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Clinical Sonography & Telecytology
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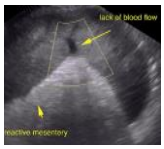
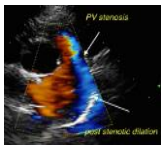
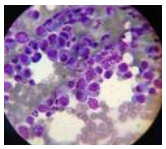
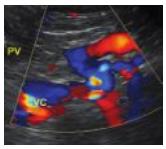

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Ivy Kiefer

SPECIES

Canine

BREED

Chihuahua Terrier X

SEX

Spayed female

AGE

8 years

WEIGHT

4.4 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Belan

HOSPITAL NAME

Beddington Trail Animal Hospital

REFERRING VET

Dr. Bahadur

INVOICE

10269ag

DATE

04/01/2022

PRESENTING CLINICAL SIGNS

History: Non clinical elevated bile acids on pre dentistry work up Pendulous abdomen

Abnormal PE/Chem/CBC/UA Results: Bile Acids pre prandial 44 (range to 14) post prandial 76 (range to 29)

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 was present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some mildly increased echogenicity and loss of corticomedullary symmetry and definition expected for the age of the patient. Multiple pinpoint hypoechoic cortical foci were present in both kidneys along with areas of minor non obstructive medullary mineral. No evidence of pelvic dilation was present. The left kidney measured 3.8 cm in length. The right kidney measured 3.5 cm in length.

The area of the aortic trifurcation was free of pathology.

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 0.49 cm width at the caudal pole and 1.6 cm length. The right adrenal gland measured 0.61 cm width at the caudal pole and 1.5 cm width at the cranial pole.

Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. A solitary benign nondisruptive hyperechoic nodule noted in the medial parenchyma adjacent to the hilus consistent with benign myelolipoma was observed. 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 in size. Multiple variably sized yet subjectively nondisruptive nonhomogeneous intraparenchymal macronodules were present, an example measuring 2.3 cm in dimeter. 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 mild gallbladder debris primarily in the caudal lumen and gallbladder neck. The cystic and common bile ducts were normal.

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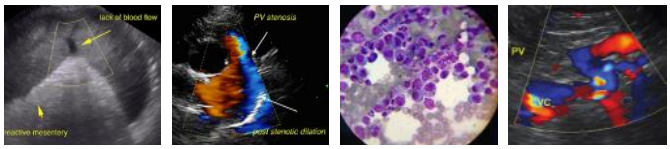

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Gastrointestinal

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 pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia.

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Hepatomegaly exhibiting parenchymal remodeling with multifocal non disruptive intraparenchymal macronodules.
- Mild gallbladder debris (non-mucocele).
- Mild chronic renal changes exhibiting nonspecific hyperechoic cortical foci and minor medullary mineral.
- Benign splenic nodule.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The hepatic changes are nonspecific with considerations including vacuolar hepatopathy, inflammatory disease, nodular hyperplasia, lipogranulomas, early fibrosis, extramedullary hematopoiesis with infiltrative neoplasia possible yet thought less likely. Assuming normal clotting status an ultrasound guided FNA of a hepatic nodule +/- hepatic parenchyma if assessable is warranted for screening cytology. The mild hepatomegaly without evidence of urinary bladder mineral is not overtly suggestive of a portosystemic vascular anomaly. THE possibility of decreased hepatic function or portal hypoplasia/microvascular dysplasia could be possible given the elevated bile acids. However hepatic functionality is likely adequate assuming normal BUN, CHOL, GLU and ALB levels.

Continued monitoring given the patient is nonclinical would be reasonable. Empirically some or all of the following protocol could be considered if clinically indicated. Sonographic monitoring of the hepatic nodules for evidence of progression would be a more conservative approach.

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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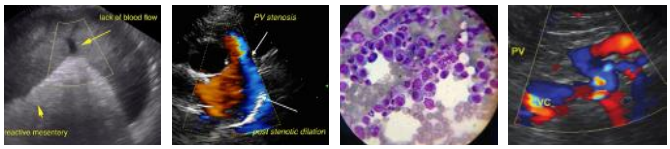

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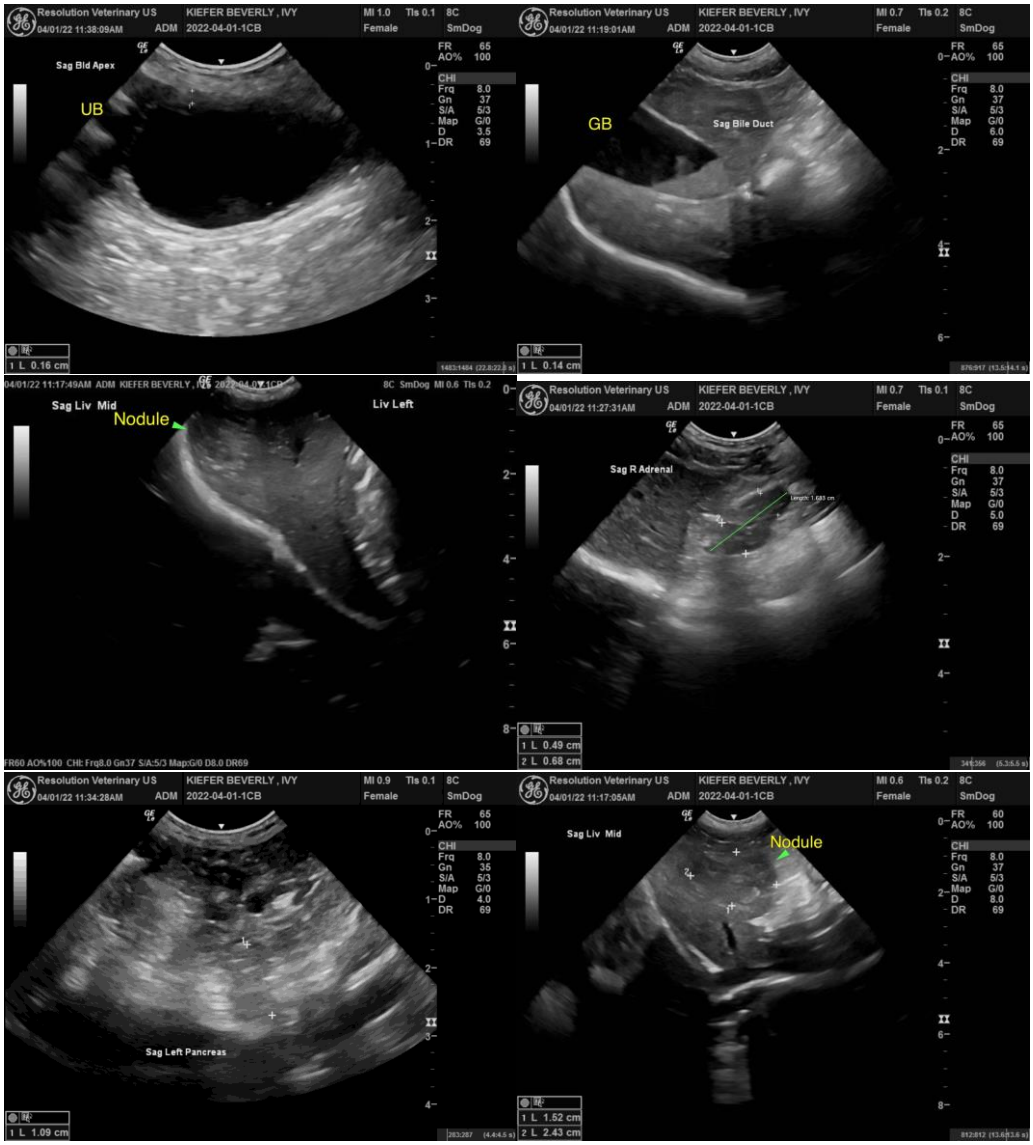

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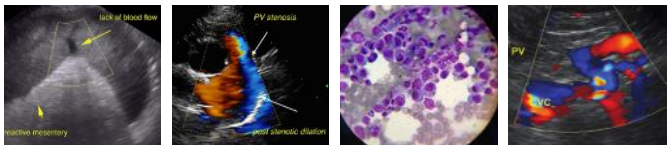

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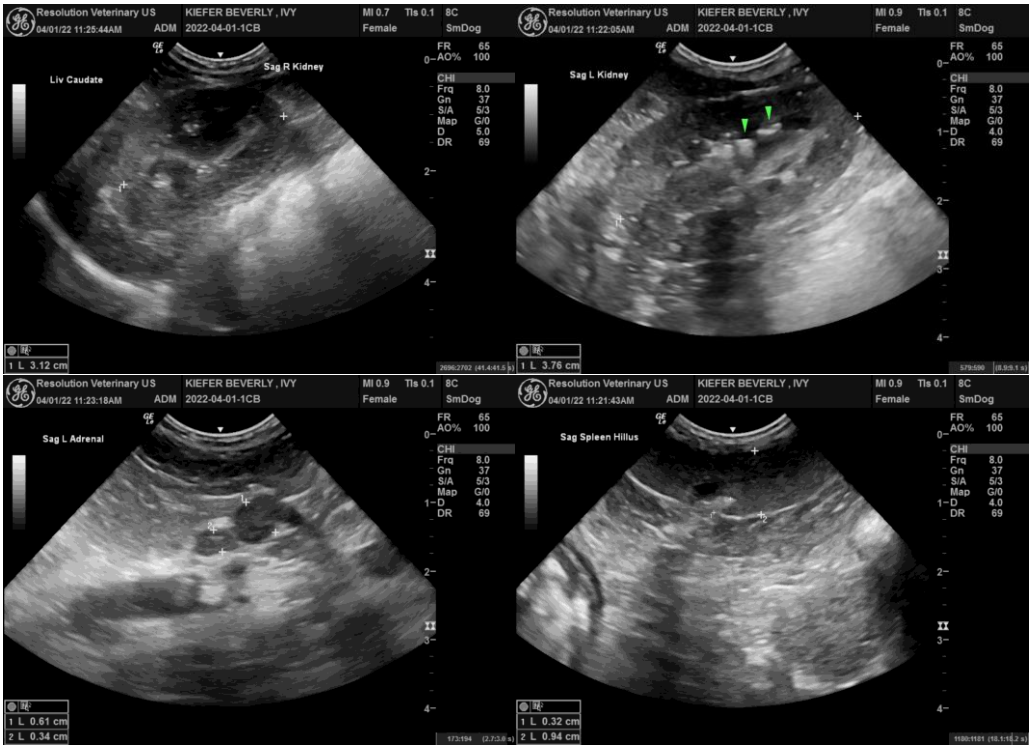

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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