



**PATIENT PRESENTING CLINICAL SIGNS**

Isabella Roth History: elevated liver enzymes, early renal disease

**SPECIES**

Canine

**BREED**

Shih Tzu

**SEX**

Spayed Female

**AGE**

12 Years

**WEIGHT**

7.2 kg

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Kelly Reschny

**HOSPITAL NAME**

Wellington AH

**REFERRING VET**

Dr. Dennis

**INVOICE**

13534

**DATE**

1/21/22

**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. Mild dependent mineral was present. Otherwise, anechoic urine was present. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted. Aortic trifurcation was normal.

Both kidneys were normal in size with mild asymmetrical margination. Both kidneys exhibited mild cortical hypertrophy with moderate loss of corticomedullary border distinction. Increased medullary echogenicity adjacent to the corticomedullary border with mild reduced medullary volume and dystrophic medullary mineral. No evidence of pyelectasia. The left kidney measured 3.3 cm in length. The right kidney measured 3.4 cm in length.

**Adrenal Glands**

The bilateral adrenal glands were normal in size. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 1.7 cm in length x 0.64 cm width in the caudal pole. The right adrenal gland measured 2.1 cm in length x 0.49 cm width in the caudal pole.

**Spleen**

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. 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. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age-related remodeling with minor potential for inflammatory or neoplastic disease.

**Liver**

The liver was mildly enlarged. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion.

The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. 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.

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.



**PATIENT**

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

Isabella Roth

**Pancreas**

**SPECIES**

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 was evident.

Canine

**ULTRASONOGRAPHIC FINDINGS**

**BREED**

- Hepatopathy- subjectively benign
- Moderate chronic renal changes with dystrophic medullary mineral
- Mild urinary bladder mineral

Shih Tzu

**SEX**

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Spayed Female

Overall presentation of the liver was nonspecific yet consistent with benign, likely chronic hepatopathy. Considerations may include vacuolar hepatopathy, given the ALP elevation with potential for primary or concurrent inflammatory hepatopathy (immune mediated, infectious, etc.) given the ALT elevation. No overt hepatic neoplastic criteria, which is considered an unlikely differential diagnosis. Assuming normal clotting status, ultrasound guided FNA of the liver, using a 25-gauge needle, could be considered for screening cytology, primarily to assess for evidence of inflammatory cells. Hepatosupportive medications may prove beneficial.

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Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered. Early CKD treatment, given the renal presentation and if persistent decreased urine specific gravity, could be considered.

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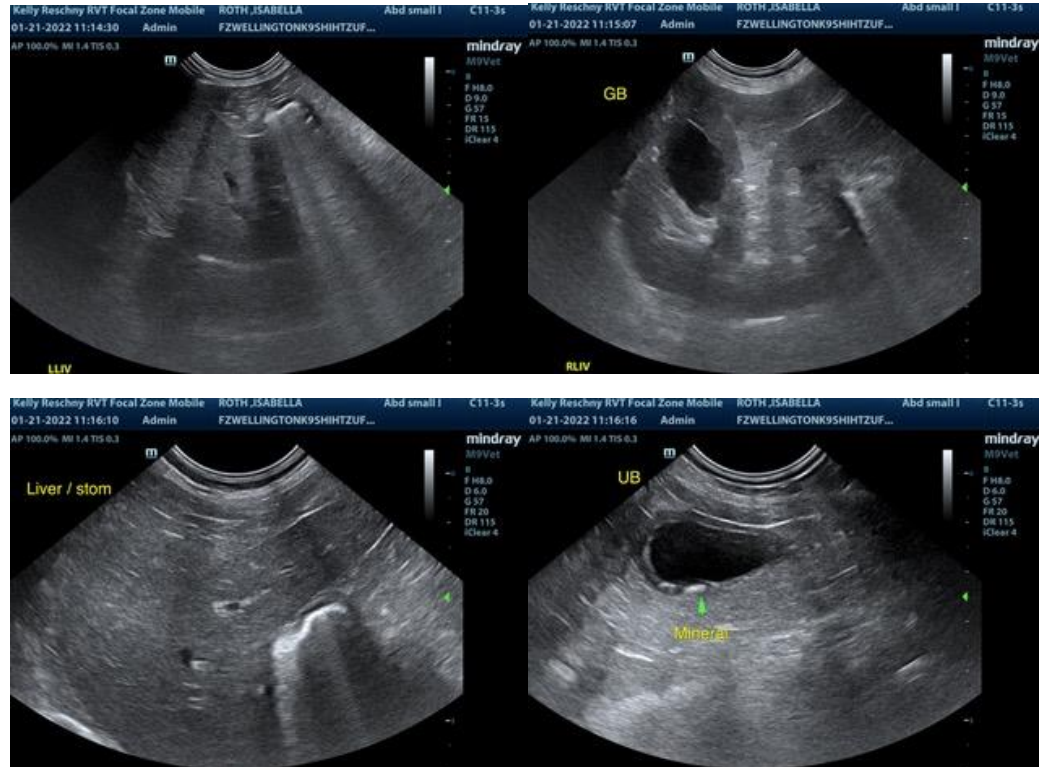
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)**  
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