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Clinical Sonography & Telecytology
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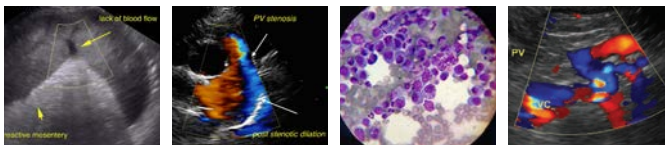

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1-800-838-4268 info@sonopath.com

PATIENT
Nala Rutter

SPECIES
Canine

BREED
Mixed

SEX
Neutered Male

AGE
13 Years

WEIGHT
38 Pounds

INTERPRETED BY
Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY
Jack Reese

HOSPITAL NAME
Willow Run VC

REFERRING VET
Dr. Molly Arnold

INVOICE
40146

DATE
8/3/22

PRESENTING CLINICAL SIGNS

Diagnosed with early CRF earlier this year - recent diagnosis of Cushing's disease and started on Vetoryl 60mg SID. Owner has noted decreased appetite over last few weeks and occasional GI upset. Progressive elevation of liver enzymes noted on bloodwork. Admitted for abdominal U/S and scheduled ACTH stimulation test.
Abnormal PE/Chem/CBC/UA Results: BUN 56 ALT 707 ALP 1298 No other significant changes on lab work Obese

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic contents. No masses or inflammatory changes observed. Small cystoliths/mineral sand debris accumulated along the dependent wall. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

The area of the prostate is examined without evident pathology.

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. Mild pyelectasia measuring 0.35 cm is noted in the left kidney in the transverse view. Non-obstructive areas of mineralization/nephroliths are noted in the left kidney. A cortical cyst is also noted in the left kidney. The left kidney measures 5.0 cm. Non-obstructive areas of mineralization/nephroliths are noted in the right kidney as well. The right kidney measures 5.0 cm.

Adrenal Glands

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

The left adrenal gland is normal in size (0.79 cm at the cranial pole and 0.85 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

Spleen

Spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). Multifocal well-demarcated hyperechoic homogenous nodules are noted. 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.

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.

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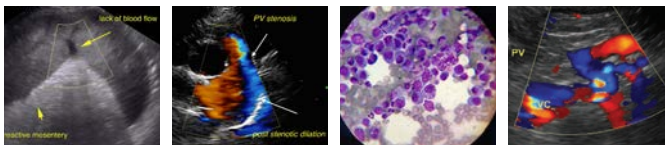

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Gastrointestinal

The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

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.

Free Abdomen

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

There is no apparent lymphadenopathy noted in these images.

PRIMARY FINDINGS

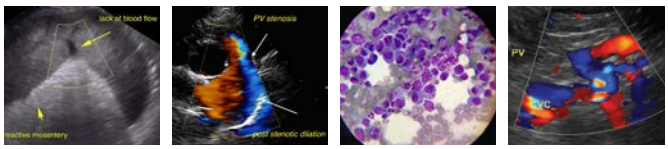
- **Heterogenous Liver –** These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.
- **Gallbladder debris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

SECONDARY FINDINGS

- **Hyperechoic splenic nodules –** most consistent with benign myelolipomas. Other differentials such as fibrosis or calcification caused by old hematomas or infarcts, chronic inflammation, granulomatous disease or metastatic disease cannot be ruled out, but are considered less likely.
- Age related kidney changes with mild pyelectasia of the left kidney and bilateral non-obstructive nephrolithiasis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

An obvious cause for the reported increased liver enzymes is not identified in these images. Microscopic disease such as Leptospirosis, bacterial cholangiohepatitis, chronic active hepatitis, copper-associated hepatotoxicity, other hepatotoxicity, infiltrative neoplasia (considered unlikely), etc. cannot be definitively ruled out.



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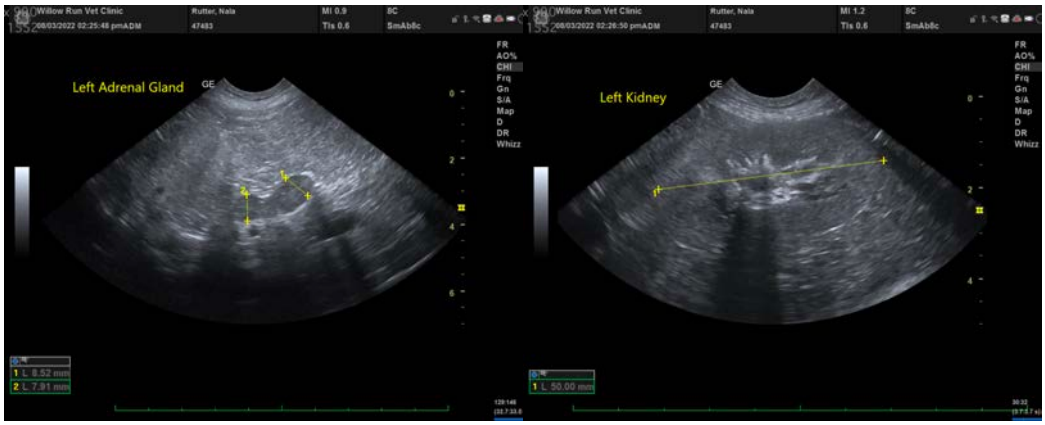
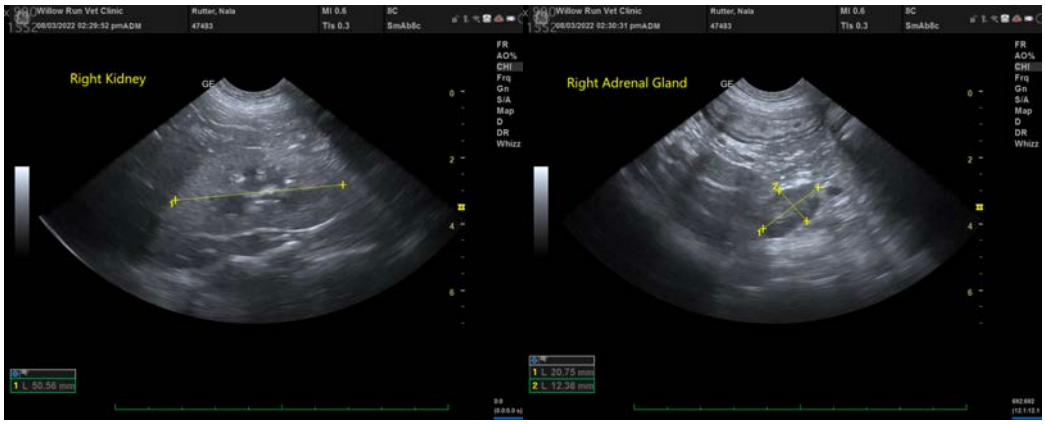
Therefore, recommendations include an "antigen search" for sources of reactive hepatopathy (including testing for Leptospirosis), followed by a course of empirical antibiotics and hepatic nutraceuticals, with monitoring of ALT for improvement. If improvement is not noted and/or enzyme increase progresses, a liver biopsy may be warranted.

Urinalysis and, if indicated based on urinalysis results, urine culture are recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

In the meantime, recommendations are to completely discontinue Vetoryl until clinical signs of hyperadrenocorticism have returned, at which time restarting Vetoryl at a much lower dose would be recommended. Many patients respond much better to a lower twice daily dose than a high once daily dosing. So, 5 mg twice daily or 10 mg twice daily may be able to be considered in this patient once clinical signs of hyperadrenocorticism return.

If this patient cannot tolerate the dose of Vetoryl required to control clinical signs, a transition to Lysodren/Mitotane may be warranted.





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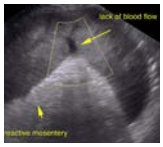
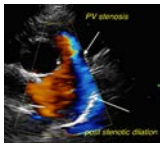
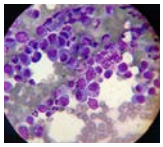
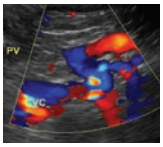

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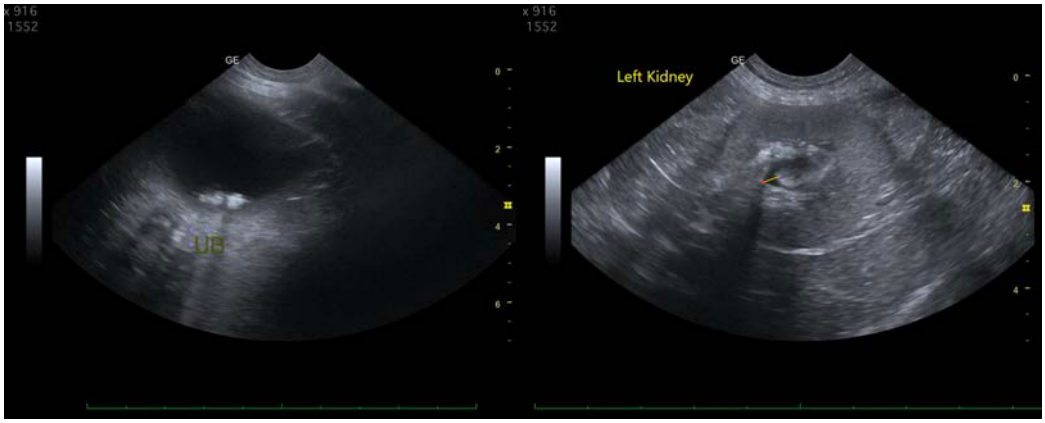

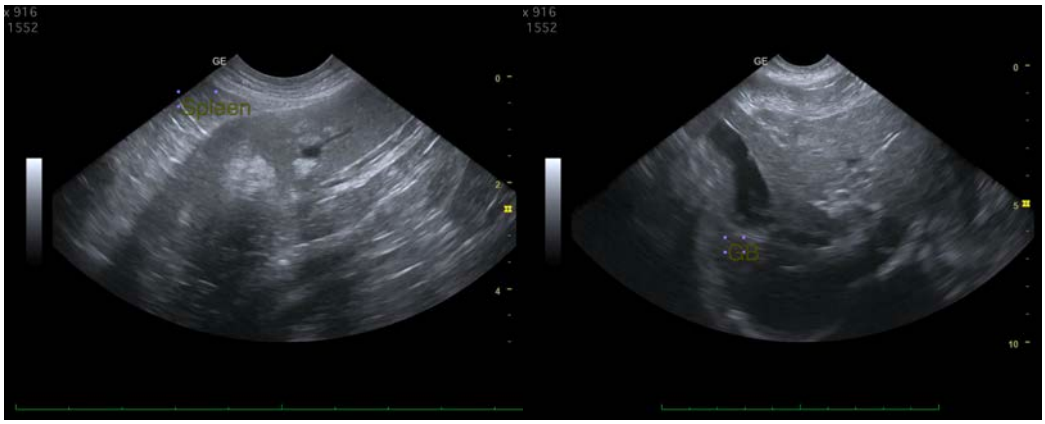

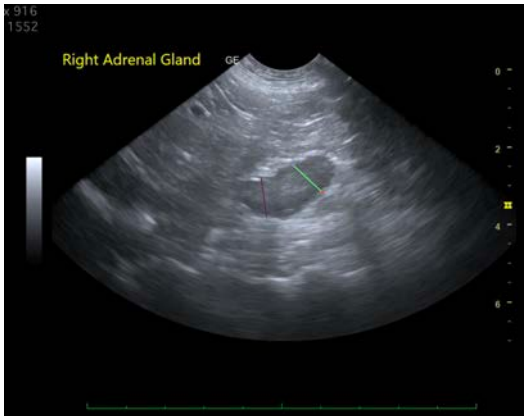

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Beth Johnson, DVM, DACVIM
Beth.Johnson@sonopath.com