

**DATE PRESENTING CLINICAL SIGNS**

3/2/22 Vomiting/diarrhea started December 2021- ate chocolate in January and had gone to ER. P has been on chix/rice diet since December due to vomiting. P continues to get into trash/things outside bc she is very hungry and not satisfied w/ food. Seems hungrier than usual. Lab work shows Severe liver value elevations.

PATIENT

Stella Mills

Current Medications: Started Denamarin ¼ SID.

Lab Results: CBC: Platelets 705 (143-448). Chem: Albumin 4.2 (2.7-3.9), ALT 2355 (18-121), AST 998 (16-55), ALP 472 (5-160), CK 1088 (10-200).

SPECIES

Canine

Date of Previous IntraPet Ultrasound: No previous.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

BREED

Miniature Schnauzer

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**SEX**

Spayed Female

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.

AGE

10/27/11

The right kidney is normal in size (4.97 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.

WEIGHT

13.8 Pounds

The left kidney is normal in size (4.27 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.

INTERPRETED BYBeth Johnson, DVM
DACVIM**Adrenal Glands**

The right adrenal gland is normal in size (1.5 cm long x 0.44 cm at the cranial pole and 0.44 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

IMAGING PERFORMED BY

Rachel Brilhart RDMS

The left adrenal gland is normal in size (1.32 cm long x 0.43 cm at the cranial pole and 0.56 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

HOSPITAL NAME

Taylorsville VC

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.

REFERRING VET

Dr. Peterson

Liver

Liver is subjectively enlarged with rounded margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. There is one slightly larger, more distinct nodule in the deep right liver, hypoechoic with normal curvilinear structure maintained, measuring 1.2 cm in diameter. Visible vasculature appears normal.

INVOICE

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GB is moderately distended with anechoic bile and gravity dependent echogenic sediment. 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 stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) 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, complete visualization of far wall is partially inhibited by gas. 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. It is moderately fluid and gas distended.

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 peritoneal effusion. There is no apparent lymphadenopathy.

PRIMARY FINDINGS

- Liver is subjectively enlarged with rounded margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Visible vasculature appears normal. The discrete nodule is likely the same underlying pathology as the diffuse liver changes, or benign nodular hyperplasia. An infiltrative neoplastic nodule is possible, but considered less likely.

SECONDARY FINDINGS

- 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.
- Fluid distended colon – consistent with the reported diarrhea.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Alanine Aminotransferase (ALT) - ALT is more liver specific than other enzymes. It is a good indicator of active liver damage (cell membrane disruption, cellular necrosis) if the value is increased by at least 3-4 times normal. Differentials include infectious disease, including Leptospirosis, inflammatory disease (ie. active hepatitis, copper, other), toxic insult as well as infiltrative neoplasia.

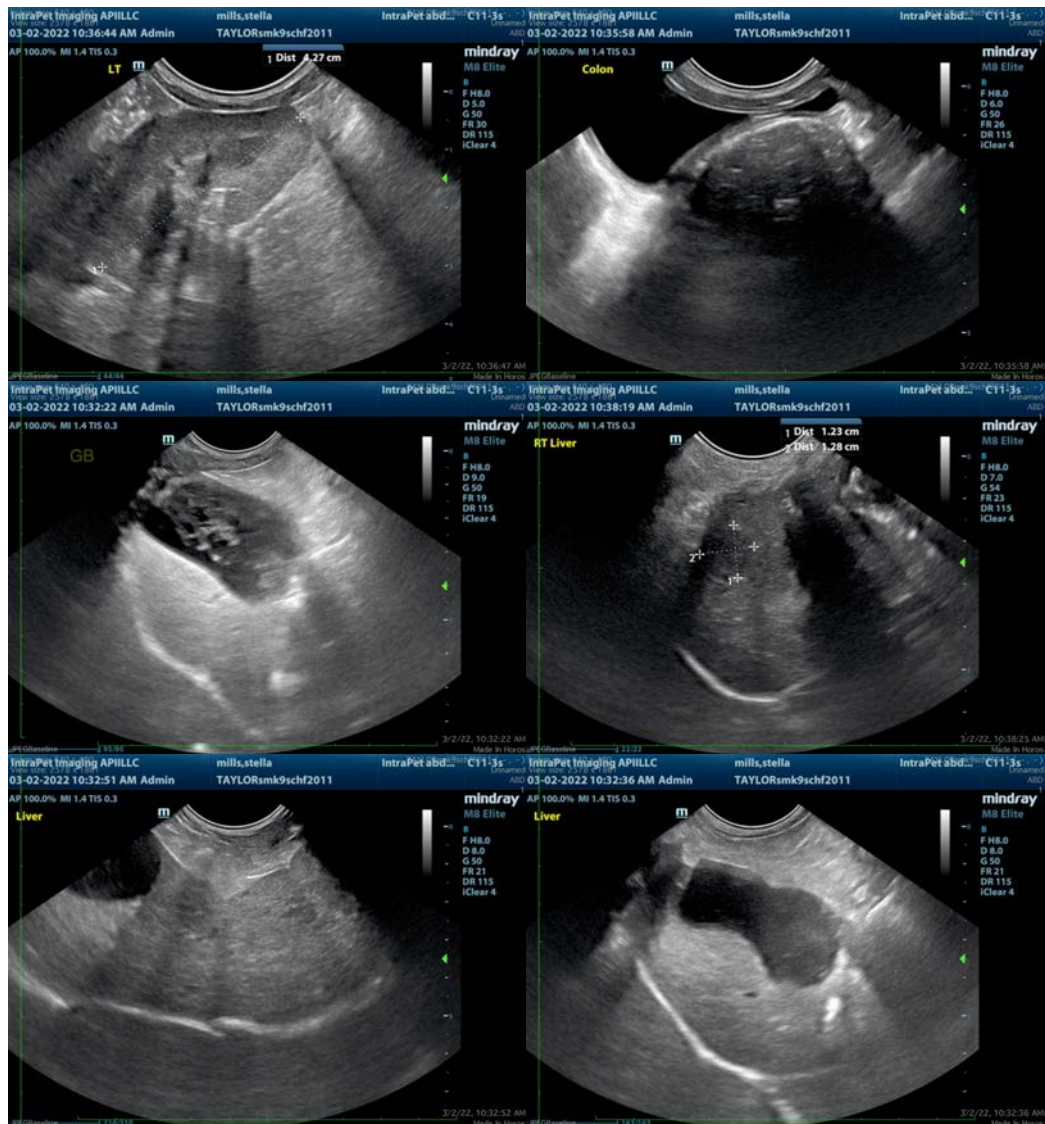
ALT levels vary in cases of vascular anomalies such as microvascular dysplasia and portosystemic shunts (PSS), but are often less significantly increased.

Non primary hepatic causes of increased ALT can include a variety of other metabolic conditions including, but not limited to, pancreatitis, gastroenteritis, parasitic disease, dental disease, vacuolar or endocrine hepatopathy from diabetes mellitus or hyperadrenocorticism (steroid-induced), hypoadrenocorticism,

certain drugs (e.g. phenobarbital, corticosteroids, azathioprine, etc.), and muscle ALT (more likely if AST and CK concurrently increased).

Specifically for this patient, further diagnostics could include bile acids to further investigate liver function, as well as testing for Leptospirosis and a fine needle aspirate of the liver if patient's coagulation status is appropriate. Diagnostic recommendations in the meantime include supportive care for the gastrointestinal signs in the form of antiemetics, and a probiotic for the diarrhea, as well as broad-spectrum antibiotics with monitoring of liver enzymes while on antibiotics, for improvement versus progression.

If empirically therapy doesn't result in improvement and/or diagnosis is not obtained via cytology, a liver biopsy may be indicated.





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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