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Clinical Sonography & Telecytology
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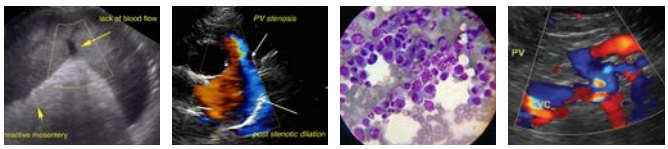

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Geoffrey Keller

SPECIES
Canine

BREED
Corgi

SEX
Neutered Male

AGE
4 Years

WEIGHT
34 Pounds

INTERPRETED BY
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)

IMAGING PERFORMED BY
Amanda Crook – SDEP Certified Clinical Sonographer

HOSPITAL NAME
Rivers Edge PMC

REFERRING VET
Dr. Cora Hollomon

INVOICE
26606

DATE
10/24/21

PRESENTING CLINICAL SIGNS

presented on 10/20 for chronic diarrhea. distended abdomen noted at that time. on PE today, pt is 5% dehydrated, abdomen distended with suspected fluid wave. painful in mid abdomen. Concern for pancreatitis and protein-losing enteropathy Current Medications: metronidazole PO, propectalin PO Abnormal PE/Chem/CBC/UA Results: lab work from 10/20: WBC 20.4, neutrophils 17.7, glucose 50, BUN 7, calcium 5.6, potassium 3.7, Na:K ratio 39, chloride 120, total protein 2.7, albumin 1.0, globulin 1.7, albumin:globulin ratio 0.6, cholesterol 99, lipase 437. CK 535, spec cPL 488 UA - USG 1.024, 1+ bilirubin, 6-10 RBC/HPF, rare epithelial cells TT4 - 1.2 (range 1-4) See attached radiographs - findings from 10/20 reported by DVM on staff at the time: "inflammation in the intestines, loss of detail likely due to free fluid in the abdomen, chest looks okay"

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 4.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

The residual prostate was symmetrically normal in size with uniform parenchyma and slight coarse echotexture. The prostate measured 0.98 cm diameter.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 6.1 cm. The right kidney measured 5.8 cm.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 2.1 cm length x 0.43 cm at the caudal pole. The right adrenal gland measured 1.95 cm length x 0.66 cm at the caudal pole.

Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. A focal subjective area of mild parenchymal expansion noted in the mid medial spleen, adjacent to the splenic hilus. This area of parenchymal expansion did not exhibit capsular escape and isoechoic echogenicity compared to adjacent splenic parenchyma. Potential for atypical thrombus given the panhypoproteinemia possible. No evidence of splenic neoplasia criteria.

Liver

The liver was subjectively normal in size, structure, and contour. The liver parenchyma was uniform and hypoechoic to the spleen with a mild coarse echotexture. No evidence of hepatoportal vasculature congestion. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained moderate echogenic, primarily nonshadowing ingesta most consistent with post prandial presentation without signs of ileus, obstruction or foreign material.

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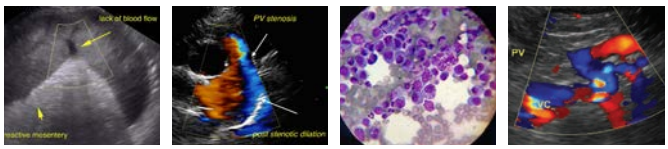

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The small intestine presented intact wall layering with generalized propensity for prominent mucosa as well as duodenojejunal mucosal fogging. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material. Duodenum wall measured 0.48 cm. Jejunum wall measured 0.50 cm.

Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas

The pancreas exhibited generalized prominent size and swelling with heterogeneous parenchyma, exhibiting subtle hypoechoic striations.

Free Abdomen

Intermittent, mildly prominent to enlarged mesenteric node and medial iliac lymph nodes were present. The lymph node was essentially isoechoic to adjacent omentum without evidence of peripheral inflammation and maintaining a normal width: length ratio (<0.5). Example of lymph node measured 1.5 cm x 0.5 cm. Potential cystic mesenteric lymph nodes were noted in the mid abdomen, although not definitive. These cystic lymph nodes may indicate chronic reactivity.

Generalized echogenic mesentery noted along with moderate subjectively acellular peritoneal free fluid.

Rapid view of the heart revealed no evidence of pericardial masses or effusion in the visible window.

ULTRASONOGRAPHIC FINDINGS

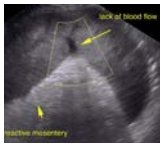
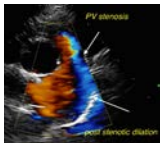
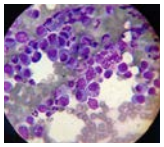
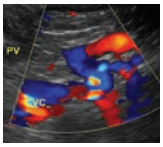
- Enteropathy with generalized prominent mucosa and duodenojejunal mucosal fogging
- Focal mild medial splenic parenchyma expansion in the area of the hilus – subjectively benign, possible atypical thrombus.
- Gastric ingesta – post-prandial presentation versus metabolic gastric stasis.
- Swollen pancreas exhibiting non-homogeneous parenchyma – pancreatic edema with potential for concurrent pancreatitis.
- Generalized echogenic mesentery with concurrent peritoneal free fluid

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the patient's history of chronic diarrhea in combination with the presentation of the small intestine and lab work abnormalities. Protein losing enteropathy is most probable with considerations including chronic IBD, lymphangiectasia, or potential infiltrative enteropathy (i.e., neoplasia, less likely fungal). Some contribution of hypoalbuminemia secondary to pancreatitis cannot definitively ruled out, yet the degree of pancreatitis (if present) was subjectively mild to moderate. Intestinal biopsies would be ideal for definitive diagnosis, yet contraindicated given the albumin levels <2.0. Correlate with effusion analysis is recommended. Empirical therapy for PLE recommended.

PLE Therapy
Part or all of this protocol may be considered based on your clinical impression of the patient:

OBJECTIVE: keep albumin levels > 2 g/dl, avoid thromboembolism and cavitary effusions, monitor concurrent PLN (Wheaton Terrier PLE/PLN) and liver disease:
Plasma 10 mL / kilogram IV over 4 hours
Or **Human albumin** 2 ml/kg/h over 10 hours. Total daily volume 20.l/kg/day
And Colloids/Hetastarch
10 to 20 mL per kilogram per day and dogs
10 to 15 mL per kilogram per day cats
(Can bolus first 1/3 of dose over 15 minutes)

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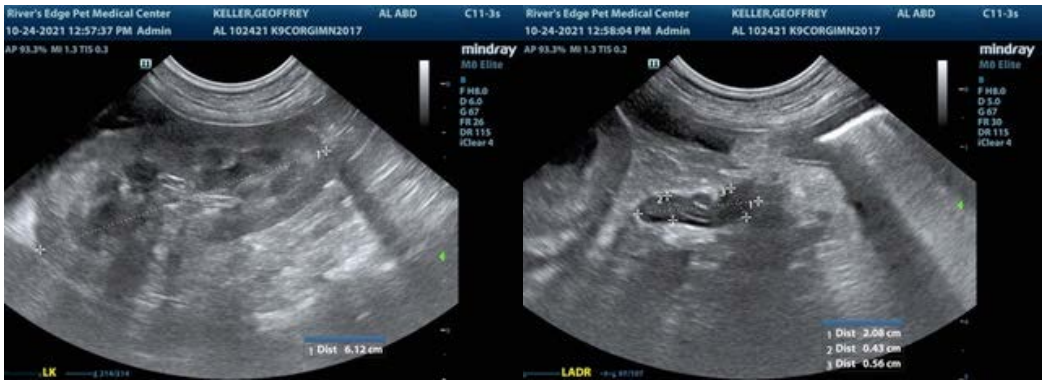
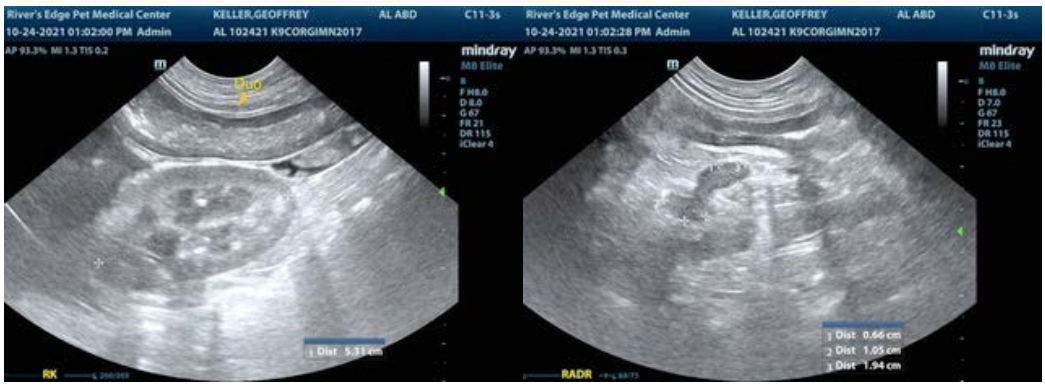
& maintain on LRS maintenance otherwise.
Metronidazole (10-20 mg/kg po bid)
Famotidine 1 mg/kg Iv Im po dc Sid /bid
Sucralfate 0.5-1 g po tid dogs, 0.5 g bid cats in slurry **Or Misoprostol** 1-5 ug/kg po tid
Diet: Highly digestible high quality protein, low fiber, low fat diet (< 15% of dry matter). Hydrolyzed protein or novel protein. Purina HA or Royal Canine HP or similar.
Prednisone or prednisolone 2 mg/kg bid x 3-5 days then 2 mg/kg sid. **Chlorambucil** in refractive severe IBD/alimentary lymphoma cases (monitor cbc for rare bone marrow suppression) 4 mg/m^2 Q 24-48 hours.
Cobalamine (B12) 250-1500 ug/dog weekly x 6 weeks.
Calcium supplementation if necessary.
Aspirin 0.5-1 mg/kg/day **or Clopidrel** (Plavix) 1-5 mg/kg/day.





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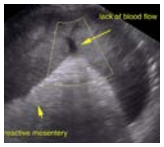
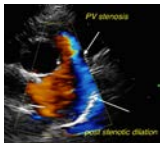
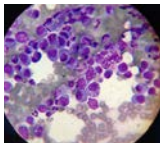
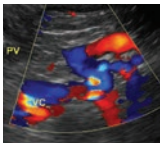

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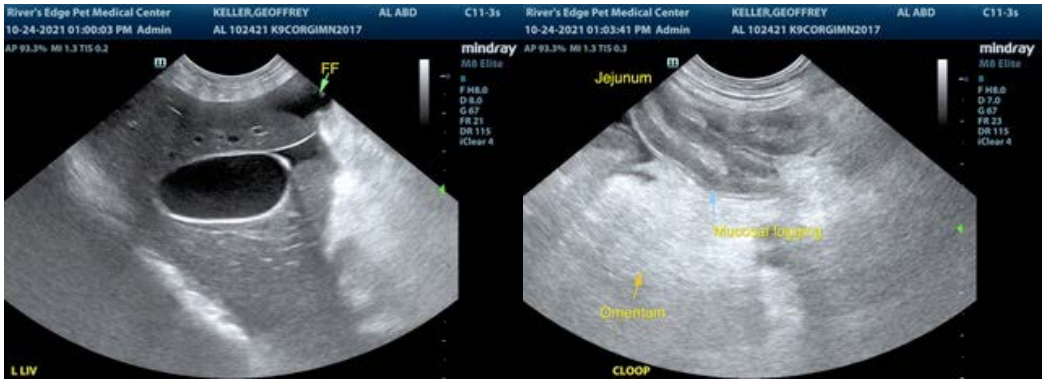

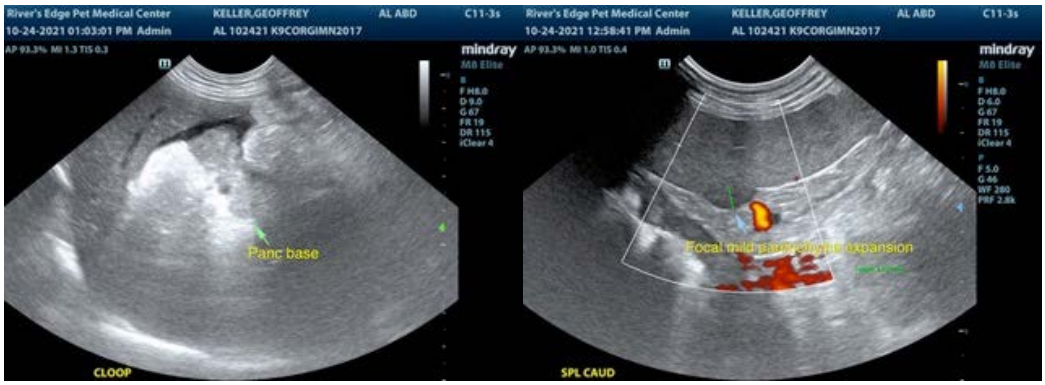

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com