



PATIENT

Iris Broghamer

SPECIES

Canine

BREED

Chihuahua

SEX

Spayed Female

AGE

7 years

WEIGHT

11 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Griffin

HOSPITAL NAME

Northside VC

REFERRING VET

Dr. Griffin

INVOICE

95532

DATE

1/25/22

PRESENTING CLINICAL SIGNS

Patient had a cystotomy on 12/27/21 and stone analysis came back as body 50% struvite and 50% urate and shell was 100 % urate. Patient is doing well post op and owner wanted complete workup to further investigate the cause of the bladder stone

Abnormal PE/Chem/CBC/UA Results: CBC wnl Chem BUN 4, Amylase 247 U/L Bile Acids - Abnormal -Pre 125.8, post 109 Urine Culture: Negative

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The pelvic urethra was imaged 2.0 cm beyond the cystourethral junction. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The left kidney measured 4.0 cm. The right kidney measured 4.5 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The left adrenal gland measured 0.5 cm. The right adrenal gland measured 0.5 cm.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes was noted.

Liver

The **liver** was mildly subnormal in size. Intrahepatic vascular volume appeared to be normal. The portal vein was subnormal in size as compared to a 1:1 ratio with the vena cava. The portal vein measured 0.4 cm. The vena cava measured 0.75 cm. An abnormal vessel was noted in one view at approximately 2.0 cm caudal from the portal hilus with tortuous contour and decoursed dorsally. This may represent an azygos shunt. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident.



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Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

ULTRASONOGRAPHIC FINDINGS

Suspect extrahepatic portosystemic shunt, possible azygos shunt.

Subnormal portal vein.

Mild microhepatica.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

CT with contrast is recommended as the exact origin and termination could not be evaluated. Given that the vena cava and aortic ratio was 1:1 and the portal vein is subnormal there is a definitive subnormal portal vein to vena cava ratio. One particular view demonstrated an irregular, tortuous vessel that measured 2.0 cm caudal from the portal hilus. CT with contrast is indicated for further definition. Medical management with the following protocol is recommended in the meantime.

Hepatic Support for Bile Acid Elevation +/- Hepatic Encephalopathy

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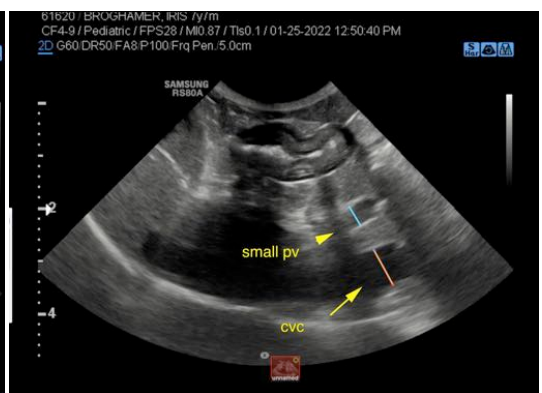
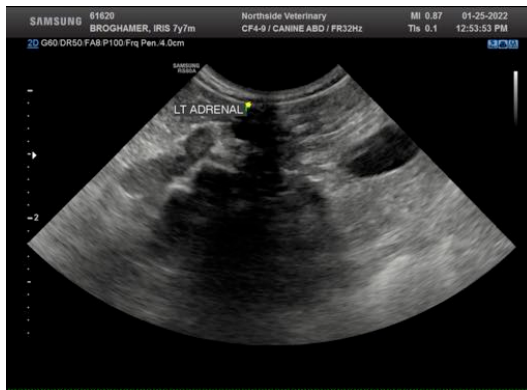
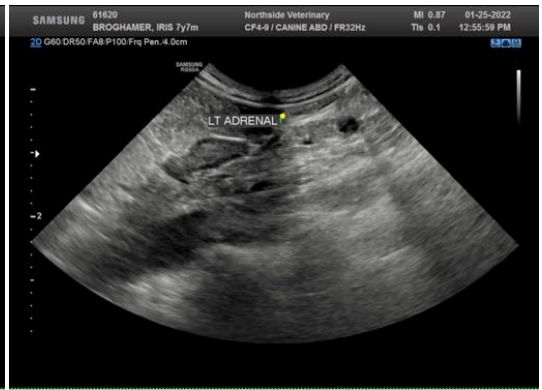
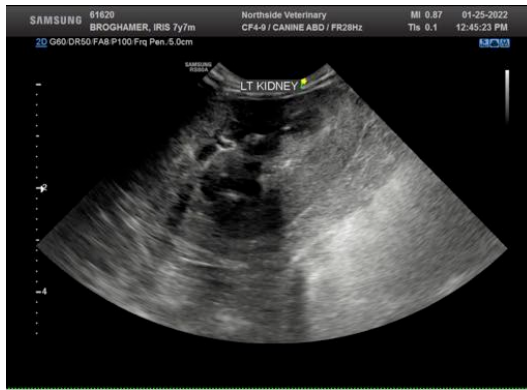
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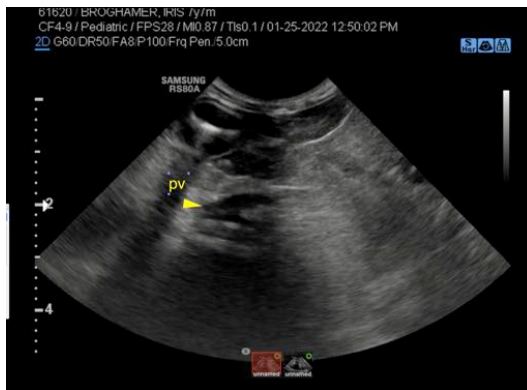
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com
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