



**PATIENT**

Zoey Halton

**SPECIES**

Canine

**BREED**

Shih Tzu X

**SEX**

Female

**AGE**

6 months

**WEIGHT**

3.5 kg

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Dr. Belan

**HOSPITAL NAME**

Willow Park AH

**REFERRING VET**

Dr. Keeler

**INVOICE**

13507

**DATE**

3/17/22

**PRESENTING CLINICAL SIGNS**

Mild elevation of ALP on pre surgical blood work Post prandial Bile acids mod elevation 80 ( range 14-30)

Abnormal PE/Chem/CBC/UA Results: Mod elevation Post prandial bile acids

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

The urinary bladder, trigone, and cystourethral junction exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths, sediment, or calculi. 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 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 3.3 cm in length. The right kidney measured 3.5 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 0.28 cm width at the caudal pole and 0.28 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 0.25 cm width at the caudal pole and 0.25 cm width at the cranial 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 subjectively normal in size, structure, and contour. The liver parenchyma was uniform and hypoechoic to the spleen with a mild coarse echotexture. Normal subjective hepatoportal vascular volume was noted. The portal vein and caudal vena cava exhibited subjective approximate 1:1 ratio with subjective laminar caudal vena cava flow. 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.



<b>PATIENT</b>	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.
Zoey Halton	
<b>SPECIES</b>	Normal visible colon wall layers were present with apparent formed feces in lumen.
Canine	<b>Pancreas</b>
<b>BREED</b>	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.
Shih Tzu X	
<b>SEX</b>	<b>Free Abdomen</b>
Female	No overt lymphadenopathy or peritoneal effusion was present.
<b>AGE</b>	<b>ULTRASONOGRAPHIC FINDINGS</b>
6 months	<b>Primary Findings</b>
<b>WEIGHT</b>	<ul style="list-style-type: none"> <li>Low-grade hepatopathy - possible portal hypoplasia / microvascular dysplasia</li> </ul>
3.5 kg	
<b>INTERPRETED BY</b>	<b>INTERPRETATION OF THE FINDINGS &amp; FURTHER RECOMMENDATIONS</b>
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)	No overt evidence of Intrahepatic or extrahepatic shunting with normal overall subjective hepatoportal vascular volume and without additional factors suggestive a shunt such as a renal or urinary bladder mineral. FNA of the liver could be considered for screening cytology. However, core biopsy or surgical biopsy may be necessary for further definition if portal hypoplasia / microvascular dysplasia is suspected. No overt anesthetic contraindications assuming normal BUN, glucose, albumin, and cholesterol levels, indicating normal overall hepatic function.
<b>IMAGING PERFORMED BY</b>	Some or all of the following protocol could be considered if clinically indicated.
Dr. Belan	
<b>HOSPITAL NAME</b>	<b>Royal Canin Hepatic Support diet or Hills L/D, Metronidazole</b> (7.5 mg/kg PO bid) over the next 14 days, <b>Lactulose</b> (Oral: 3.1-3.7 g/5 ml lactulose in a syrup base) long term to target 2-3 soft stools/day, with a <b>high-quality protein supplement</b> of minor amount of <b>yogurt</b> or <b>cheddar cheese</b> . Monitor bile acids, with attention paid to dropping albumin, BUN or cholesterol. SAME and nutraceuticals as needed. <b>Ursodiol</b> (10-15 mg/kg p.o. q24h) can be considered as hepatoprotectant and to enhance bile flow. <b>Zinc</b> serum level keep between 200—500 ug/dl. If deficient then Tx zinc acetate 1-3 mg/kg/day. Gastrointestinal protectants are recommended if the patient is anorexic.
Willow Park AH	
<b>REFERRING VET</b>	
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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