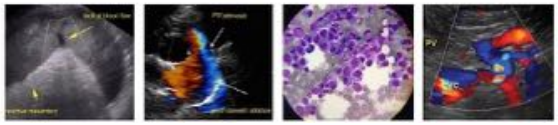






The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.



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