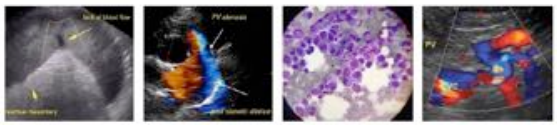

PATIENT

Luna Foley

SPECIES

Canine

BREED

Miniature Dachshund

SEX

Intact Female

AGE

4 months

WEIGHT

2.26 kg

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Crystal Hill

HOSPITAL NAME

Beatties PH Stoney Creek

REFERRING VET

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INVOICE

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PRESENTING CLINICAL SIGNS

Emaciated, weak, poor muscle condition, pot-bellied distended abdomen, dehydrated Rapid decline over 11 days, ongoing diarrhea 8wk and 12wk Da2pp vaccines performed, NG spectra administered 1mth ago, multiple diet changes
Abnormal PE/Chem/CBC/UA Results: Bile Acids pre- and post- moderately elevated. Need to investigate intra- vs extra-hepatic shunt. Parvo Negative (On May 9 and May 13) OPG: No parasites seen (May 9) BW (May 9): -mild regenerative anemia -mildly increased lymphocytes and monocytes -mildly low K -mildly increased ALT -low Cr - due to low muscle mass -slightly low BG (on May 9) -- on May 13 confirmed to be WNL at 4.1 Rad report: The study is indicative of dietary indiscretion or ingestion of food with bone material. No convincing obstruction is seen, and gastric emptying may be delayed due to nonspecific gastroenteritis/colitis. Pancreatitis may be less likely given the young age of the patient. 2. Poor serosal detail is likely accentuated by crowding of viscera, but could indicate scant peritoneal fluid (transudate, peritonitis/pancreatitis, hemorrhage). 3. No thoracic abnormalities are identified.

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.

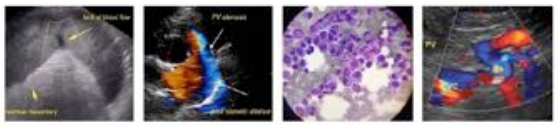
The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The right kidney measured 4.25 cm. The left kidney measured 4.1 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 1.18 x 0.25 cm at the caudal pole and 0.26 cm at the cranial pole. The right adrenal gland measured 1.07 x 0.74 cm at the cranial pole and 0.4 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.



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Liver

The **liver** presented severe microhepatica with complex, intrahepatic shunt. The pattern is consistent with left divisional shunting. However, secondary shunts are also likely present. Hepatic arterial venous malformation is a strong potential. CT would be necessary for further definition. The vena cava to aortic ratio was 1:1. The portal vein at the portal hilus was congested possibly owing to concurrent portal hypertension given the complexity of the hepatic presentation. The portal pressures may be excessive especially given the pancreatic presentation. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident.

Gastrointestinal

The **gastrointestinal tract** revealed an edematous wall and hyperperistalsis with no loss of mural detail. Minor enhanced surrounding fat was noted around the regions of the gastrointestinal serosa. There was no evidence of foreign body or neoplastic criteria. Fluid filled colon was noted. Images from the stomach, small intestine and colon were presented. This is most consistent with gastroenteritis owing to viral, bacterial/endotoxin or possible parasitic disease. The mesenteric lymph nodes were reactive and measured up to 1.0 cm.

Pancreas

The **pancreas** revealed vascular congestion and edema suggestive for portal hypertension.

Free Abdomen

Free fluid was noted in the abdomen, yet this is physiological at this age.

ULTRASONOGRAPHIC FINDINGS

Complex intrahepatic shunting with microhepatica and suspect concurrent portal hypertension.

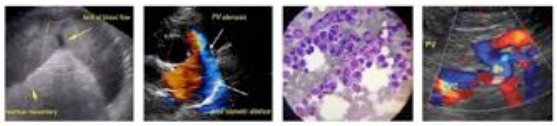
Concurrent gastroenteritis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Concurrent gastroenteritis is present. The prognosis is extremely guarded to poor long term in this patient. CT evaluation is recommended for further potential intervention with vascular plug or similar, yet portal hypertension regardless may continue to be an issue in this patient.

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**



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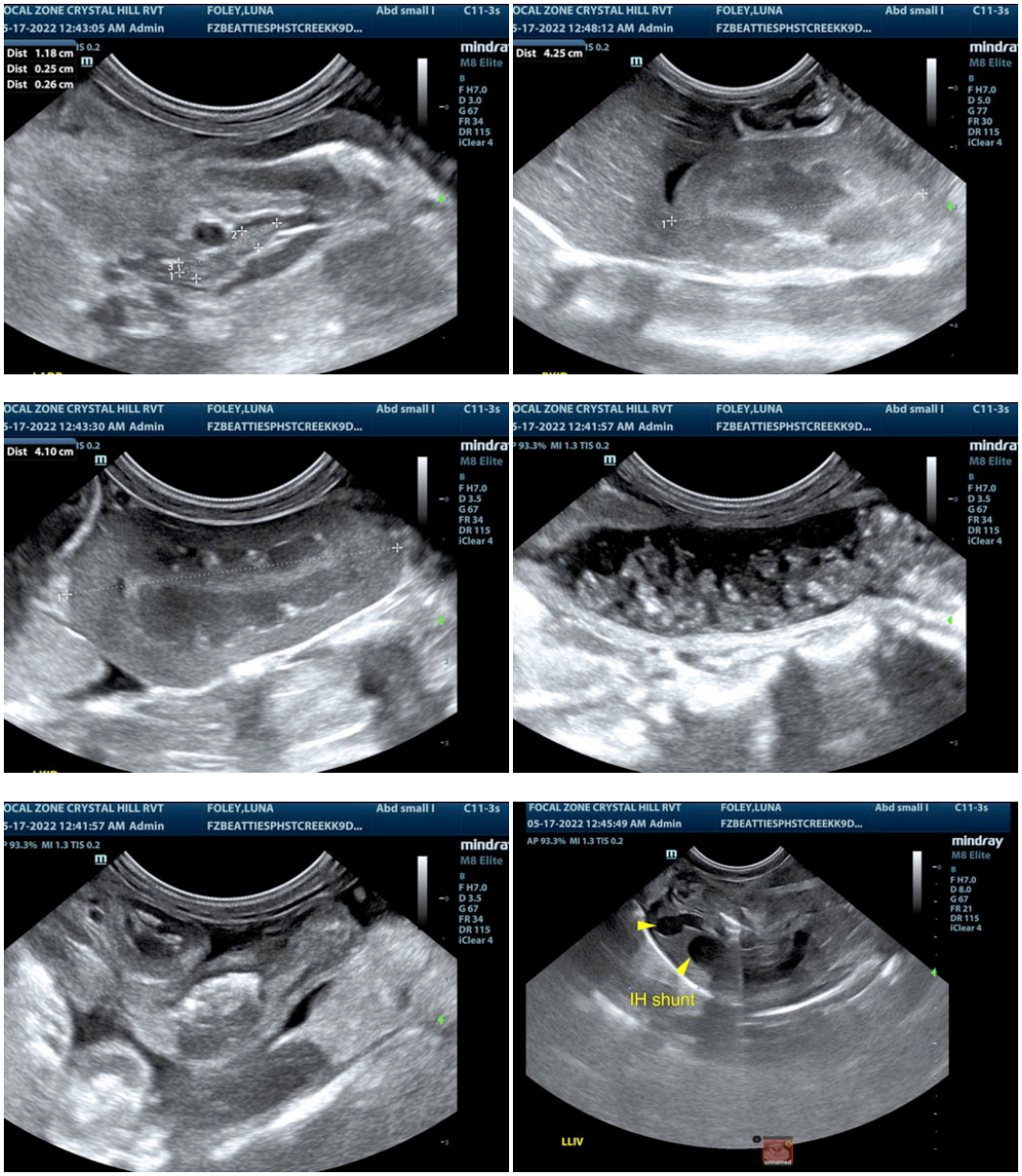
serum level keep between 200—500 ug/dl. If deficient then Tx zinc acetate 1-3 mg/kg/day. Gastrointestinal protectants are recommended if the patient is anorexic.



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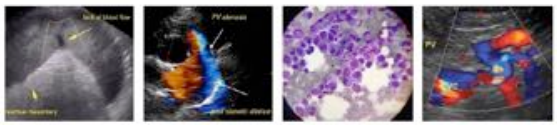

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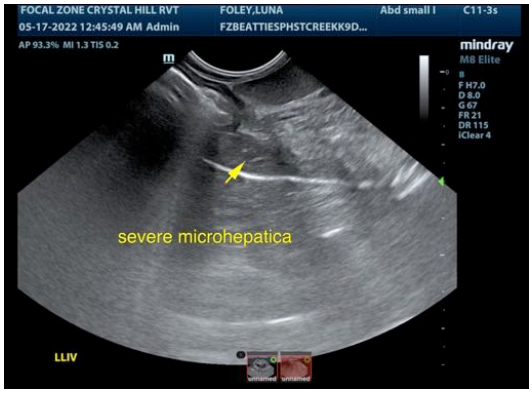

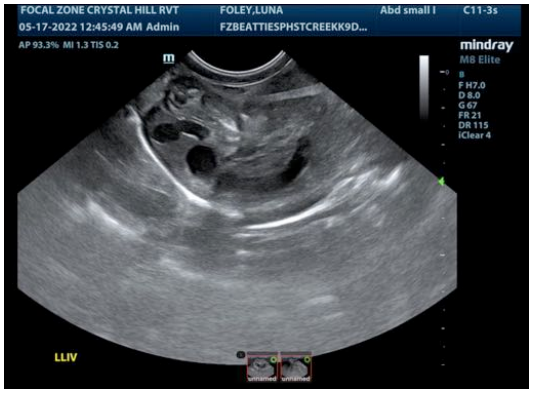

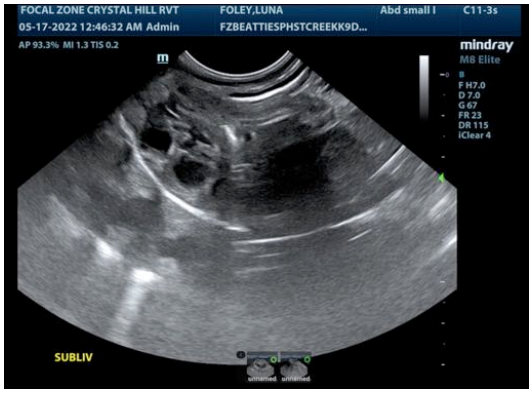

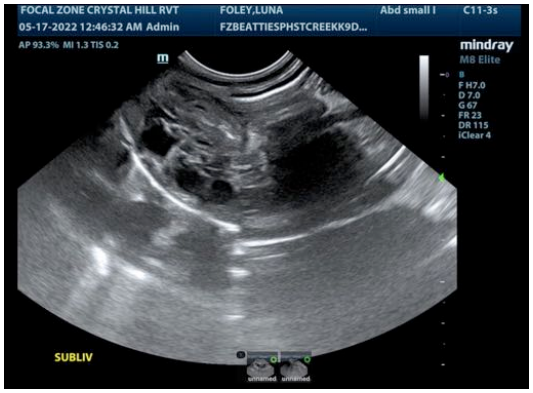

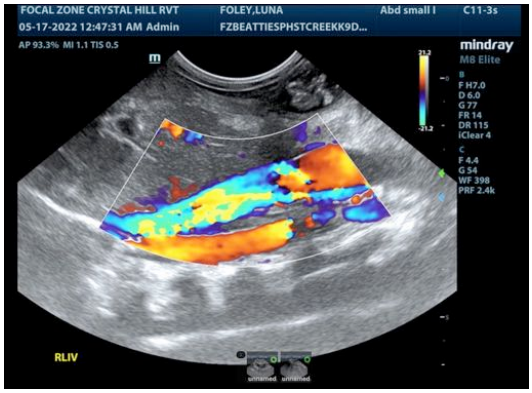

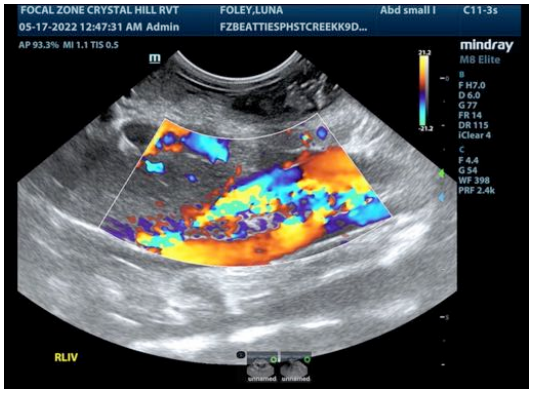

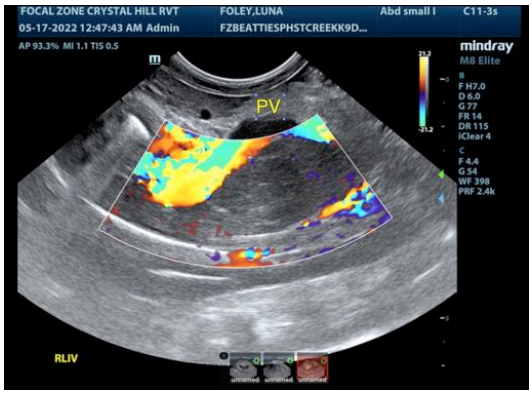

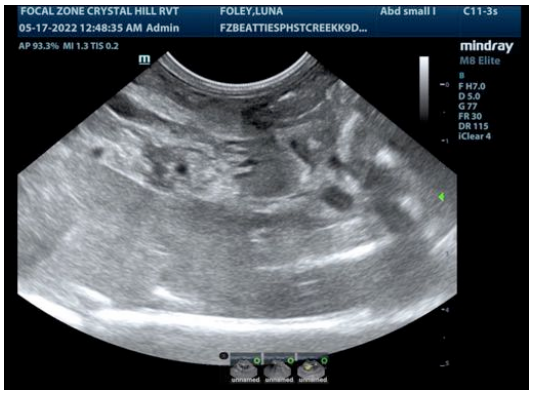

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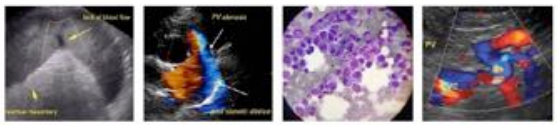

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
Eric.Lindquist@SonoPath.com