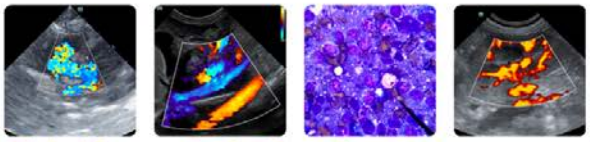

PATIENT

Agnes Cioni

SPECIES

Canine

BREED

Scottish Terrier

SEX

Spayed Female

AGE

8 Years

WEIGHT

9.25 kg

INTERPRETED BY

Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY

Dr. Jill Rankin

HOSPITAL NAME

McKnight Veterinary Hospital

REFERRING VET

Dr. Vanessa

INVOICE

71611

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11/5/25

PRESENTING CLINICAL SIGNS

This is an 8-year-old Scottish Terrier with a history of significantly and progressively elevated liver enzymes over the past year, accompanied by recent urinalysis abnormalities and mild hypercalcemia, with the owner reporting possible PD and PU. The most significant clinical concern is the progressive elevation in liver values. Approximately one year ago, the patient's ALT was 779, AST was 96, and ALP was 1372. Recent bloodwork revealed a substantial increase in these values, with the ALT rising to 1087, AST to 127, and ALP to 3020. Other recent bloodwork findings include a high albumin of 46, borderline high hematocrit, and high total protein. The patient's T4, cholesterol, and platelet levels are within normal limits. Recent urinalysis revealed a pH of 8.5, 3+ proteinuria, and the presence of triple phosphate crystals, with no white blood cells noted. Additionally, recent bloodwork showed a borderline high calcium level of 2.8, indicating mild hypercalcemia. The owner reports that the dog is possibly drinking and urinating more than usual.

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, as well as dependent mineral “sand” (crystals) debris. Both sterile inflammation as well as urinary tract infection can present with echogenic debris. No masses or discrete definitive cystoliths are observed. The trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

The right kidney is normal is size (5.4 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.

The left kidney is normal is size (5.6 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.

Adrenal Glands

The right adrenal gland is normal in size (0.47 cm at cranial pole and 0.49 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

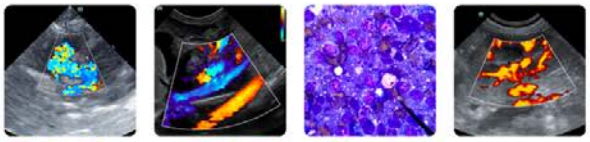
The left adrenal gland is normal in size (0.36 cm at cranial pole and 0.41 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

Spleen

The 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). No focal nodules or masses are observed. Splenic vasculature appears normal.

Liver

Liver is subjectively enlarged with mildly irregular margins. Parenchyma is moderately 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 and layering. The lumen of the stomach is mildly distended with very echogenic reverberation artifact from intraluminal gas. There is no evidence of obstruction, foreign material, or infiltrative disease; however, visualization is partially inhibited by gas.

The visible small intestines are normal in wall thickness and layering. 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 observed pancreas appears appropriately isoechoic to surrounding omental fat. The capsule is mildly irregular in shape. Parenchyma is mildly heterogenous and coarse. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen

There is no visible free peritoneal effusion noted in these images.

There is no apparent pathologic lymphadenopathy noted in these images.

ULTRASONOGRAPHIC FINDINGS

- Moderate 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.
- Moderate amount of echogenic urinary bladder mineral/sand debris.
- Pancreatic age-related remodeling/Chronic pancreatitis – Mild irregularities are consistent with benign age-related change. Low-grade smoldering chronic pancreatitis cannot be ruled out and should be suspected in the face of appropriate clinical signs.
- Non-specific hepatopathy – An obvious cause for the subtle liver changes is not identified in these images. Microscopic disease such as Leptospirosis, bacterial cholangiohepatitis, chronic active hepatitis, copper-associated hepatotoxicity, other hepatotoxicity, other reactive hepatopathy, infiltrative neoplasia (considered unlikely), etc. cannot be definitively ruled out.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given patient's reported hypercalcemia, a malignancy panel (PTH, PTHrP, iCa) to Michigan State College of Veterinary Medicine is recommended for further investigation of the reported hypercalcemia.

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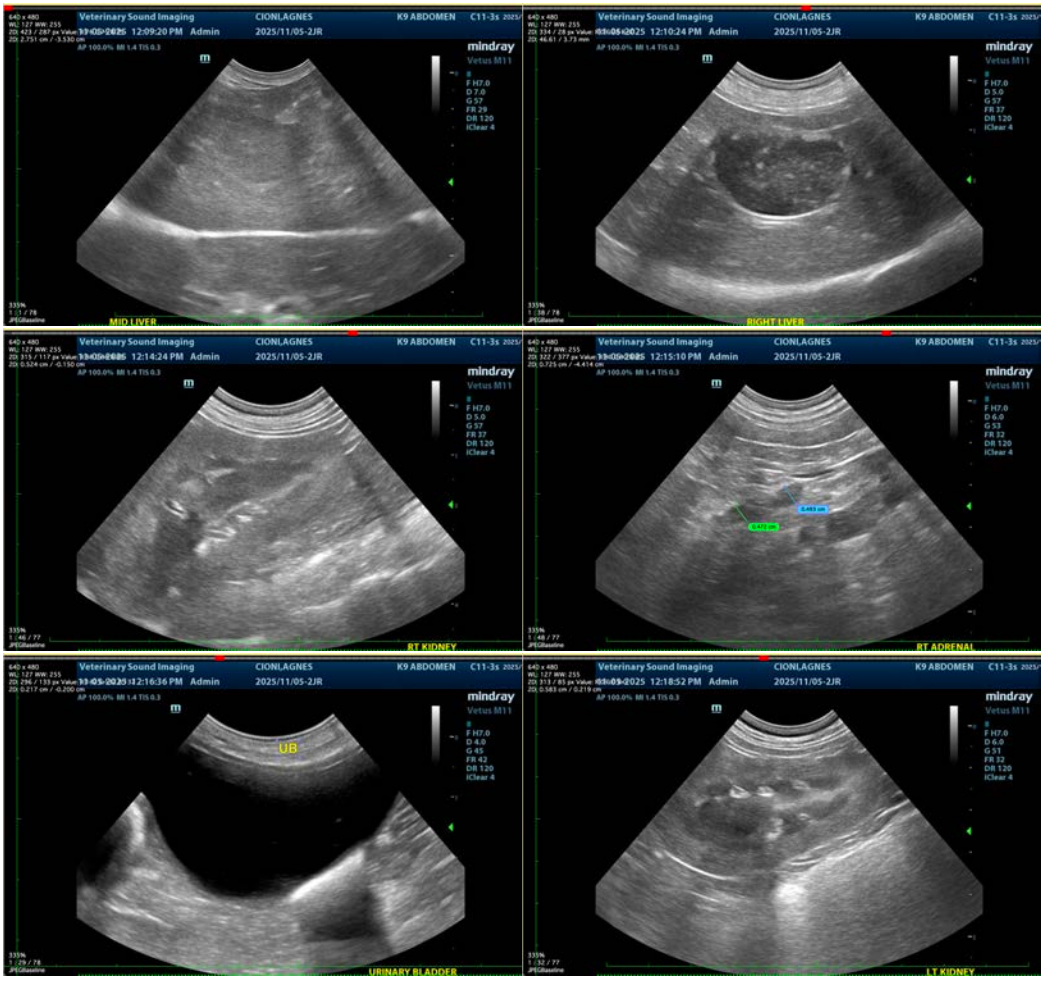
Three view thoracic radiographs are recommended for further assessment of cardio-pulmonary status as well as to further evaluate for any evidence of metastatic disease, if not recently evaluated.

Bile acids are recommended if patient's total bilirubin is not increased.

Testing for Leptospirosis could be considered.

Ultimately, however, liver sampling is likely warranted. A fine needle aspirate could be considered if patient's coagulation status is appropriate, or, if a diagnosis is not obtained, ultimately a liver biopsy, being sure to include copper level assessment, if possible, may be necessary for definitive diagnosis and therefore to further guide medical management.

In the meantime, in addition to any supportive/symptomatic medical management of clinical signs that is indicated, empirical hepatic nutraceuticals +/- empirical broad-spectrum antibiotics could be considered while monitoring liver enzymes for improvement.



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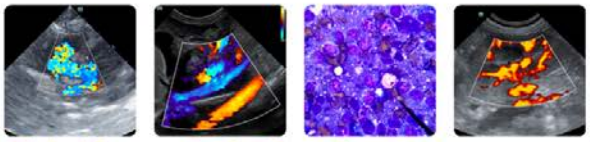

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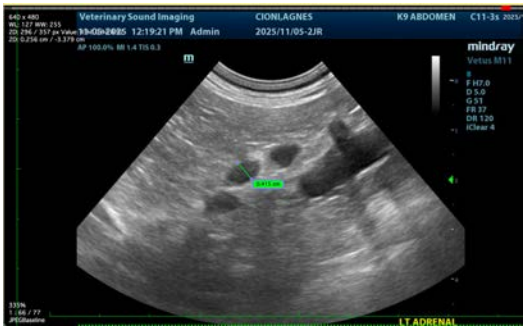

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
info@sonopath.com