



**PATIENT**

Chloe Rios

**SPECIES**

Canine

**BREED**

Chihuahua x

**SEX**

Female Spay

**AGE**

7

**WEIGHT**

4 kg

**INTERPRETED BY**

R. McKenzie Daniel,  
DVM, DABVP  
(Canine and Feline)

**IMAGING PERFORMED BY**

Sr. Belan

**HOSPITAL NAME**

Ramsay AC

**REFERRING VET**

Dr. Gupta

**INVOICE**

13991

**DATE**

6/2/22

**PRESENTING CLINICAL SIGNS**

Moderate elevation of liver enzymes on pre dental assessment non clinical  
Abnormal PE/Chem/CBC/UA Results: Mod elevation of liver enzymes

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Probable dependent pinpoint to focal luminal mineral was present. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

The area of the aortic trifurcation was free of pathology.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The kidneys exhibited focal areas of minor medullary mineral primarily in the lateral diverticuli. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 3.1 cm in length. The right kidney measured 3.2 cm in length.

**Adrenal Glands**

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.25 cm width at the caudal pole and 0.35 cm width at the cranial pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.36 cm width at the caudal pole.

**Spleen**

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

**Liver/ Gallbladder**

The liver was normal in size with normal subjective hepatoportal vascular volume. Generalized mild hepatic parenchymal remodeling including intermittent nondisruptive subtle isoechoic intraparenchymal nodules were present. An example measured 0.85 cm in diameter. The gallbladder was non-distended in size with mild, primarily dependent to mildly nondependent yet nonorganized gallbladder debris. No evidence of gallbladder or peripheral gallbladder inflammation was noted. The gallbladder was otherwise normal. The cystic and common bile ducts were normal.

**Gastrointestinal**

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction, or foreign material.



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The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction, or foreign material.

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Normal visible colon wall layers were present with apparent formed feces in lumen.

**BREED**

Chihuahua x

***Pancreas***

The parenchyma of the left limb, body, and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease were evident.

**SEX**

Female Spay

***Free Abdomen***

No overt lymphadenopathy or peritoneal effusion was present.

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**ULTRASONOGRAPHIC FINDINGS**

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- Hepatopathy exhibiting mild parenchymal remodeling and intermittent subtle parenchymal nodules
- Mild gallbladder debris (non-mucocele)
- Bilateral mild nonobstructive renal medullary mineral
- Probable pinpoint to focal dependent urinary bladder mineral

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The overall hepatic presentation was nonspecific yet consistent with chronic benign hepatopathy. Considerations may include vacuolar hepatopathy, inflammation / immune-mediated disease, probable indistinct areas of nodular to regenerative hyperplasia, hematopoiesis, possible early fibrosis, or other hepatopathy with neoplastic criteria thought unlikely. No overt evidence of a portosystemic shunt, given the subjective normal hepatoportal vascular volume.

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Further assessment may include fasting and post prandial bile acids, given the presence of minor renal and pinpoint to focal urinary bladder mineral, and assuming normal clotting status, hepatic FNA for screening cytology primarily to assess for evidence of inflammatory cells. Hepatic core surgical biopsy is likely required for a definitive diagnosis and could be considered if persistent / progressive hepatic enzyme elevations despite hepatosupportive medications. Hepatic functionality is likely normal, assuming normal BUN, glucose, albumin, and cholesterol levels. No overt anesthetic contraindications if these levels are normal. Hepatosupportive medications including Denamarin and Ursodiol may prove beneficial. Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered.

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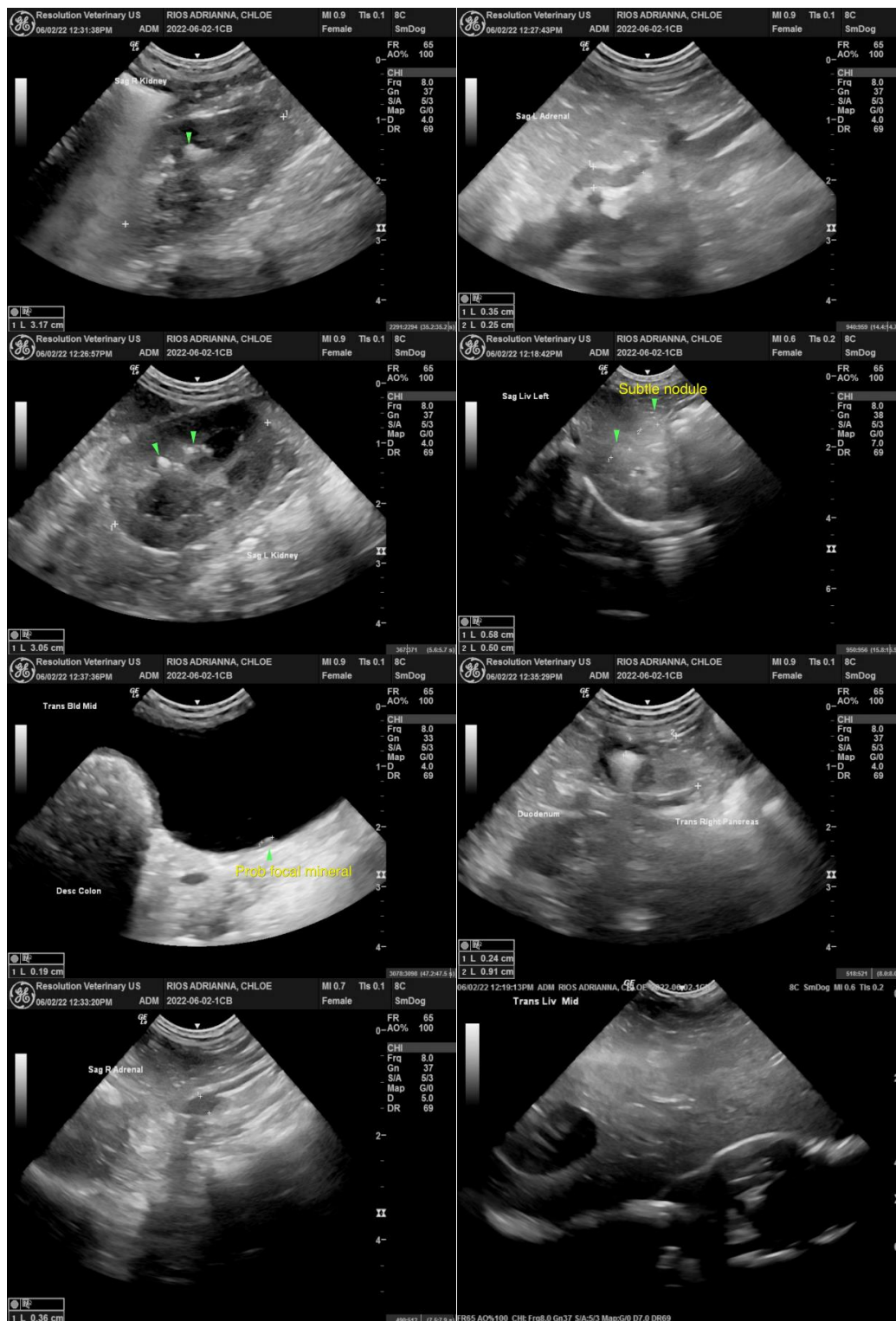
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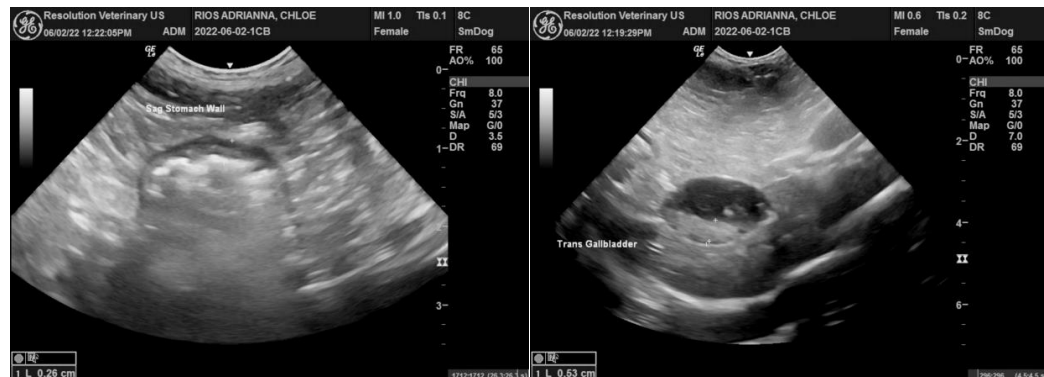
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)**  
info@SonoPath.com