



**PATIENT**

Luna Cloutier

**SPECIES**

Canine

**BREED**

Havanese

**SEX**

FS

**AGE**

3yr

**WEIGHT**

4.5kg

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Dr. Belan

**HOSPITAL NAME**

Beddington Trail AH

**REFERRING VET**

Dr. Sandu

**INVOICE**

13668ag

**DATE**

05/01/2023

**PRESENTING CLINICAL SIGNS**

Presented for possible carassial root abscess blood work revealed elevated liver enzymes  
Abnormal PE/Chem/CBC/UA Results: Liver enzymes mild elevation . Bile acids pre prandial normal post prandial 91 ( range 14-39).

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and mildly indistinct corticomedullary definition were present. 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. Bilateral pinpoint areas of medullary mineral were present. The left kidney measured 3.3 cm in length. The right kidney measured 3.3 cm in length.

The area of the aortic trifurcation was free of pathology.

**Adrenal Glands**

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.34 cm width at the caudal pole and 0.33 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 0.43 cm width at the caudal pole and 0.46 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. Subjective adequate hepatic vascular volume was present. The visualized portal vein appeared to exhibit normal volume measuring 0.45 cm in diameter. By comparison the cranial abdominal caudal vena cava measured ~ 0.52 in diameter. 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 with focal consolidated hyperechoic debris in the caudal lumen of the gallbladder neck. The area of consolidated non-shadowing debris measured 0.61 cm in diameter. 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.

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

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**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 was evident.

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Havanese

**Free Abdomen**

No omental masses, overt lymphadenopathy or peritoneal effusion was present.

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**ULTRASONOGRAPHIC FINDINGS**

- Low grade hepatopathy exhibiting adequate hepatic volume.
- Minor consolidated hyperechoic gallbladder debris, possible emerging cholelith.
- Pinpoint renal medullary mineral.
- Normal urinary bladder, no evidence of cystic mineral/calculi.

**AGE**

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

No definitive evidence of intrahepatic or extrahepatic macroscopic shunt was visualized. Low grade inflammatory hepatopathy with portal hypoplasia/microvascular dysplasia is possible. Assuming normal clotting status, a hepatic FNA for screening cytology could be considered for further assessment and to identify potential inflammatory cell type. If clinical signs consistent with portosystemic shunt are present, advanced imaging such as gold standard CT with contrast would likely be required for further definition. A core surgical biopsy is likely required for a definitive diagnosis.

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Empirically some or all of the following could be considered based on the clinical impression of the patient.

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Royal Canin Hepatic Support diet or Hills L/D, Metronidazole (7.5 mg/kg PO bid) over the next 14 days, Lactulose (Oral: 3.1-3.7 g/5 ml lactulose in a syrup base) long term to target 2-3 soft stools/day, with a high-quality protein supplement of minor amount of yogurt or cheddar cheese. Monitor bile acids, with attention paid to dropping albumin, BUN or cholesterol. SAME and nutraceuticals as needed. Ursodiol (10-15 mg/kg p.o. q24h) can be considered as hepatoprotectant and to enhance bile flow. Zinc 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.

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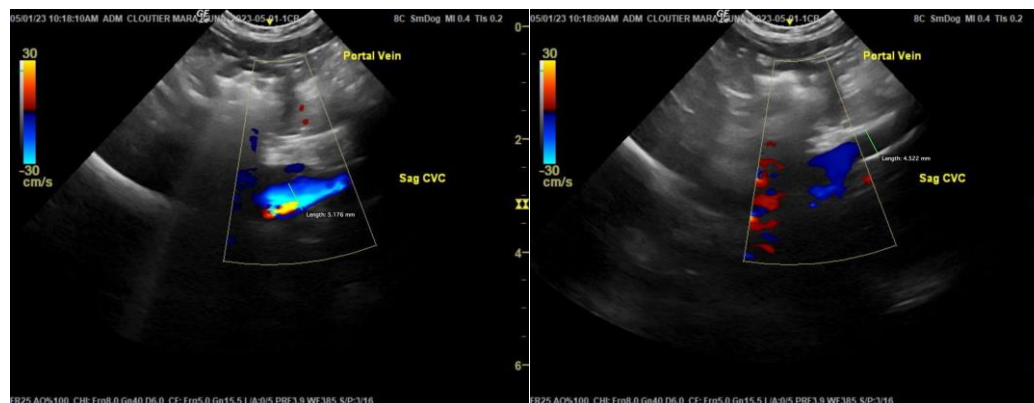
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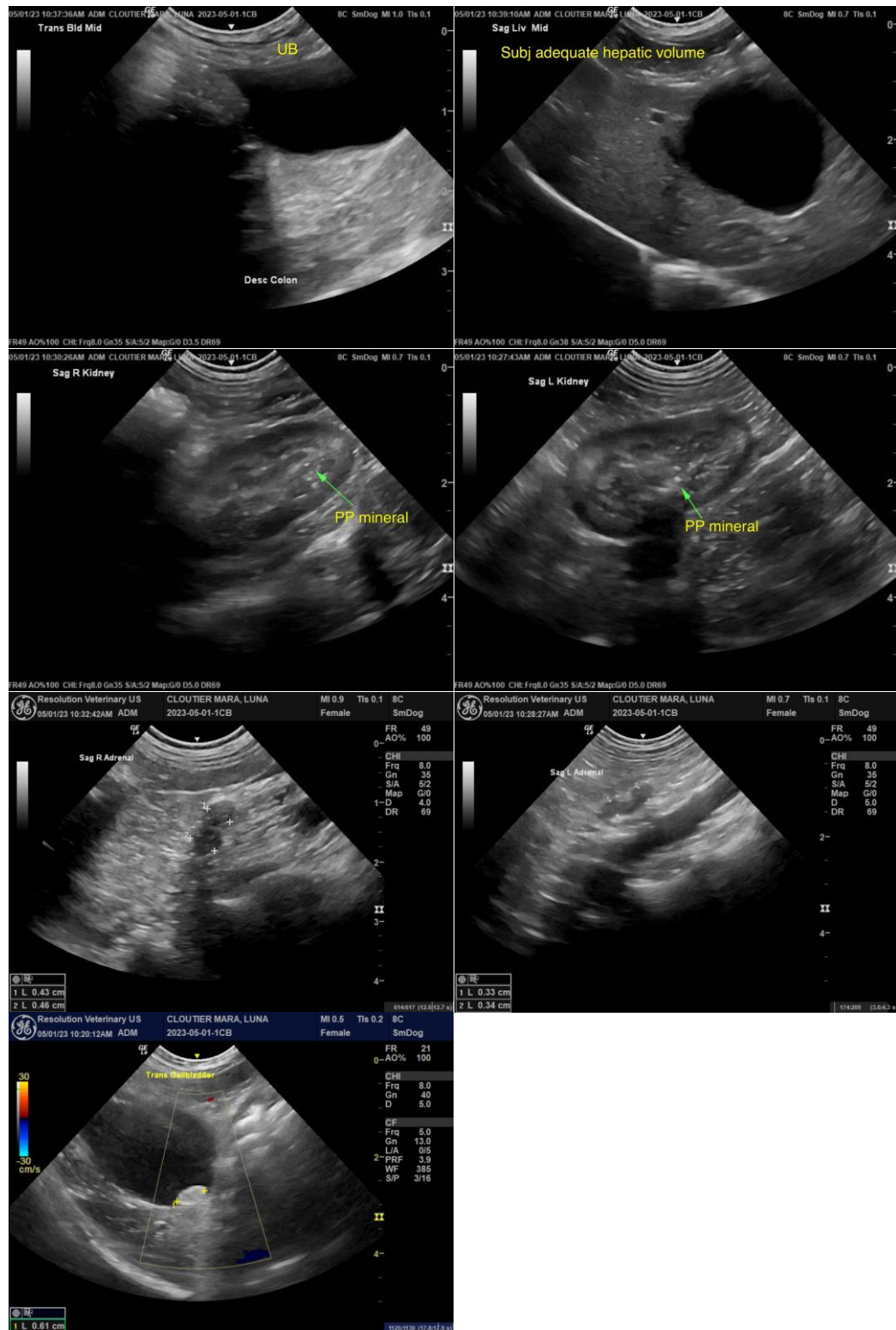
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.



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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.

**SPECIES**

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