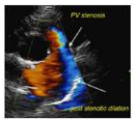
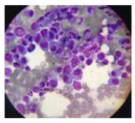
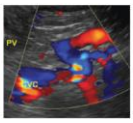

PATIENT

Bear Matlock

SPECIES

Canine

BREED

Yorshire Terrier Mix

SEX

NM

AGE

11 months

WEIGHT

6 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Sarah Pender, CVT

HOSPITAL NAME

SVS Imaging QC

REFERRING VET

Dr. Joyce Wernoing

INVOICE

14207

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PRESENTING CLINICAL SIGNS

Preanesthetic neuter bloodwork had elevated liver enzymes
Abnormal PE/Chem/CBC/UA Results: ALT 196 and ALKP 224 on 1-18-22 Pre Bile Acids 11.8, Post 69.5 on 2/16/22 Protein C 124% (N=75-135) 3-16-22 ALT 160 (N=10-125) on 6-28-22

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 and echogenicity 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. No evidence of renomegaly was evident. No evidence of renal mineralization / calculi was noted. The left kidney measured 2.9 cm in length. The right kidney measured 3.1 cm in length.

Adrenal Glands

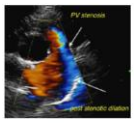
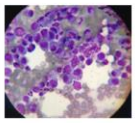
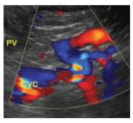
The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.38 cm width at the caudal pole and 0.24 cm width at the cranial pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.41 width at the caudal pole and 0.65 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 exhibited potential for mild subnormal size and maintained symmetrical capsule contour with uniform parenchyma echogenicity and normal parenchyma echotexture. The intrahepatic portal vasculature appeared to exhibit overtly normal volume. The visualized portal vein exhibited potential for mild subnormal size compared to the caudal vena cava. Portal vein diameter measured 0.37 cm. The caudal vena cava diameter measured 0.46 cm. Subjective normal portal vein branching was noted. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

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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.

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

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.

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Potential mild subnormal liver size exhibiting normal hepatic architecture
- Sonographically normal bilateral kidneys and urinary bladder - no evidence of renal or cystic calculi

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No overt evidence was noted of intrahepatic or extrahepatic shunting in conjunction with the lack of renal or urinary bladder calculi, post prandial bile acids (<100), and normal protein C level. Low-grade inflammatory hepatopathy with potential for portal hypoplasia / microvascular dysplasia may be considered primary differential diagnoses for the persistent mild ALT elevation with non-visualized small portosystemic shunt considered a less likely differential diagnosis.

Assuming normal clotting status, hepatic FNA could be considered to possibly identify or assess inflammatory cell type if present. Gold Standard CT with contrast is at times required for definitive diagnosis or rule-out of a small portosystemic shunt and could be considered of strong clinical suspicion of a portosystemic shunt. Core surgical biopsy of the liver may be necessary for further definition as to whether portal hypoplasia / microvascular dysplasia is present.

A clinical trial of the following may be considered.

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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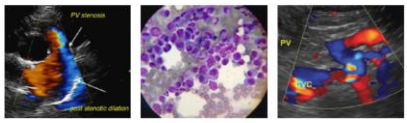

SonoPath

Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™

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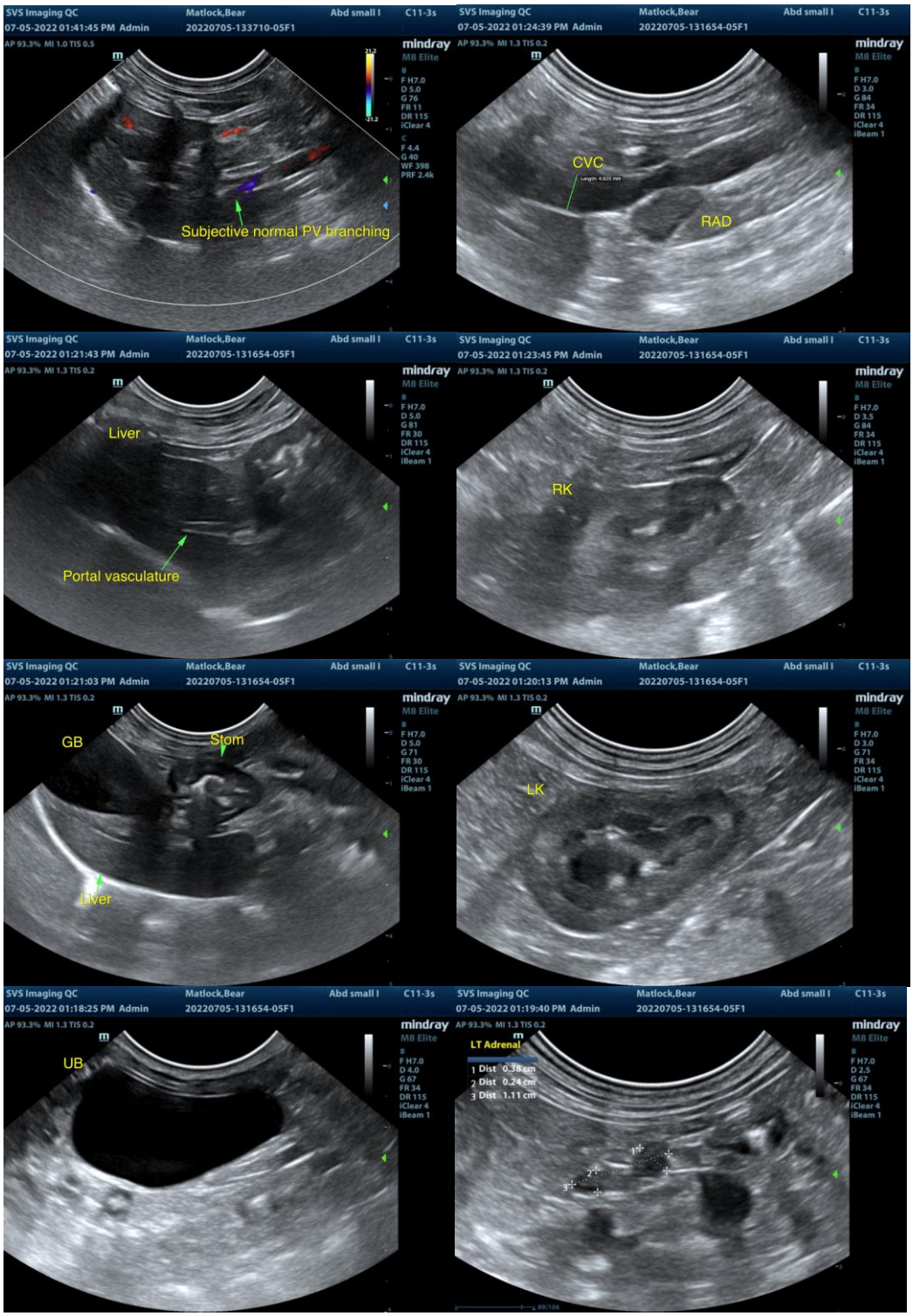
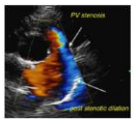
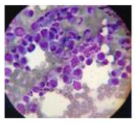
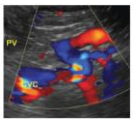


The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology

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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