



PATIENT

Dakota Cornell

SPECIES

Canine

BREED

Mixed

SEX

SF

AGE

12 years 5 months

WEIGHT

44

INTERPRETED BY

Beth Johnson, DVM
DACVIM

IMAGING PERFORMED BY

Dr. Kristen Carpenter

HOSPITAL NAME

Pennridge Animal
Hospital

REFERRING VET

Dr. Jen Makem

INVOICE

11711

DATE

4/15/2026

PRESENTING CLINICAL SIGNS

Patient was sedated with butorphanol. History of mildly elevated liver enzymes with more recent increase in ALT. Patient is asymptomatic per owner. Chronic hx of OA.

Chronic medications: Healthymouth water supplement, Cosequin, hepatosupport, fish oils.

Diagnostics: 9/25/25: Pre-surgical thoracic rads (lipoma removal) – NSF. 2/21/26 Full bloodwork: CBC WNL. Chem ALT 264 (H), ALP 250 (H), Cholesterol 390 (H). UA - USG 1.032, quiet sediment. T4 1.9 (normal). 4dx neg x4. Fecal NOS. 4/6/26 Liver chem: ALT 508 (H), ALP 353 (H), tbili 0.5.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The 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.

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. Pinpoint non-obstructive mineral densities are noted bilaterally. There is no evidence of pyelectasia or infarcts observed.

The left kidney is normal is size (5.5 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. Pinpoint non-obstructive nephroliths are noted bilaterally. There is no evidence of pyelectasia or infarcts observed.

Adrenal Glands

The right adrenal gland is normal in size (1.2 cm at cranial pole and 0.7 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

The left adrenal gland is normal in size (0.5 cm at cranial pole and 0.5 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 (swollen contour) with a diffusely mildly coarse architecture and subtly increased portal markings. Mildly mixed echogenic changes are noted diffusely. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

The gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.

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 (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

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Pancreas is prominent (enlarged) in size and mildly irregular in shape with a slightly undulating contour. Parenchyma is coarse in echotexture and heterogenous to hypoechoic in echogenicity.

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

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Medial iliac lymph nodes are prominent in size with swollen capsular contour. Normal elongated shape (length to width ratio) is maintained. There is no loss of parenchymal detail.

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PRIMARY FINDINGS

- 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, etc. cannot be definitively ruled out.
- Chronic low grade smoldering pancreatitis can't be ruled out and should be suspected in the face of appropriate clinical signs.
- Mildly reactive medial iliac lymph nodes - infiltrative neoplastic disease cannot be ruled out but is considered less likely.

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SECONDARY FINDINGS

- Pinpoint non-obstructive mineral densities are noted bilaterally in the kidneys.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

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Differentials for a primary hepatocellular injury liver enzyme pattern (increased ALT) depend partially on the level of increase. Mild increases (less than 2 times normal) are often a "reactive hepatopathy" or the liver's response to an insult elsewhere in the body 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).

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It is a good indicator of active liver damage (cell membrane disruption, cellular necrosis), however, if the value is increased by at least 3-4 times normal. Differentials include infectious disease, including



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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.

- Testing for Leptospirosis could be considered.

- Bile acids could be considered, if tbili is not increased.

- An empirical course of antibiotics and empirical hepatic nutraceuticals may be tried, with monitoring of ALT for improvement. If improvement is noted, antibiotics should be continued until liver enzymes either normalize or plateau (recheck every 2-3 weeks); however, if improvement is not noted and/or enzyme increase progresses, antibiotics should not be continued long term and liver tissue sampling is recommended.

- FNA of the liver can be performed to assess inflammatory cell type, rule in/out round cell neoplasia, etc. (if patient's coagulation status is appropriate).

- If round cell neoplasia is not diagnosed, a liver biopsy (including copper level assessment) may be required to definitively diagnose the underlying hepatopathy.



