PATIENT

Mr. Pink Zimmerman

SPECIES

Canine

BREED

Pit Bull

SEX

Intact Male

AGE

11 Years

WEIGHT

87 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

IMAGING BY

Loetitia Saint-Jacques, LVT

HOSPITAL NAME

Truckee Meadows VH

REFERRING VET

Dr. Rachel Kuester

INVOICE

43436

DATE

12/13/22

PRESENTING CLINICAL SIGNS

11/23/22: Mild elevations in AST and ALP, marked elevation in ALT: DDx 1' liver disease (inflammatory, infectious), pancreatitis, chronic enteritis, 2' to endocrine disease, neoplasia Overweight Yeast otitis Presenting Complaint: Presented for annual examination in November. Senior labs revealed elevated liver values. No reported clinical signs at home. Coming in for further diagnostics to evaluate the elevations.

Abnormal PE/Chem/CBC/UA Results: 11/23/22: Total Body Function AST 71 ALT 325 ALP 231 CHOL 369 PSL 190

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.

Prostate is symmetrically enlarged (5.0 cm across) with smooth margins that are well differentiated from surrounding tissue. Normal bilobed shape is maintained. Parenchyma is heterogenous with scattered hyperechoic foci present. No mineral or cysts are noted.

The right kidney is normal in size (7.35 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.

The left kidney is normal in size (7.88 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

The right adrenal gland is small with a flattened contour (0.40 cm thick). Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

The left adrenal gland is enlarged (1.2 cm at the cranial pole, 0.80 cm at the caudal pole), a mildly heterogeneous parenchyma and a hyperechoic nodule in the cranial pole. Swollen capsular expansion is noted in the cranial pole without evident capsular escape or vascular invasion.

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

The liver is subjectively mildly decreased in size. Mild parenchymal remodeling with diffusely mildly coarse architecture and increased portal markings is present diffusely, with a

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heterogeneous appearance characterized by multiple poorly defined hypoechoic nodules also noted. Visible vasculature and biliary tree appear normal without distention 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

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 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 free peritoneal effusion noted in these images.

There is no apparent lymphadenopathy noted in these images.

Both testicles are visualized without evident pathology.

PRIMARY FINDINGS

- **Coarse, hypoechoic appearance to the liver –** This could suggest an acute hepatopathy or acute cholangiohepatitis, or potentially even infiltrative neoplasia, although infiltrative neoplasia is considered less likely in a small liver. Liver size is more reliably evaluated with abdominal radiographs. Having said that, if the liver truly is mildly small, then chronic hepatitis is considered more likely. The nodules trend toward benign in appearance with differentials being nodular hyperplasia, changes consistent with a steroid or vacuolar hepatopathy, extramedullary hematopoiesis, etc. Again, infiltrative round cell neoplasia or metastatic neoplasia is possible but considered less likely in a small liver.

- **Left adrenomegaly with concurrently flat right adrenal gland –** Consistent with most likely a left adrenal adenoma. Adenocarcinoma can't be ruled out but is considered less likely.

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SECONDARY FINDINGS

- **Benign Prostatic Hyperplasia** - Prostatic findings are most consistent with Benign Prostatic Hyperplasia (BPH) and hyperechoic foci consistent with increased vascularity and fibrosis often associated with BPH. Active prostatitis cannot be ruled out. Infiltrative neoplasia cannot be ruled out but is considered less likely.

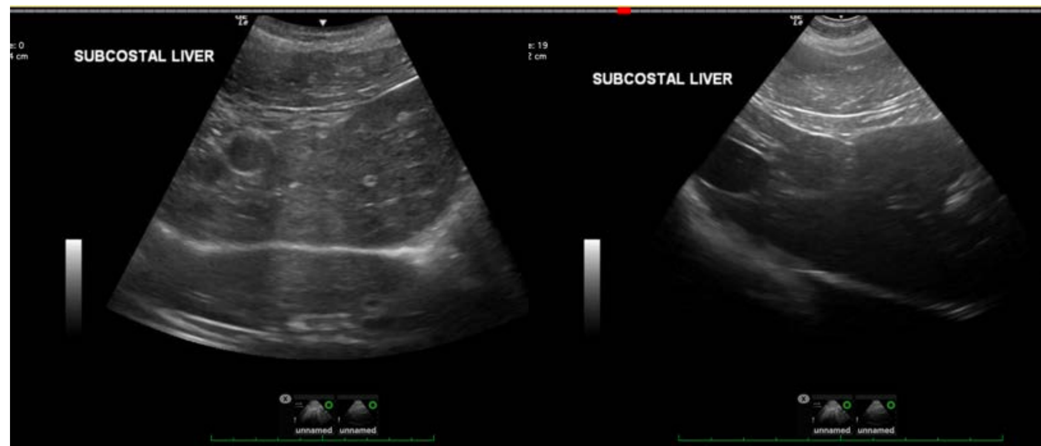
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Testing for Leptospirosis is recommended. Bile acids are recommended, if tbili is not increased. An empirical course of antibiotics and hepatic nutraceuticals may be tried empirically; however, ultimately, tissue sampling is likely warranted. FNA of the liver can be performed to assess inflammatory cell type, rule in/out round cell neoplasia, etc. If round cell neoplasia is not diagnosed, a liver biopsy (including copper level assessment) may be required to definitively diagnose the underlying hepatopathy.

Additionally, while the liver enzyme changes and liver appearance are slightly atypical for hyperadrenocorticism, if clinical signs of hyperadrenocorticism such as PU/PD, etc. are present, testing could be considered in the form of a low-dose Dexamethasone suppression test.

If not recently evaluated, Urinalysis and, if indicated based on urinalysis results, urine culture are recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

A blood pressure is recommended.



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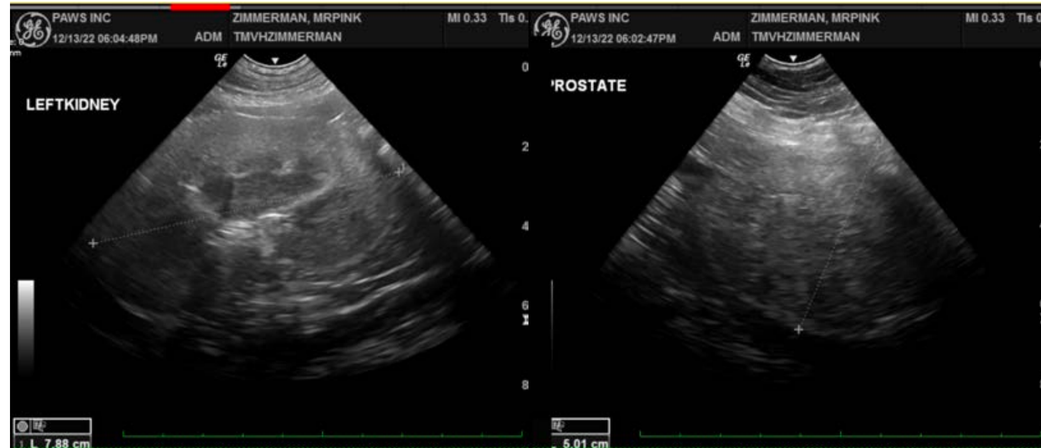

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Beth Johnson, DVM, DACVIM
Beth.Johnson@sonopath.com