

PATIENT

Zero Chaboude

SPECIES

Canine

BREED

Shih Tzu

SEX

Female, spayed

AGE

9 Years 5 months

WEIGHT

9.7 Pounds

INTERPRETED BY

Andrea Nicastro, DVM,
Diplomate ACVIM
(Small Animal Internal)

IMAGING PERFORMED BY

Loetitia Saint-Jacques, RVT

HOSPITAL NAME

Mount Rose AH

REFERRING VET

Dr. Sandra Caroll

INVOICE

12728

DATE

12/20/21

PRESENTING CLINICAL SIGNS

History: VETERINARIAN: Sandra Carroll, DVM PATIENT/OWNER: Zero – Darlene Chaboude Shih tzu - FS - 9y5m HISTORY: P has a IV/VI murmur and is being managed by SVS cardiology. He is on Enalapril 2.5mg tabs: 1 tab BID; Pimobendan 1.25mg: 1 tab BID. He also has a history of elevated liver enzymes and is on Denamarin. PHYSICAL EXAM: from 9/18/2021 T- 101 CRT: <2 BCS: 3/5 P- 120 mm: pink Weight: 9.72# R- pant Hydration: well hydrated EENT: WNL 3/4 dental disease CV/Resp: IV/VI systolic murmur; no crackles noted, no increased respiratory effort GI: WNL Musk: No joint abnormalities. Muscles are symmetrical. Integ: WNL LN: Palpate WNL Neuro: WNL Urogen: WNL, no obvious visible or palpable abnormalities LABORATORY FINDINGS: ALT 164, Bile Acids elevated pre 74.1 post 45.6 RADIOGRAPHIC FINDINGS (email radiographs if available): REASON FOR ULTRASOUND: abdominal ultrasound due to elevated liver enzymes

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder, trigone, and pelvic urethra are normal in thickness and the mucosal surface is smooth. The bladder lumen is moderately distended. A scant amount of suspended echogenic debris is observed within the lumen. No masses, inflammatory changes or calculi are observed. Ureteral papillae and visualized portion of the proximal urethra, visible to a depth of 2 cm, are normal.

The prostate is normal in size (0.95 cm in width) and shape. Parenchyma is homogenous. The prostatic urethra appears normal without evidence of dilation or obstruction.

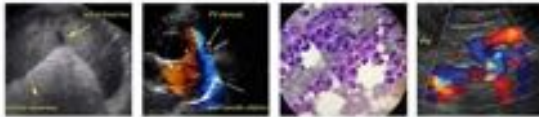
The left kidney is normal size (3.33 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal to mild loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney is normal size (3.47 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with normal corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is enlarged (0.89 cm at cranial pole) (0.52 cm at caudal pole) (1.72 cm in length) with a slightly irregular shape. A 1.00 x 0.90 cm hyperechoic to slightly heterogeneous nodule is observed at the cranial pole. Glandular echogenicity and detail at the caudal pole are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

The right adrenal gland is enlarged (1.18 cm at cranial pole) (1.13 cm at caudal pole) (2.32 cm in length) with an irregular shape. A 0.71 x 0.42 cm hyperechoic to heterogeneous nodule is observed at the cranial pole. A 1.32 x 1.04 cm hyperechoic to heterogeneous nodule is observed in the mid to caudal aspect. There is loss of glandular detail. The phrenicoabdominal vein and surrounding vasculature appear normal.



PATIENT *Spleen*

Zero Chaboude The spleen is subjectively normal in size (1.06 cm in width at the level of the hilus) with normal curvilinear peripheral contours. The parenchyma is subtly mottled in appearance with at least one small (0.37 cm) hypoechoic nodule observed. The phrenicoabdominal vein and surrounding vasculature appear normal with no evidence of thrombosis.

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Liver

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The liver is subjectively normal in size with normal contours and structure. There is appropriate echogenicity and echotexture. No overt structural evidence of inflammatory, infiltrative or regenerative pathology is evident. Vascular and biliary tracts are of normal volume with no evidence of congestion. No pathological hepatic lymphadenopathy observed. The portal vein: caudal vena cava ratio is approximately 1:1. The gall bladder lumen is moderately distended. The wall is thin and smooth. A moderate amount of echogenic debris is observed some of which is suspended and some of which is adhered to the luminal surface. The cystic and common bile ducts are normal/not seen.

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Gastrointestinal

The stomach and intestine are free of stasis and exhibit normal peristaltic activity. The gastric lumen is not distended. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The pyloric outflow tract is patent. The small intestinal lumen is not dilated. The small intestinal wall thickness is normal with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The colonic wall is normal. No obstructive disease is noted.

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Pancreas

The right limb of the pancreas is visible with normal curvilinear peripheral contours. The parenchyma is largely isoechoic relative to surrounding omental fat and slightly mottled in appearance. The pancreatic duct is visible but not overtly dilated. There is no evidence of peripancreatic inflammation or effusion.

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Free Abdomen

There is no evidence of free fluid. The abdominal lymph nodes are normal/not visible.

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ULTRASONOGRAPHIC FINDINGS

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Primary Findings:

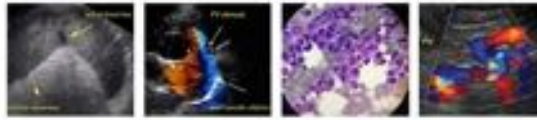
- An obvious cause for the elevated liver enzymes is not identified in the study. However, a microscopic hepatopathy (i.e., bacterial cholangiohepatitis, chronic active hepatitis, copper-associated hepatotoxicity, infiltrative neoplasia (less likely)) should be considered.
- Gallbladder debris, non-mucocele.
- The bilateral adrenal changes are most consistent with nodular hyperplasia with lower possibility of emerging tumors bilaterally.

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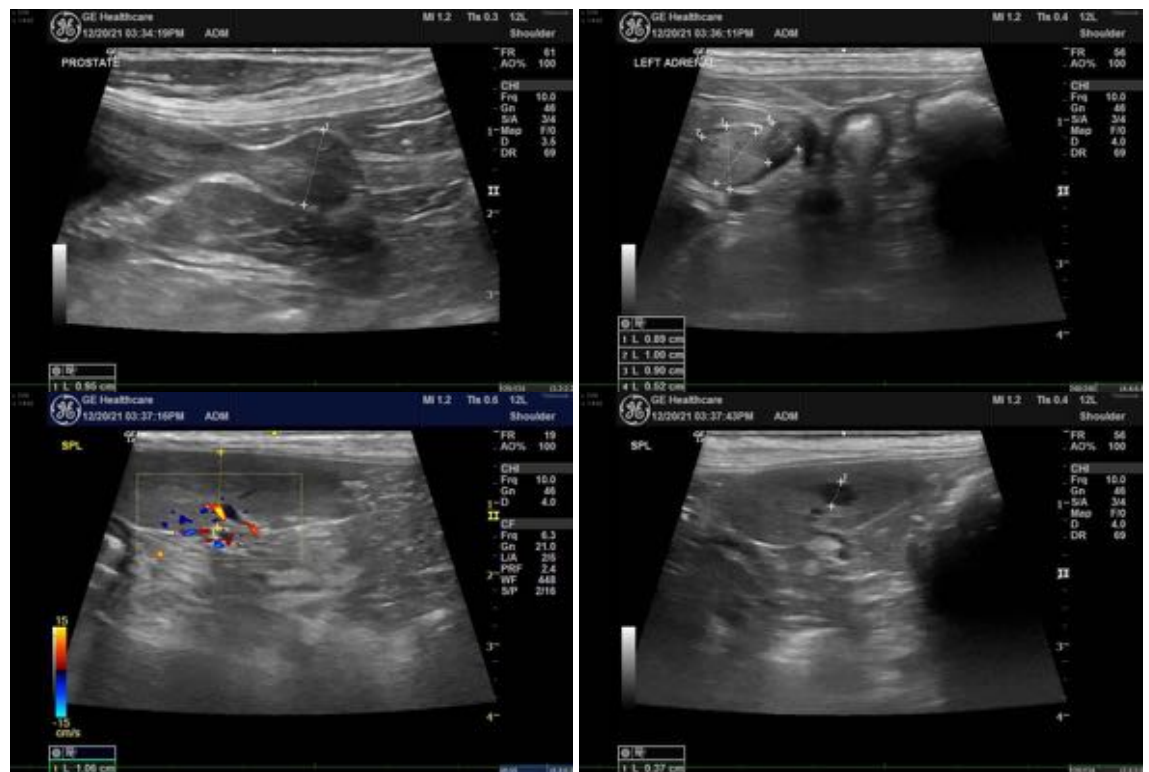
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Secondary Findings:

- Bilateral age-related renal changes.
- Age-related pancreatic remodeling +/- fibrosis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Ideally, a surgical liver biopsy with aerobic and anaerobic bile cultures and acquisition of additional hepatic tissue samples for copper quantitation would be performed to get a definitive diagnosis. A more conservative approach would be to perform a fine needle aspirate of the liver (if clotting status is appropriate). If hepatic tissue sampling is not to be pursued at this time, empirical treatment for bacterial cholangiohepatitis could be considered. If liver values do not improve within 7-10 days of initiating therapy, antibiotics should be discontinued and hepatic tissue sampling reconsidered. If values do improve, continue antibiotics for 4-6 weeks and 1 week beyond normalization of the ALT.
- Given the patient's age, three-view thoracic radiographs should be performed prior to any anesthetic event.





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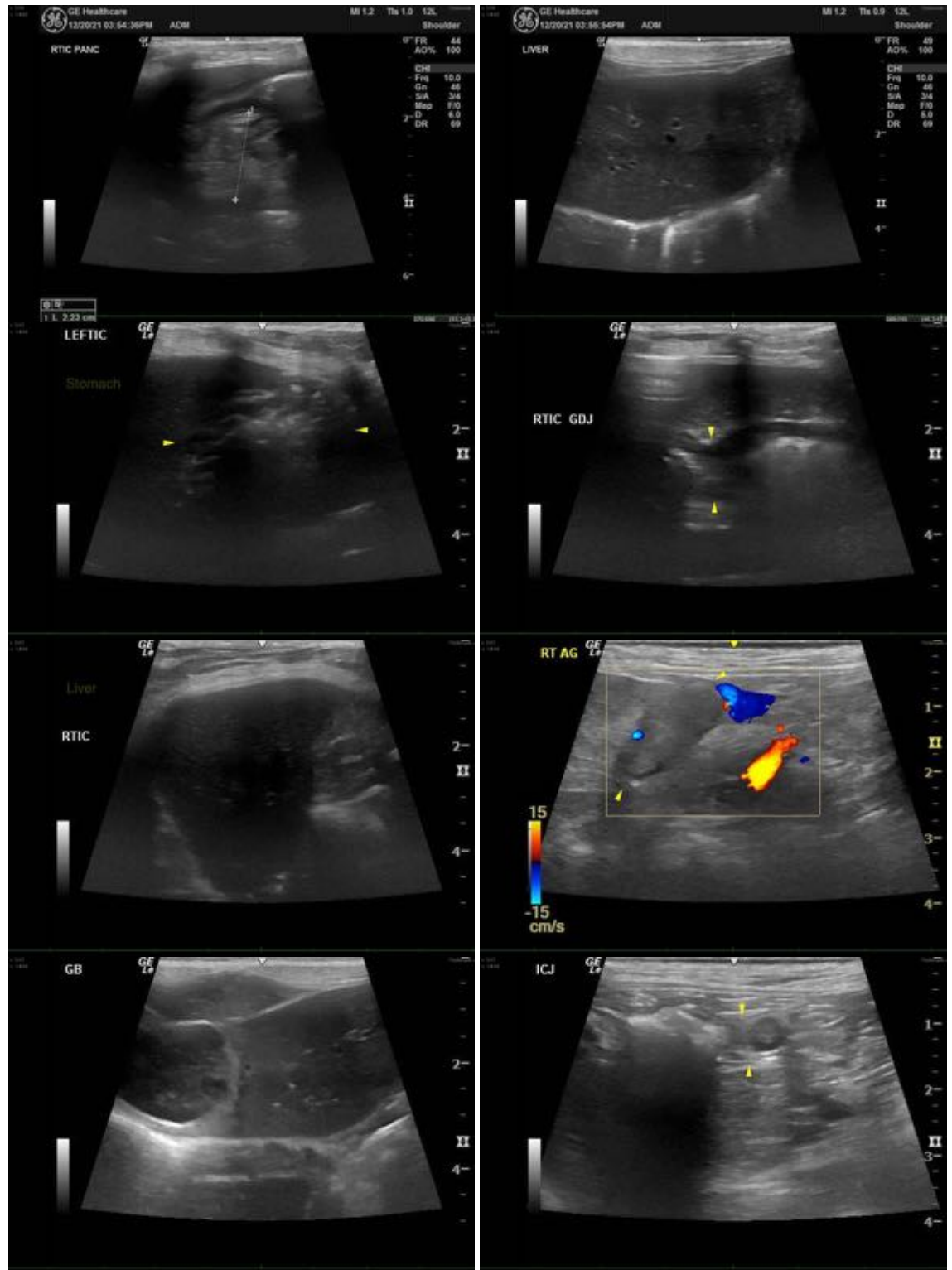
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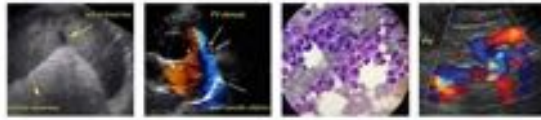
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Andrea Nicastro, DVM, Diplomate ACVIM (*Small Animal Internal Medicine*)

andrea.nicastro@sonopath.com

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