**PATIENT**

Bella Vicente

PRESENTING CLINICAL SIGNS

History: ALT 220 and Bile Acids Post 75. Possible liver shunt. Sedated with torb.
 Abnormal PE/Chem/CBC/UA Results: ALT 220 and Bile Acids Post 75.

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System****BREED**

Shih Tzu/Yorkie Mix

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.

SEX

Female

The right ovary was uniform and measured 1.06 x 0.7 cm. The left ovary was uniform measured 1.35 x 0.5 cm. A follicle was noted in the left ovary. The uterus was mildly thickened, consistent with active heat. No luminal fluid was noted.

AGE

8 months

The **kidneys** presented normal size and contour. Idiopathic, hyperechoic medullary rim sign was noted. The right kidney measured 2.96 cm. The left kidney measured 2.9 cm.

Adrenal Glands**WEIGHT**

5.2 lbs

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 0.24 cm at the cranial pole and 0.26 cm at the caudal pole. The right adrenal gland measured 0.3 cm at the cranial pole and 0.2 cm at the caudal pole.

INTERPRETED BYEric Lindquist, DMV
DABVP, Cert. IVUSS**Spleen****IMAGING PERFORMED BY**Potomac Mobile
Veterinary Ultrasound

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.

HOSPITAL NAMEBanfield Pet Hospital
Winchester**Liver****REFERRING VET**

Dr. Jarrett

The **liver** was subnormal in size with normal contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Intrahepatic and extrahepatic vascularity appeared normal. The portal vein to vena cava ratio was 1:1 and each measured 0.67 cm. The gallbladder and common bile duct were unremarkable.

INVOICE

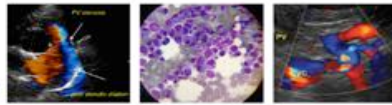
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Gastrointestinal

The **stomach** revealed a 0.93 cm shadowing structure that was non-obstructive. This is consistent with medications or similar.

DATE

3/9/22

**PATIENT**

Bella Vicente

Pancreas**SPECIES**

Canine

BREED

Shih Tzu/Yorkie Mix

SEX

Female

AGE

8 months

WEIGHT

5.2 lbs

INTERPRETED BYEric Lindquist, DMV
DABVP, Cert. IVUSS**IMAGING PERFORMED BY**Potomac Mobile
Veterinary Ultrasound**HOSPITAL NAME**Banfield Pet Hospital
Winchester**REFERRING VET**

Dr. Jarrett

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ULTRASONOGRAPHIC FINDINGS

Microhepatica without intrahepatic or extrahepatic shunting. Portal hypoplasia/microvascular dysplasia is suspected.

Idiopathic renal medullary rim.

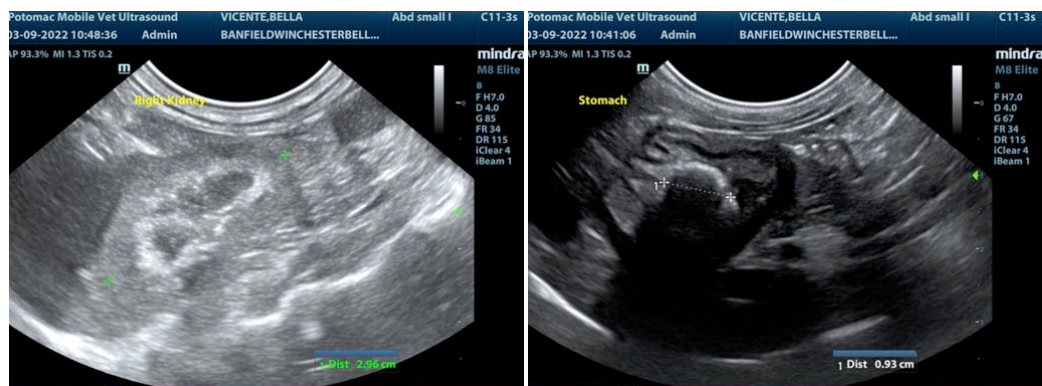
Left ovarian follicle with thickened uterus. Consistent with active heat cycle.

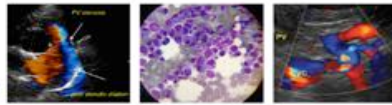
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the bile acid elevation, microhepatica and breed predisposition portal hypoplasia/microvascular dysplasia is likely. If the patient is to undergo ovariohysterectomy then full thickness liver biopsy could be performed to assess the probability of portal hypoplasia. Strict dietary regimen is recommended in this patient as acute phased disease in this patient's lifetime may send the patient into hepatic failure given that significant microhepatica is present. Renal biopsy could be considered to further define the medullary rim sign; however, this may be secondary to elevated bile acids and elevated urea levels.

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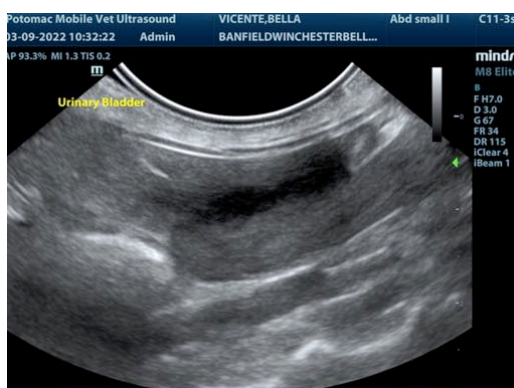
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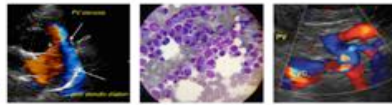
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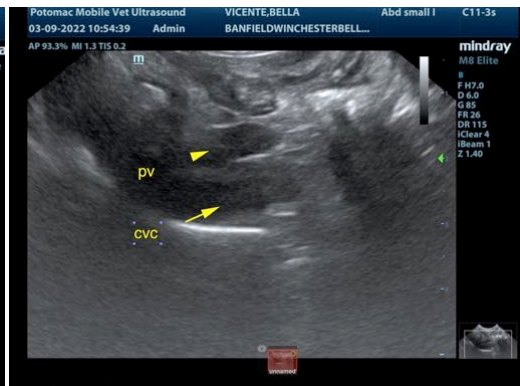
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
Eric.Lindquist@SonoPath.com