

**DATE PRESENTING CLINICAL SIGNS**

9/19/22

About 4-5 months ago, Piper was seen for the vomiting and elevated liver values which improved, but did not resolve on denamarin, metronidazole, and amoxicillin. ALT was 487 and AlkP was 547 at the time. Owners were directed to continue denamarin, but did not.

PATIENT

Piper Knapp

Piper returned about 6 weeks ago for vomiting and had elevated ALT and AlkP on bloodwork. Her ALT and AlkP continue to rise despite denamarin, amoxicillin, and metronidazole. Her clinical signs resolved within 1 week of starting this therapy.

SPECIES

Canine

Current Medications: Denamarin for last 5-6 weeks.. Previously on Amoxicillin (~20mg/kg) and Metronidazole (~15mg/kg) for one month. Recently finished course ~1 week ago.

Lab Results: ALT 941, AlkP 1522

BREED

Beagle X

Radiographs: subjectively enlarged liver with rounding of liver lobes. No other findings on xray. Date of Previous IntraPet Ultrasound: No previous.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

SEX

Spayed Female

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System****AGE**

1/14/12

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.

WEIGHT

24 Pounds

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. There is no evidence of pyelectasia or infarcts observed. The left kidney measures 4.61 cm. The right kidney measures 4.57 cm. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted in both kidneys.

INTERPRETED BYBeth Johnson, DVM
DACVIM**Adrenal Glands****IMAGING PERFORMED BY**

Rachel Brillhart RDMS

The right adrenal gland is normal in size (1.8 cm long x 0.50 cm at the cranial pole and 0.53 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

HOSPITAL NAME

Greenbrier Vet Clinic

The left adrenal gland is normal in size (1.6 cm long x 0.42 cm at the cranial pole and 0.61 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

REFERRING VET

Dr. Whitfield

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). A 1.0 cm in diameter hypoechoic nodule is noted near the tail of the spleen. Splenic vasculature appears normal.

INVOICE

41431

Liver

Liver is subjectively enlarged with mildly irregular margins. Parenchyma is mottled by multifocal discrete hypoechoic nodules of varying sizes "moth-eaten". Visible vasculature and biliary tree appear normal without distension or congestion.

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 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 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 evidence of free peritoneal effusion noted in these images. No evidence of pericardial effusion in these images.

There is no apparent lymphadenopathy noted in these images.

PRIMARY FINDINGS

- **Nodular Liver** - This finding is concerning for infiltrative disease such as round cell neoplasia or metastatic neoplasia. Benign disease (nodular hyperplasia) cannot be ruled out but is considered less likely.
- **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.
- **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.
- **Pancreatic age-related remodeling** – 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.

SECONDARY FINDINGS

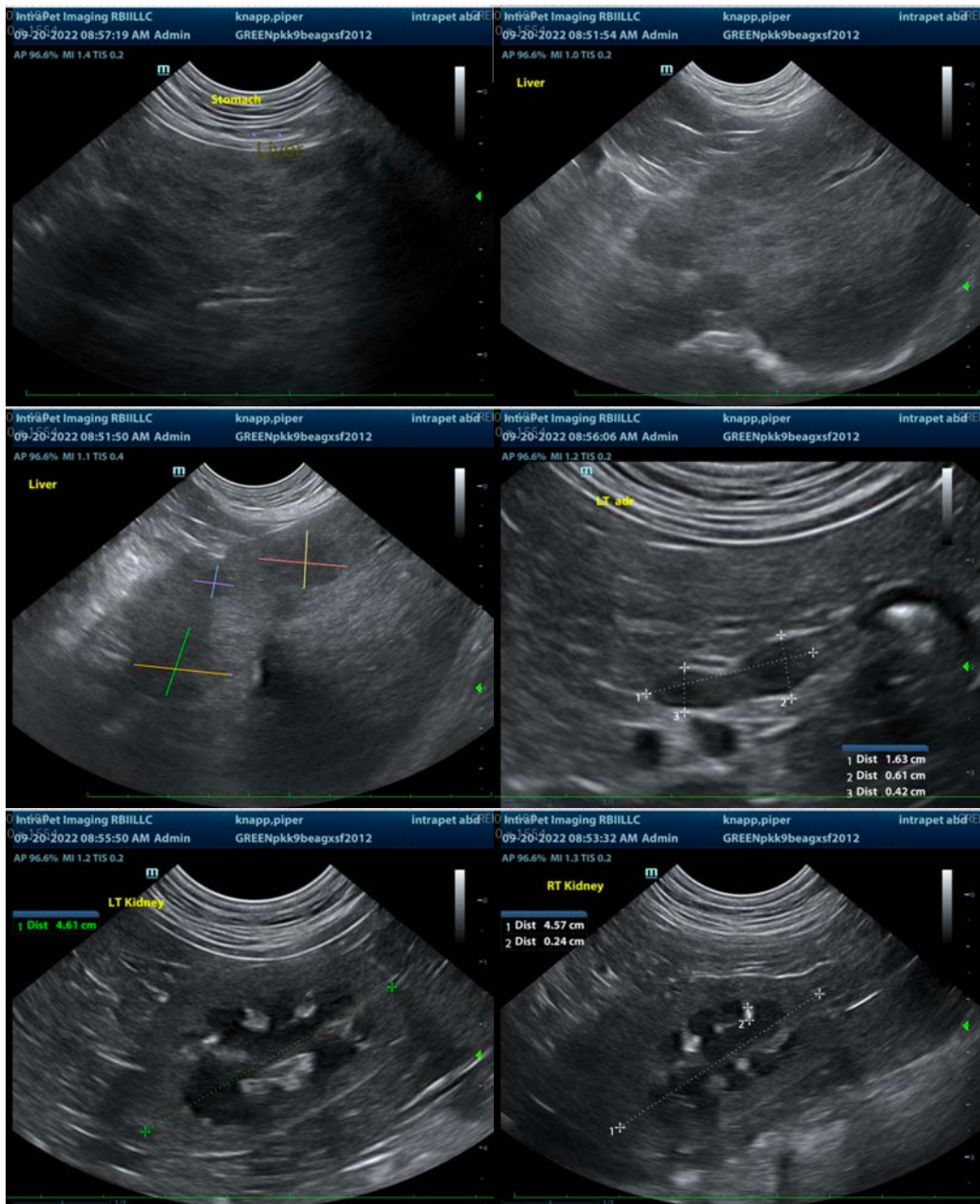
- Age related kidney changes

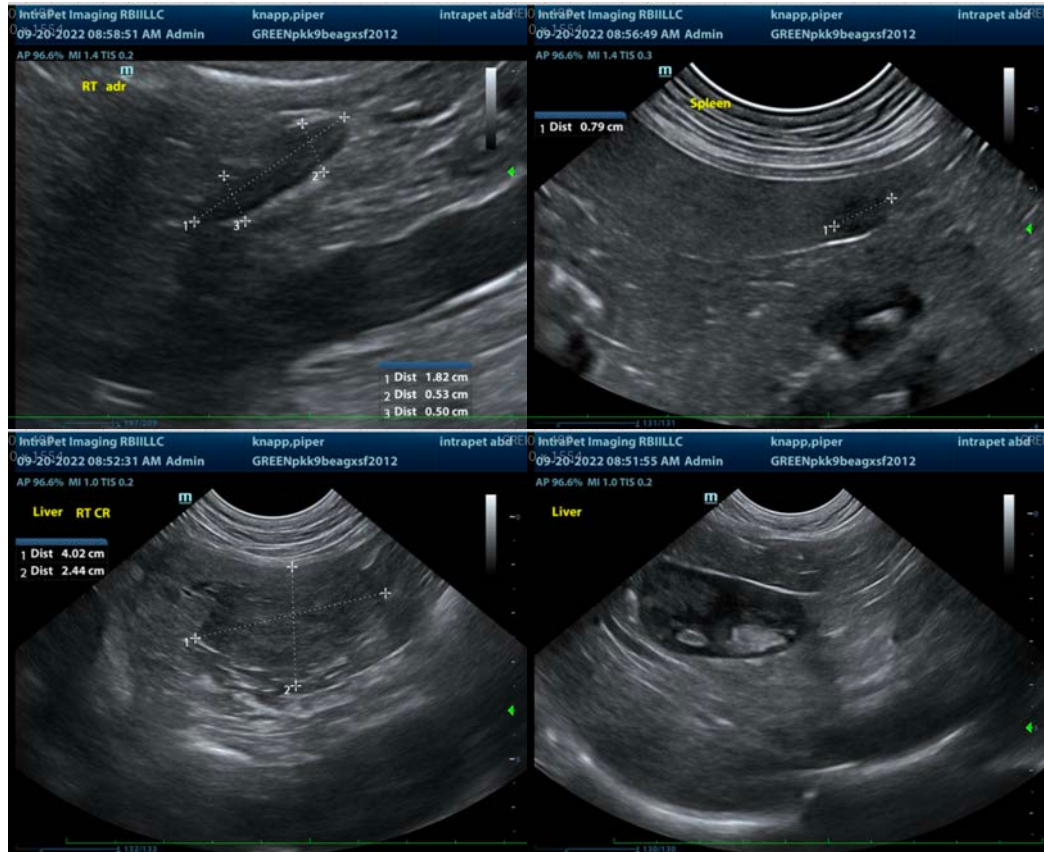
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

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.

A fine needle aspirate of the liver is recommended if patient's coagulation status is appropriate.

If a diagnosis is not obtained cytologically, a liver biopsy may be necessary to definitively diagnosis and therefore manage the cause of this patient's chronically increased liver enzymes.





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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