



PATIENT

Raven Anthony

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Spayed Female

AGE

7 Years

WEIGHT

6.4 Pounds

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Carolina Mobile Vet

HOSPITAL NAME

Scotts Creek AH

REFERRING VET

Dr. Cartner

INVOICE

23654

DATE

7/28/23

PRESENTING CLINICAL SIGNS

History of Elevated ALT On Zonisamide and Denamarin

Abnormal PE/Chem/CBC/UA Results: 5/16/23 ALT 206 (10-125) 7/25/23 ALT 244

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal. A minimal amount of urine was present at the time of the sonogram. The pelvic urethra was imaged 3.0 cm beyond the cystourethral junction.

The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The right kidney measured 3.32 cm. The left kidney measured 3.48 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The left adrenal gland measured 1.36 cm x 0.37 cm at the caudal pole and 0.34 cm at the cranial pole. The right adrenal gland measured 1.55 cm x 0.29 cm at the caudal pole and 0.3 cm at the cranial pole.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted.

Liver

The **liver** was subnormal in size. Intrahepatic vascular volume was normal. Portal vein to vena cava ratio was 1:1. No evidence of intrahepatic or extrahepatic shunting. The portal vein measured 0.55 cm. The vena cava measured 0.5 cm. A minor amount of dependent debris was noted in the gallbladder.

Gastrointestinal

There was some residual chyme and gas was noted in the **stomach**, yet not pathological. This is consistent with end post prandial presentation. Transit of chyme into the small intestine was normal. Curvilinear patterns were maintained throughout the GI tract. No evidence of pathology. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas



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The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

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ULTRASONOGRAPHIC FINDINGS

- Mild microhepatica and minor gallbladder debris- potential portal hypoplasia/microvascular dysplasia
- Partially full stomach
- Structurally unremarkable abdomen otherwise

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

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Spayed Female

Bile acid profile is warranted, yet structurally, other than mild subnormal size, the liver is unremarkable. This is likely reactive hepatopathy as the cause of ALT elevations. Leptospirosis titers is warranted to rule out occult disease.

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The hepatic clinical sonographic presentation is most consistent with Reactive Hepatopathy which is the most common cause of liver enzyme elevation in dogs and cats. The presumption is that gut and other organ antigen stimuli may be causing a low-grade immune response through portal system with which the liver is reacting to causing low-grade enzyme elevations. US-guided FNA could be performed to assess if low grade lymphoplasmacytic inflammation is present that would support this theory. If FNA is performed, please ask the cytologist to emphasize the primary inflammatory cell type. Empirical treatment measures to address this issue can include diet change to hydrolyzed diet, probiotics, deworming, nutraceuticals (SAME, Actigall...), dental exam and cleaning, and potentially antibiotics such as Clavamox. Metronidazole and Tylosin have traditionally been utilized for this purpose but new studies show that both these antibiotics can disrupt the normal intestinal bacterial flora (intestinal dysbiosis) for weeks and up to 4-6 months. Therefore, Metronidazole and Tylosin should be utilized as a last resort if other efforts have not been effective and sonographic organ appearance remains benign.

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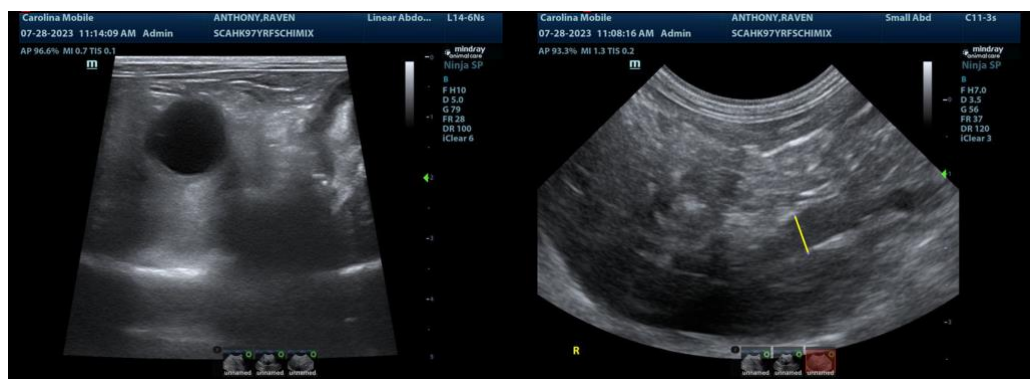
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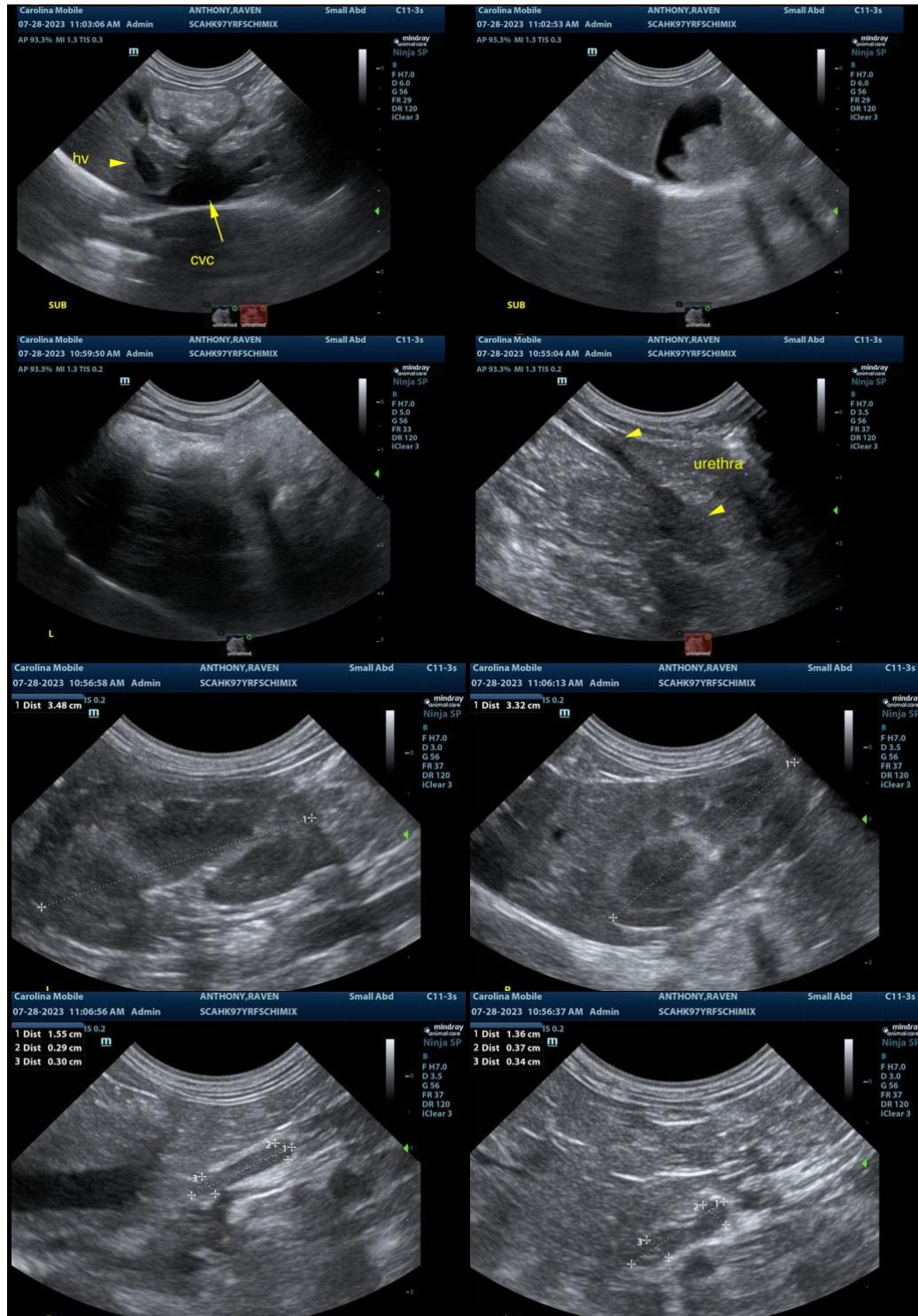
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I



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can be of any further assistance please contact me.

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info@SonoPath.com