

**DATE PRESENTING CLINICAL SIGNS**

5/10/23 P presented on referral from Helping Hands where was supposed to have dermal mass removal. BW revealed high ALP, was sent back here for further work up. Based on BW (below) advised abd u/s to answer the most questions.

PATIENT

Brown Dog Pusey

Current Medications: Apoquel, Gabapentin, Bravecto, Interceptor- All long term. O declined empirical abx therapy for ascending hepatitis

SPECIES

Canine

Lab Results: CBC- NSF, No stress leukogram, Relative eosinophilia. Chem, Mild azotemia, Hyperkalemic 6.1, Na/K =25, ALT= 1.25X URI, ALP= 12X URI, Hypercholesterolemic. T4= 0.9 LOW

Resting cortisol= 2.4 wnl. Fecal exam= NPS, no whipworm antigen detected

Date of Previous IntraPet Ultrasound: No previous.

Sedation: IM sedation: Dexmed 0.7 ml & Torb 0.7 ml.

BREED

Mixed

Stat Report: Not requested.

Imaging Performed By: Rachel Brillhart, RDMS.

SEX

Neutered Male

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.

AGE

5/28/12

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

WEIGHT

73.4 Pounds

The right kidney is normal in size (7.59 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. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted. A small cortical cyst is noted in the caudal pole.

INTERPRETED BYBeth Johnson, DVM
DACVIM

The left kidney is normal in size (6.9 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. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted.

HOSPITAL NAME

Paradise AH

Adrenal Glands**REFERRING VET**

Dr. Halpern

The right adrenal gland is normal in size (3.04 cm long x 0.73 cm at the cranial pole and 0.88 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

INVOICE

47292

The left adrenal gland is normal in size (3.39 cm long x 0.71 cm at the cranial pole and 0.82 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. 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 with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. 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.

There is no apparent lymphadenopathy noted in these images.

ULTRASONOGRAPHIC FINDINGS

- **Heterogenous Liver** – 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.
- **Mild 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.
- Non-obstructive dystrophic mineralization in the kidneys bilaterally

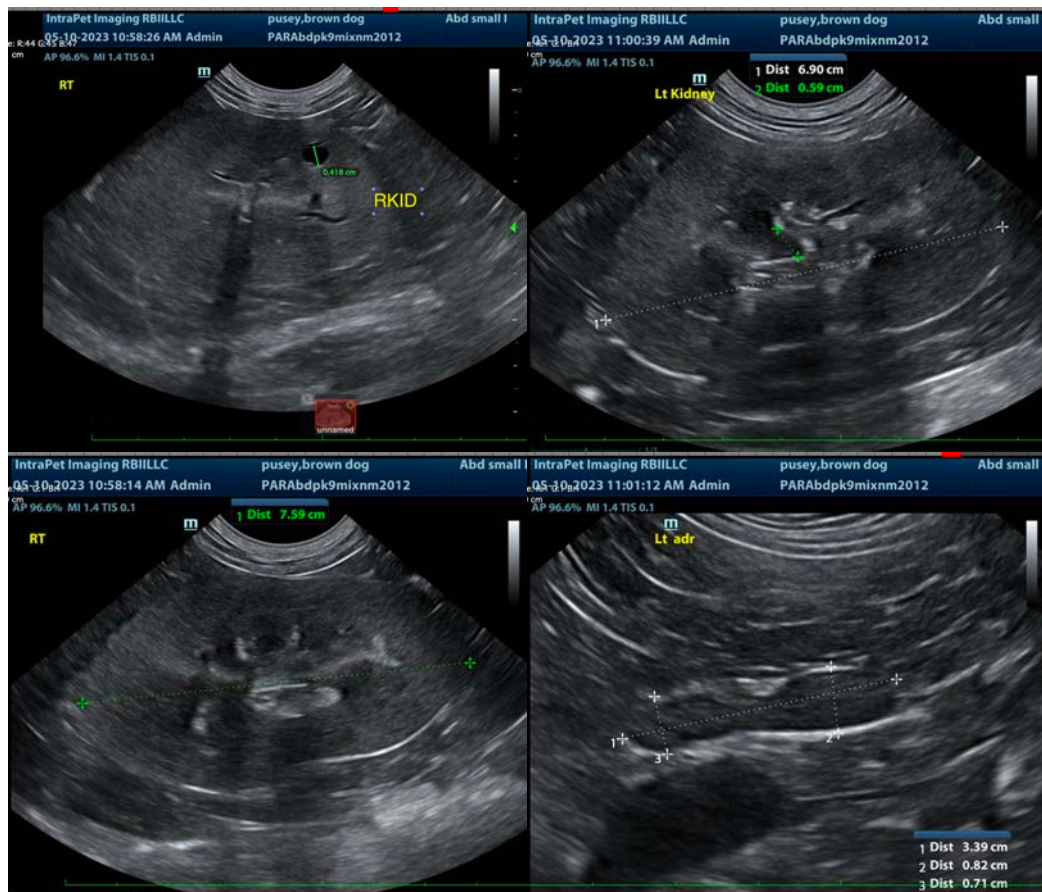
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

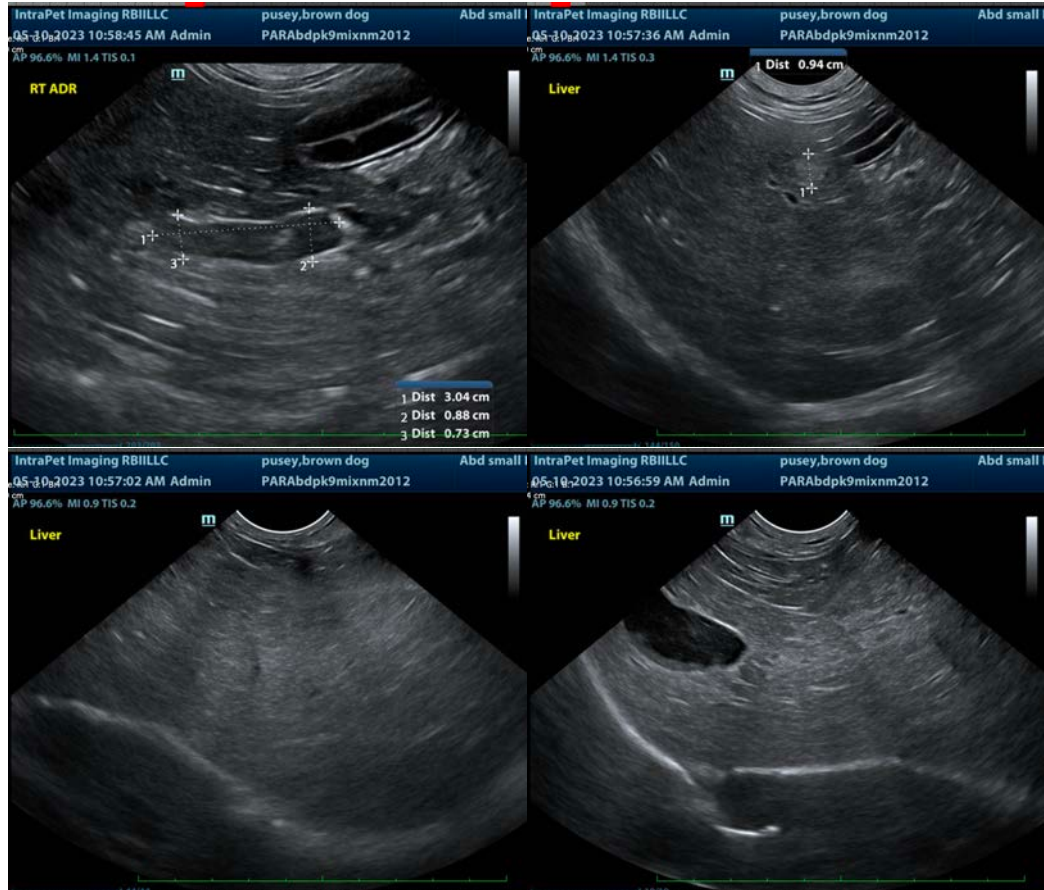
Given this patient's reported ALP, differentials are vast and non-specific. Differentials include, but are not limited to, benign nodular hyperplasia which occurs in 70% of older dogs and often does not result in an abnormal ultrasound, reactive or idiopathic/vacuolar hepatopathy, cholestasis and/or 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.

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 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.

While no clinical signs of hypoadrenocorticism are reported, and the baseline cortisol was >2.0, the reported hyperkalemia is concerning. Recommendations are to recheck/confirm the potassium level, and if hyperkalemia persists, a full ACTH stim is recommended, as a small percentage of dogs with hypoadrenocorticism do have a baseline cortisol >2.0.

In the meantime, empirical deworming with a 5-day course of Panacur is recommended.





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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