



PATIENT

Marlin Lobenstein

SPECIES

Canine

BREED

Beagle Mix

SEX

Neutered Male

AGE

12 Years

WEIGHT

40 Pounds

INTERPRETED BY

Beth Johnson, DVM
DACVIM

IMAGING PERFORMED BY

Brian Klug, Technician

HOSPITAL NAME

Sondel Family VC

REFERRING VET

Dr. Chelsea Mohney

INVOICE

17656

DATE

10/11/22

PRESENTING CLINICAL SIGNS

History: Elevated liver enzymes ALP and ALT noted on pre-operative screen at time of dental procedure 7/26/22. Rechecked values 1 month later and ALT improved, ALP slightly more increased. Owners elected for abdominal ultrasound to assess liver. No pu/pd noted at home, no lethargy, no inappetence.

Abnormal PE/Chem/CBC/UA Results: 7/26/22 - elevated ALP 721 U/L (normal range 20-250), elevated ALT 130 U/L (normal range 10-118). 9/27/22 - elevated ALP 763 IU/L (normal range 5-131), ALT and AST normal.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately 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.

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

Left kidney is normal is size (4.99 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.

Right kidney is normal is 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.

Adrenal Glands

Left adrenal gland is normal in size (0.49 cm at cranial pole and 0.55 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

Right adrenal gland is normal in size (0.71 cm at cranial pole and 0.34 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. 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). A 0.4 cm hypoechoic non-capsule-disrupting nodule was noted. Splenic vasculature appears normal.

Liver

Liver is subjectively normal in size with normal smooth curvilinear peripheral contour. Parenchyma is appropriately hypoechoic to the spleen in echogenicity and appropriately mildly coarse and homogenous in echotexture. Several discreet nodules are noted throughout the liver. A 1.0 cm x 0.7 cm hyperechoic nodule is present in the right liver. A 0.4 cm x 0.8 cm more mixed appearing nodule is present in the right liver and a smaller 0.6 cm hyperechoic nodule is present in the mid liver. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is moderately distended with anechoic bile as well as mild suspended and gravity dependent echogenic debris. The wall is mildly thick, hyperechoic and irregular with subjectively benign polypoid



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changes. Infiltrative neoplasia can't be ruled out but is considered less likely. There is no evidence of effusion or inflammation.

Gastrointestinal

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The visible stomach wall is normal in thickness and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

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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.

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The visible colon is normal in wall thickness and layering. Contents are consistent with normal formed feces and gas.

Pancreas

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The observed pancreas appears appropriately isoechoic to surrounding omental fat. Visible capsule is smooth and normal in contour. Visible pancreatic parenchyma is homogenous and unremarkable. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen

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There is no evidence of peritoneal effusion. There is no apparent lymphadenopathy.

ULTRASONOGRAPHIC FINDINGS

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DACVIM

- Gallbladder debris with evidence of benign polypoid hyperplasia (as described above) - 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.

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- Liver nodules - Differentials for the discrete liver nodules include primarily benign changes such as nodular hyperplasia, fibrosis of an old hematoma, granuloma, etc.; however, while considered less likely, primary hepatic neoplasia, infiltrative round cell neoplasia and metastatic disease can mimic benign lesions and cannot be definitively ruled out.

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- Hypo to anechoic splenic nodule - likely represents a benign lesion such as a cyst, hematoma, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia can mimic benign lesions, and cannot be ruled out.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

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

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There is no ultrasonographic evidence of cholestasis. Adrenocortical testing such as a low dose dexamethasone suppression test could be considered if clinical signs of hyperadrenocorticism are



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present. Ursodiol could be considered if gallbladder sludge is noted. A fine needle aspirate of the liver could be considered if patient's coagulation status is appropriate. Otherwise, recommendations include addressing any other concurrent disease and monitoring. If values are progressive, recheck imaging is recommended.

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For this patient specifically, recommendations include empirical ursodiol +/- empirical broad-spectrum antibiotics with monitoring of ALP for improvement. If ALP improves, antibiotics should be continued until it either plateaus or normalizes, but if there is not a significant change, antibiotics should not be continued. Ursodiol, on the other hand, is safe to continue long term.

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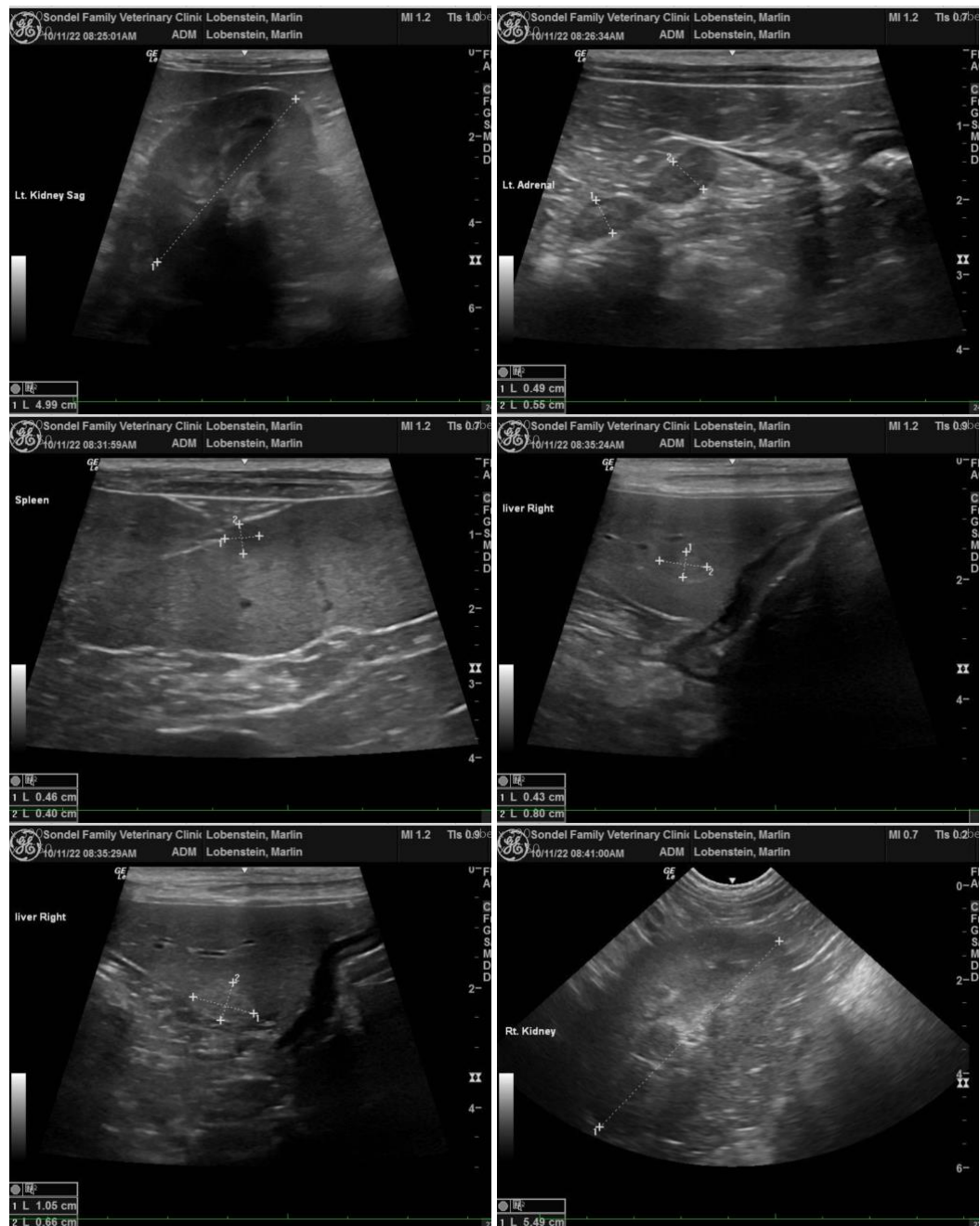
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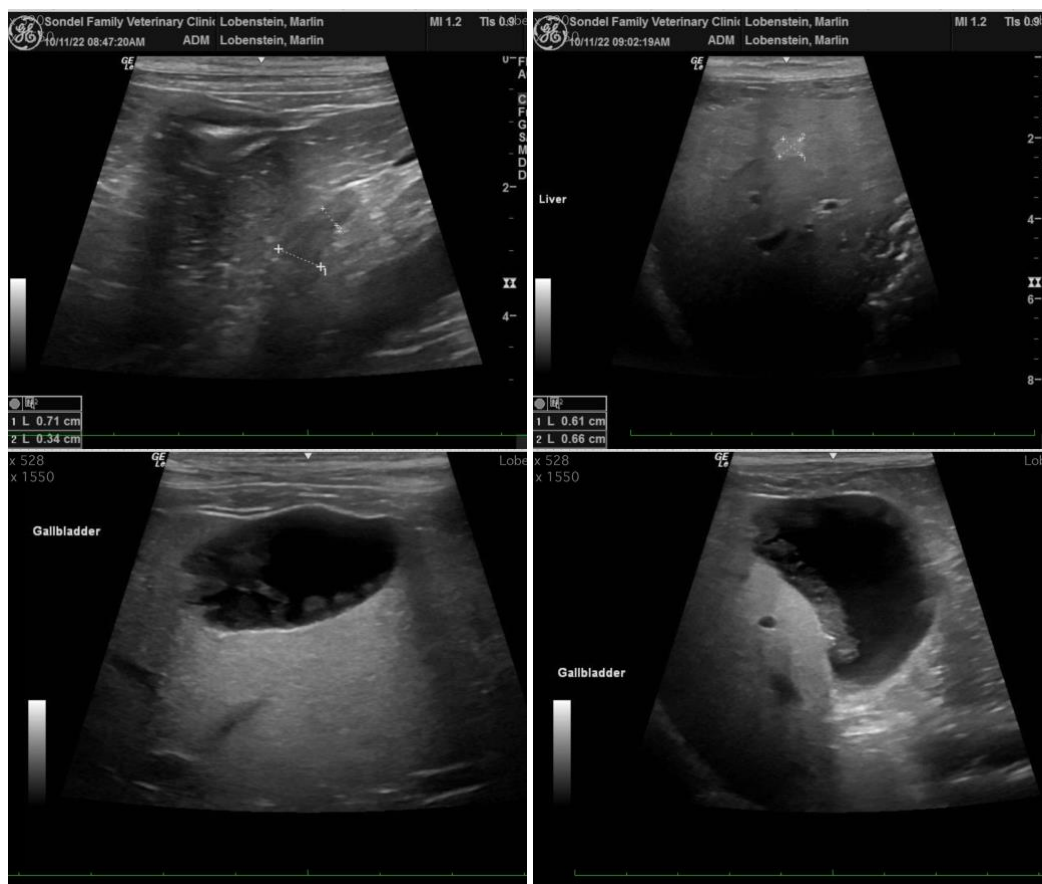
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

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