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Clinical Sonography & Telecytology
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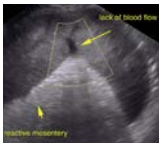
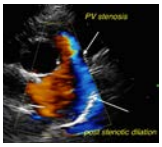
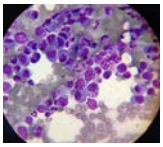
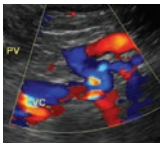





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Buki Block

SPECIES

Canine

BREED

Wire Terrier X

SEX

Neutered Male

AGE

3 Years

WEIGHT

19.6 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY

Jessica Miller, RDMS

HOSPITAL NAME

Animal General on the Hudson

REFERRING VET

Dr. Ng

INVOICE

44898

DATE

8/23/23

PRESENTING CLINICAL SIGNS

Hx of suspected IBD on Z/D Diet. Hx of chronic +/- diarrhea. Recent hx of anemia.

Abnormal PE/Chem/CBC/UA Results: RBC 3.3, Hgb 7.2, HCT 24, plts 80 clumps seen but estimated decreased.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately distended. It has a normal uniform wall thickness. Contents include primarily anechoic fluid with occasional echogenic non-shadowing debris, most consistent with exfoliated cells, mucous and/or small blood clots. Both sterile inflammation as well as urinary tract infection can also present with echogenic debris. No masses or cystoliths are observed. The trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

Prostate is normal in size, echotexture and echogenicity for a neutered male.

The right kidney is normal in size (5.49 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed. A hyperechoic band parallel to the corticomedullary border is present.

The left kidney is normal in size (4.92 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed. A hyperechoic band parallel to the corticomedullary border is present.

Adrenal Glands

The right adrenal gland is normal in size (1.0 cm at the cranial pole and 0.51 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

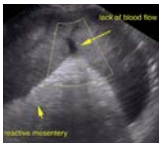
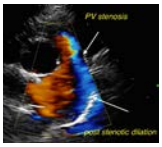
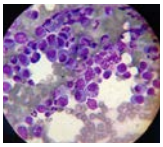
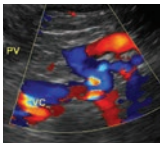
The left adrenal gland is normal in size (0.42 cm at the cranial pole and 0.47 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

Spleen

Spleen is subjectively large in size with normal smooth margins. Parenchyma is normal in echogenicity with a coarse/heterogenous echotexture. No focal nodules or masses are observed. Splenic vasculature appears normal.

Liver

Liver is subjectively enlarged with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Visible vasculature and biliary tree appear normal without distension or congestion.

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Gallbladder is moderately distended with anechoic bile as well as suspended and gravity dependent echogenic debris. The wall is smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion or inflammation.

Gastrointestinal

The visible stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering, except for possibly what is described below. The lumen of the stomach is mildly distended with primarily echogenic non-shadowing luminal contents and gas consistent with normal ingesta/chyme. However, there are several echogenic densities with acoustic shadow that could represent small non-obstructive foreign objects. Additionally, there is a 1.0 cm x 1.5 cm homogeneous, primarily hypoechoic density that does not appear to have vascular uptake in these images currently. It is difficult to determine whether the density is a luminal object versus attached to the wall.

The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

Pancreas

The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation. **See other.

Free Abdomen

There is no evidence of free peritoneal effusion noted in these images.

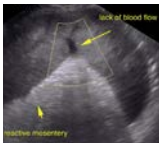
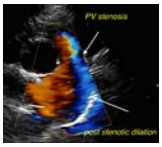
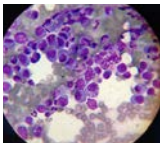
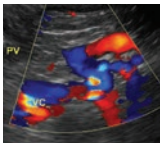
The mesenteric lymph nodes are prominent in size with swollen capsular contour. Normal elongated shape (length to width ratio) is maintained. There is no loss of parenchymal detail.

In the left cranial abdomen medial to the spleen, there is a 2.8 cm long x 0.86 cm wide mildly heterogeneous cystic structure. Additionally, in the right cranial abdomen there is a 1.0 cm x 1.3 cm similar appearing, primarily cystic structure. It is difficult to determine whether these are cystic areas of an otherwise relatively normal looking pancreas versus cystic lymph nodes, with lymph nodes believed to be more likely.

PRIMARY FINDINGS

- The appearance of the stomach may be completely normal with all the changes described above represented normal ingesta. However, non-obstructive foreign objects can't be ruled out as well as a small a small hypoechoic nodule/mass, which is also possible. These findings should be interpreted based on recheck fasted imaging of an empty stomach.

- **Heterogenous Liver –** These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.

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- **Coarse splenomegaly –** can be associated with congestion caused by sedation (if sedated) but can also be associated with diffuse infiltrative disease. Both benign conditions such as extramedullary hematopoiesis, lymphoid hyperplasia, as well as infiltrative neoplastic diseases such as round cell neoplasia should be considered.

- **Bilateral medullary rim sign -** This finding is of unknown clinical significance and can be a normal variant, often idiopathic. Medullary rim sign can be present with renal disease including FIP, lymphoma, hypercalcemic nephropathy, Leptospirosis, tubular disease, other and should be interpreted in combination with other more specific indications of kidney disease such as isosthenuria, proteinuria, azotemia, etc. This is a common incidental finding in patients with diabetes mellitus.

- **Reactive mesenteric lymph nodes –** infiltrative neoplastic disease cannot be ruled out but is considered less likely. Additionally, the cystic areas in the cranial abdomen are believed to be cystic lymph nodes, although pancreatic cysts can't be ruled out.

SECONDARY FINDINGS

- **Mild gallbladder debris -** Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness. Cholecystic debris is not necessarily related to hepatobiliary disease. Echogenic bile is most commonly an incidental finding in dogs and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.

- Urinary bladder debris

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

If not recently evaluated, a general metabolic health screen is recommended to further assess kidneys, etc. in the form of chemistry panel and electrolytes as well as a urinalysis and, if indicated based on urinalysis results, urine culture. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ratio is recommended.

Further evaluation of the anemia depends in part on whether it is regenerative. In this patient specifically, a non-regenerative anemia could be present due to emerging kidney disease versus chronic disease affecting the liver, the spleen, the pancreas, other, and/or a regenerative anemia could be secondary to hemolysis brought on by underlying diseases affecting these organs as well. A metallic gastric foreign body resulting in anemia is even a possibility and should be ruled out.

Further diagnostic considerations could include fine needle aspirates of the spleen, liver, as well as the lymph nodes if they can safely be reached and if patient's coagulation status is appropriate.

And as mentioned above, recheck imaging of an empty stomach is recommended with follow up sampling of the hypoechoic nodule if it is still present.

Empirical therapeutic recommendations are difficult to give, as this patient has a variety of subtle changes, any of which could be contributing to the anemia. Therefore, further recommendations are dependent on some of the above recommended pending results.

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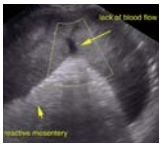
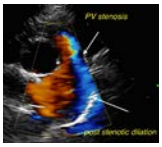
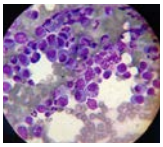
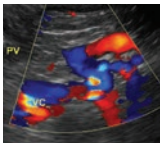

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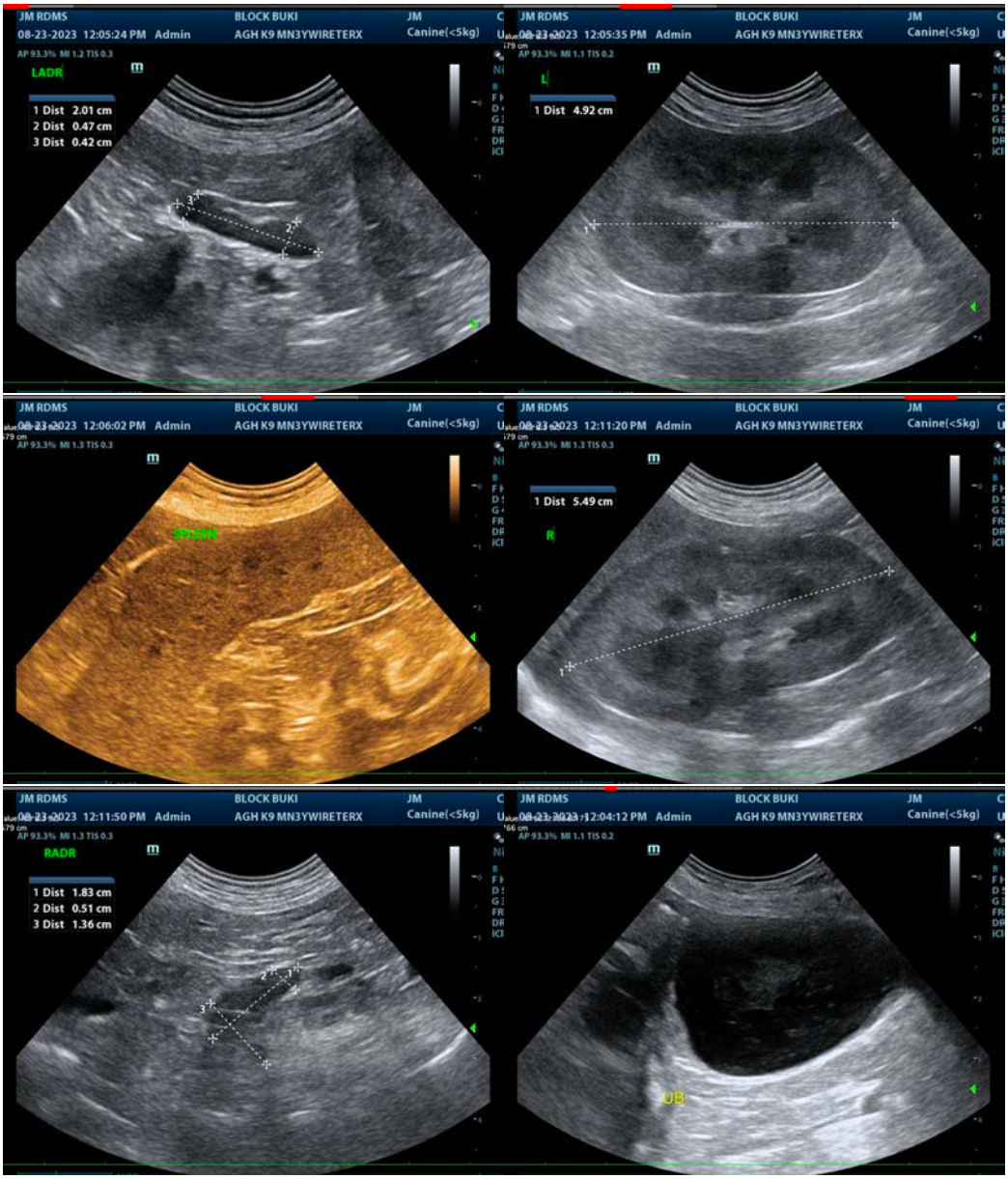

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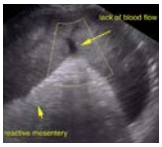
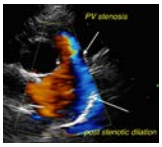
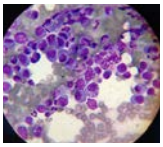
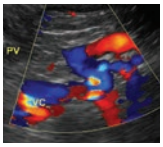

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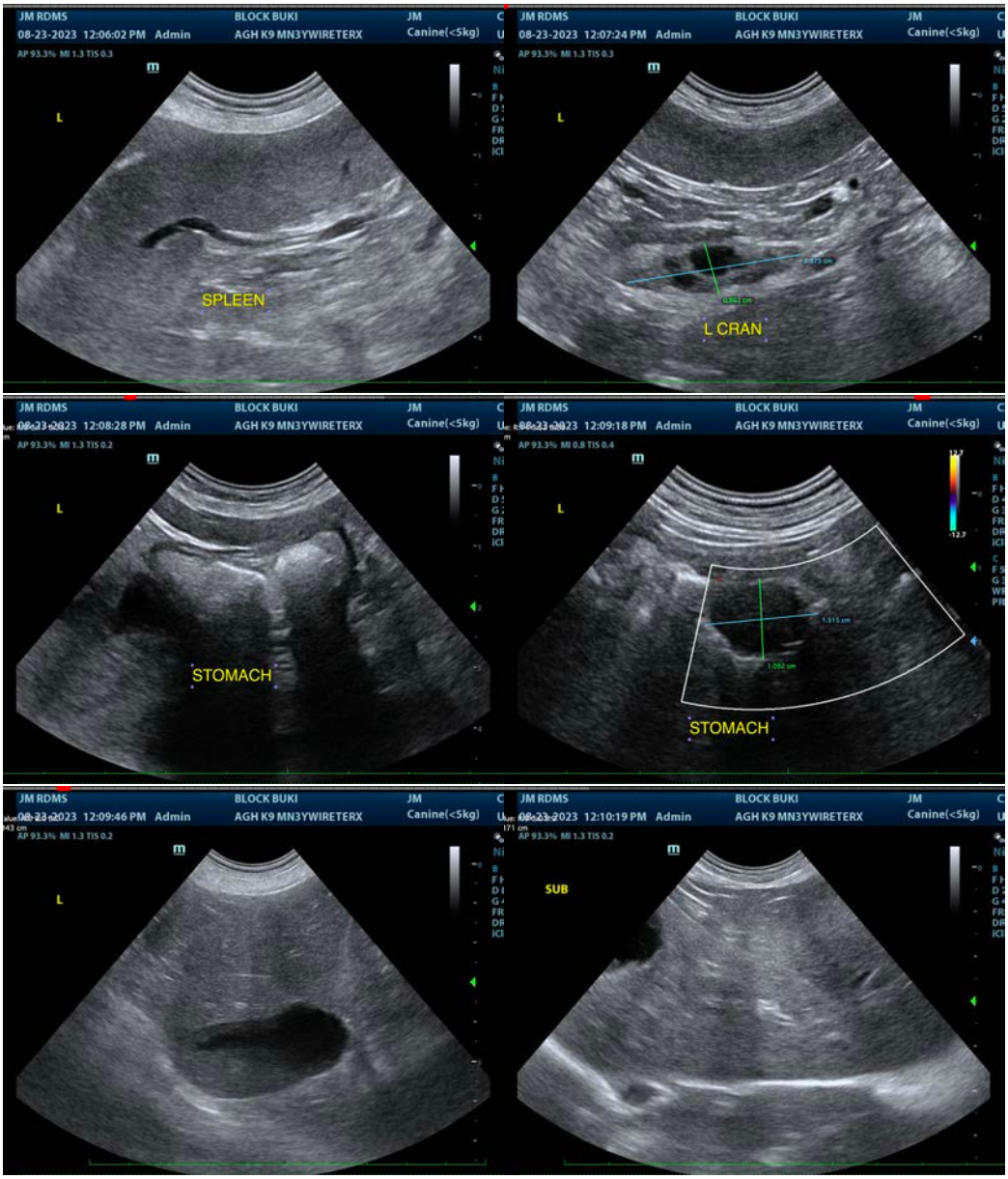

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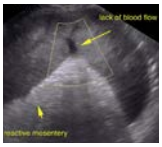
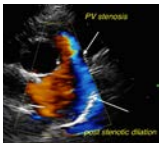
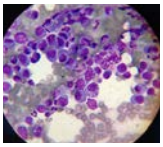
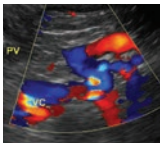

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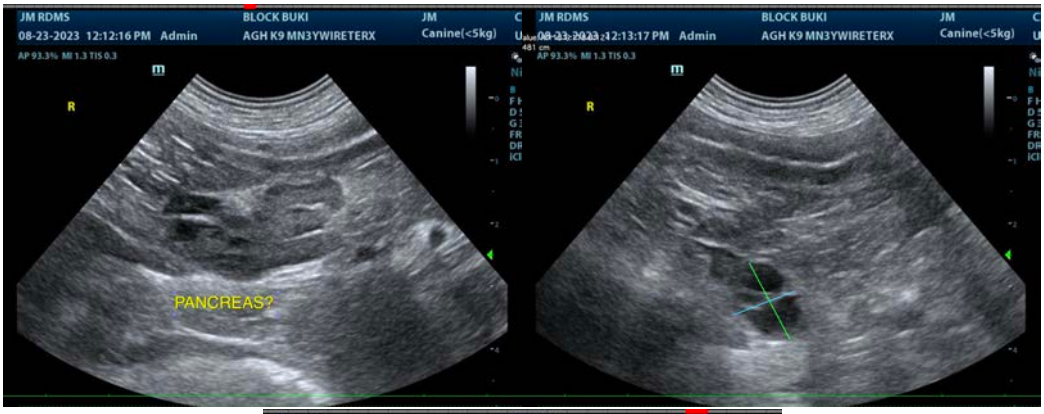

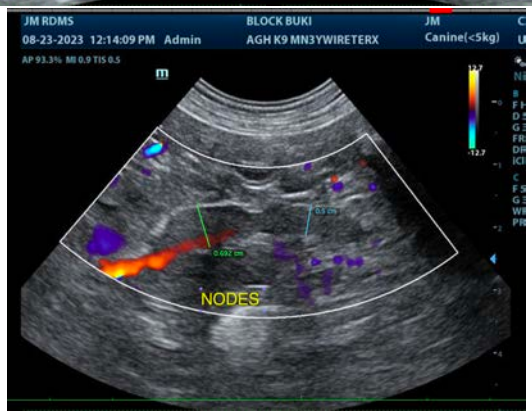

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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