



PATIENT

Muffy Nguyen

SPECIES

Canine

BREED

Yorkshire Terrier

SEX

Spayed female

AGE

2 years

WEIGHT

8.6 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

**IMAGING
PERFORMED BY**

Potomac Mobile
Veterinary Ultrasound

HOSPITAL NAME

Banfield Pet Hospital
Clifton

REFERRING VET

Dr. Jarrett

INVOICE

39467

DATE

9/19/22

PRESENTING CLINICAL SIGNS

History: Elevated liver enzymes and abnormal bile acids test.
Abnormal PE/Chem/CBC/UA Results: (09/07/2022) CHEM: ALT 188. BILE ACIDS: PRE 1.5 and POST 97.7.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. 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 right kidney measured 3.03 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 0.4 cm at the caudal pole and 0.3 cm at the cranial pole. The right adrenal gland measured 0.49 cm at the cranial pole and 0.42 cm at the caudal pole.

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 subnormal in size with slightly increased portal markings. The portal vein to vena cava ratio was 0.85:1.0. The portal vein measured 0.46 cm and vena cava measured 0.56 cm. Branching of the portal vein appeared normal. Intrahepatic vascular volume appeared normal. The gallbladder and common bile duct were unremarkable.



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Gastrointestinal

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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.

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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.

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ULTRASONOGRAPHIC FINDINGS

Microhepatica without microscopic shunting. Portal hypoplasia/microvascular dysplasia is most likely.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

WEIGHT

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Core liver biopsy would be necessary for a definitive diagnosis. Medical management with the following can be considered given the elevated bile acids. Strict dietary regimen is recommended in this patient as acute phase disease will likely cause issues with metabolic capacity.

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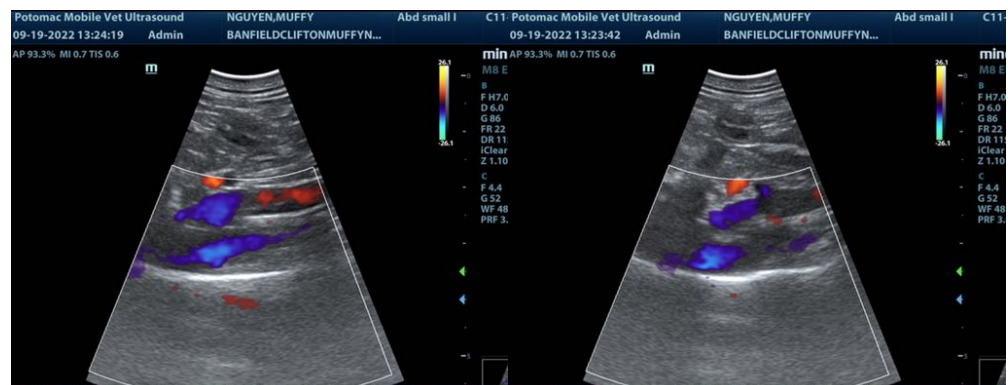
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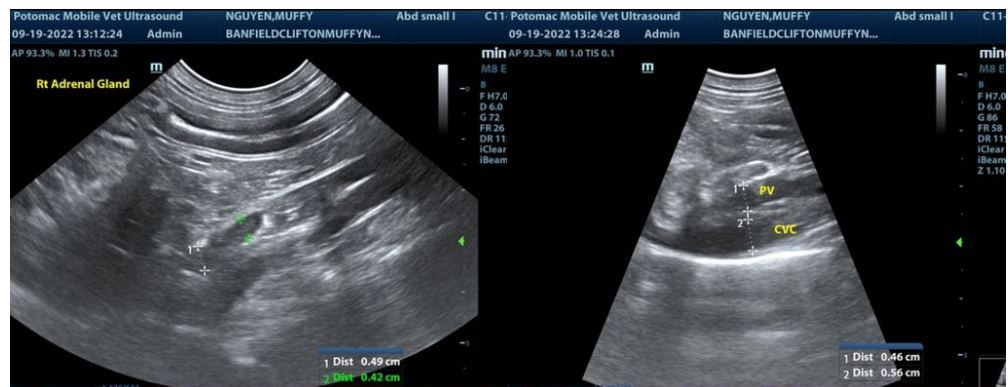
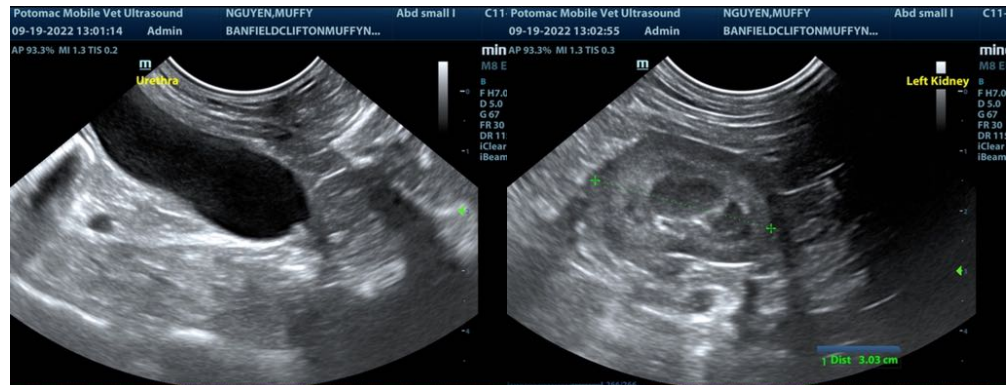
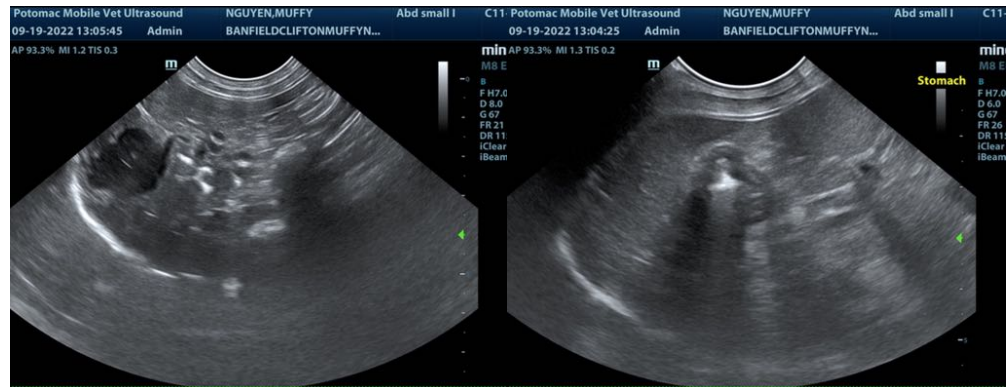
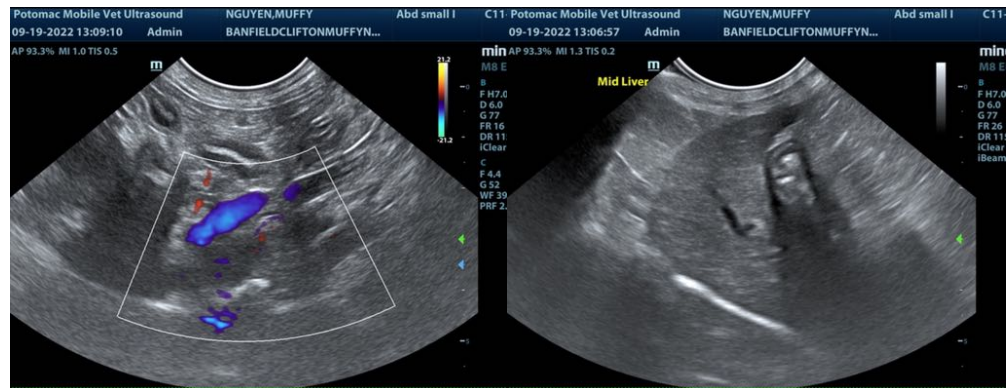
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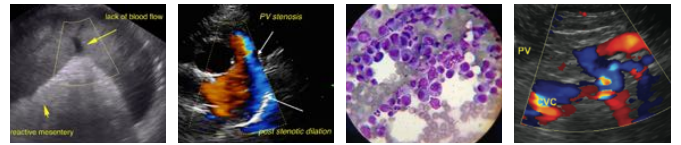
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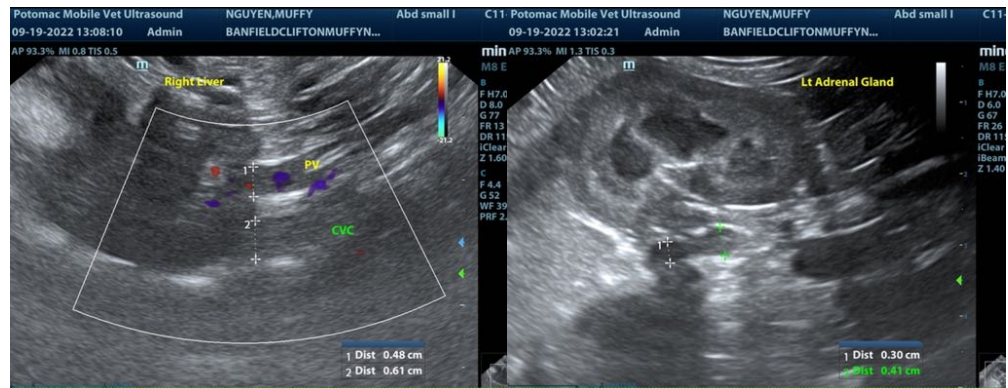
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
info@SonoPath.com