



PATIENT

Cassie Doughty

SPECIES

Canine

BREED

Mix (Cattle Dog)

SEX

Spayed Female

AGE

13

WEIGHT

41

INTERPRETED BY

Beth Johnson, DVM
DACVIM

IMAGING PERFORMED BY

Dr. Danielle Lanz

HOSPITAL NAME

New Holland VH

REFERRING VET

Dr. Danielle Lanz

INVOICE

45871

DATE

3/14/23

PRESENTING CLINICAL SIGNS

Presented in February for GI upset and 2lb weight loss that resolved with supportive care (cerenia). BW showed elevated liver values and renal values. Was placed on ursodiol for a month and values were rechecked. Weight was gained back but still has consistently elevated ALP and GGT. No clinical signs at this time.

Abnormal PE/Chem/CBC/UA Results: CBC: MCH 21.4, Reticulocyte 21.7 Chem: SDMA 17, Creatinine 1.6, BUN 37, ALP 247 (prev. 297 before ursodiol) GGT 41 (prev. 30 before ursodiol). Cholesterol 425, CK 294

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

The right kidney is normal in size (4.9 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 in size (5.1 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 (1.1 cm at the cranial pole and 0.64 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 (0.63 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 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. Additionally, in the right liver there is a discrete, slightly more heterogeneous, isoechoic 5.0 cm x 6.0 cm mass. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is moderately distended with anechoic bile as well as mild to moderate 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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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.

No evidence of pericardial effusion.

ULTRASONOGRAPHIC FINDINGS

- **Heterogenous Liver with a discrete right liver mas** – 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. The discrete right liver mass could represent infiltrative neoplasia such as a primary hepatocellular carcinoma versus round cell neoplasia versus other. However, a benign hepatoma/adenoma or marked nodular hyperplasia, etc. can mimic malignant lesions and can't be ruled out without tissue sampling.
- **Mild to 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.
- **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.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Differentials for an elevation in ALP are vast and non-specific. Differentials include, but are not limited to, benign nodular hyperplasia which occurs in 70% of older dogs and often does not result in an abnormal ultrasound, reactive or idiopathic/vacuolar hepatopathy, cholestasis and/or hyperadrenocorticism as well as many chronic non-hepatobiliary diseases such as chronic



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infections/inflammation from dental disease, IBD, neoplasia, hyperlipidemia, hypothyroidism, chronic pancreatitis, chronic stress, etc.

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Given this patient's resolution of previous clinical signs and improvement in liver enzymes, continued monitoring could be elected. However, given the discrete mass in the right liver combined with the splenic changes, fine needle aspirates of the discrete liver mass, the diffuse heterogeneous liver changes, as well as the spleen are recommended if patient's coagulation status is appropriate.

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In the meantime, continued medical management, as is reportedly in place, is recommended.

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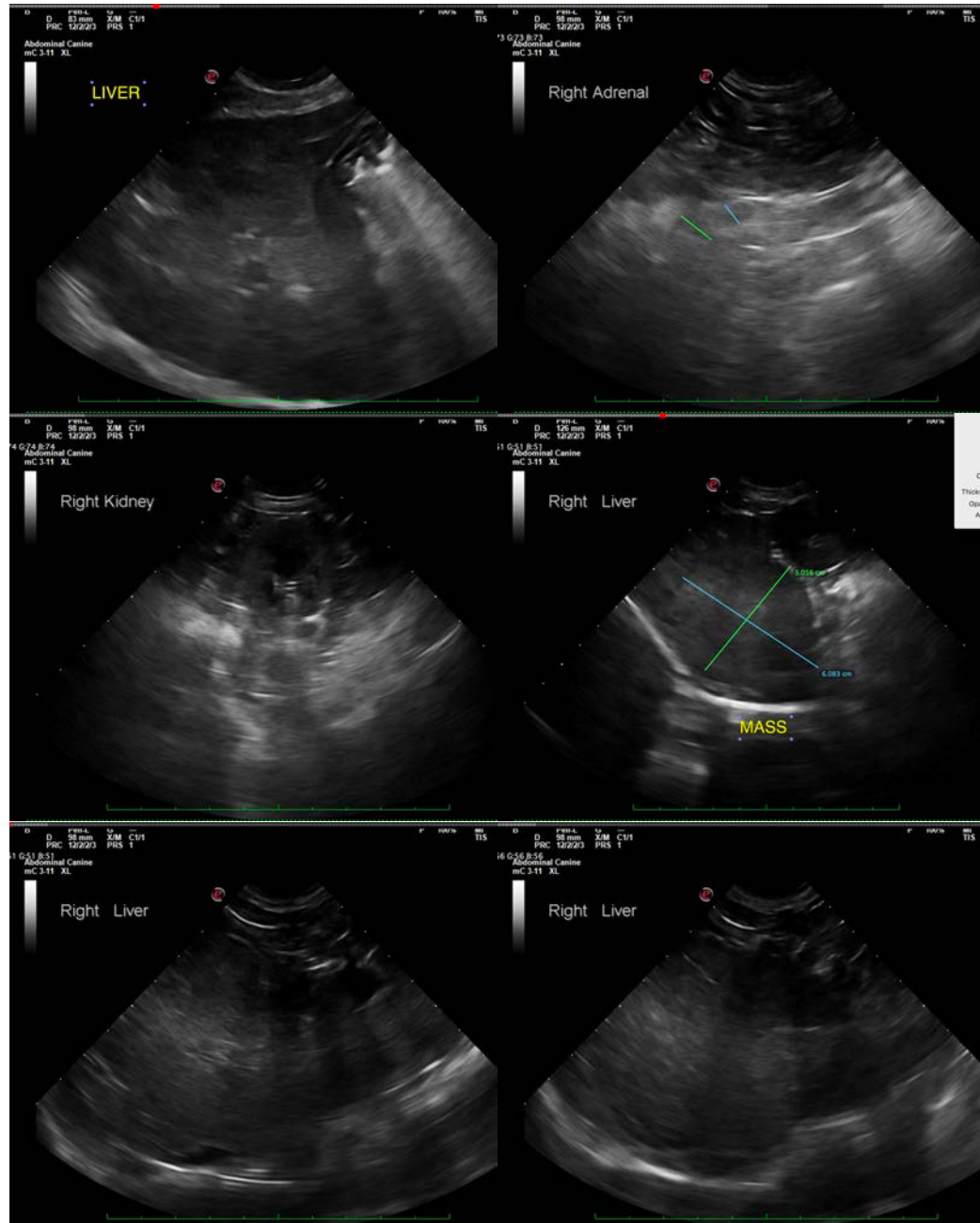
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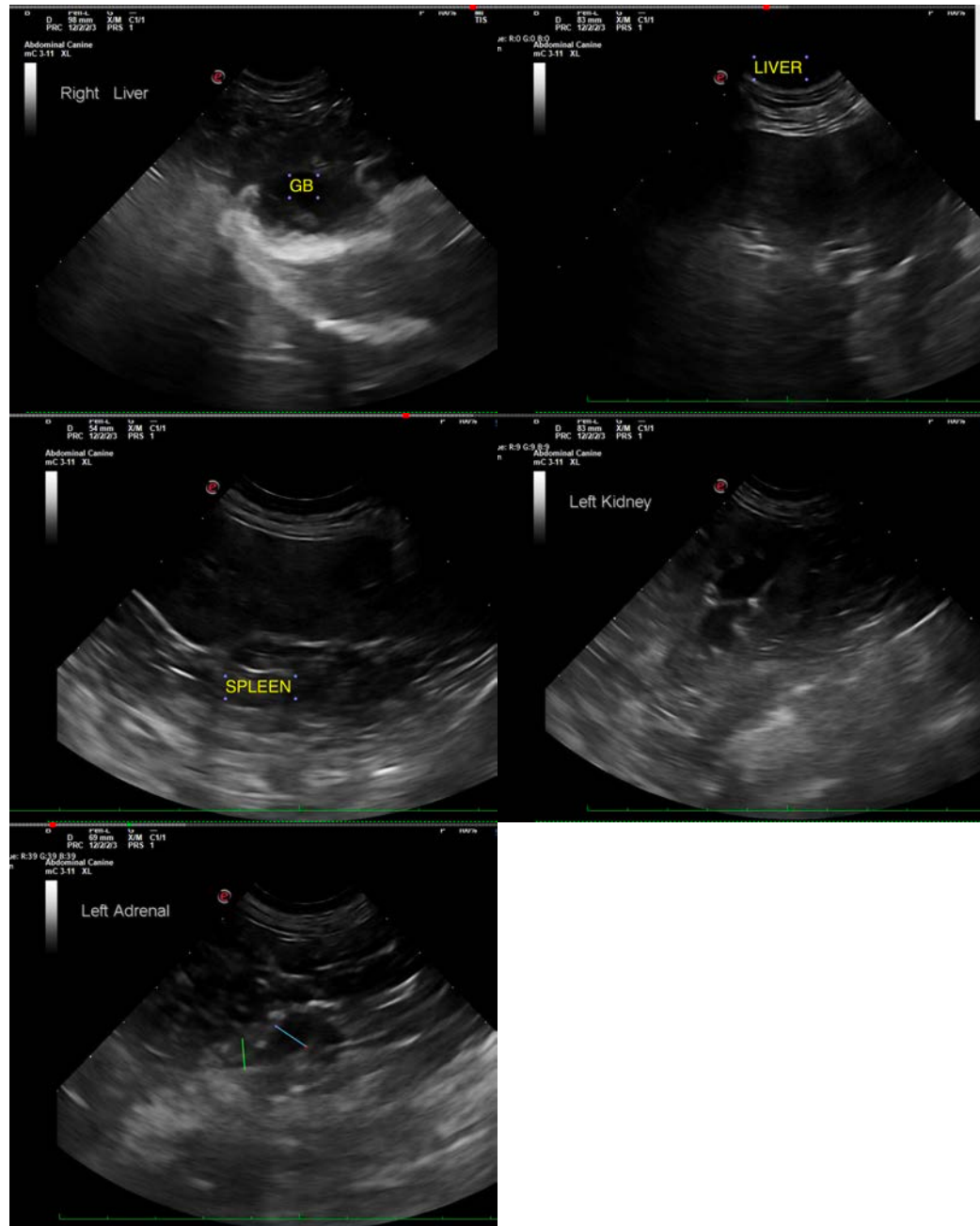
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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