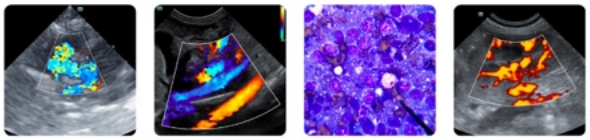


PATIENT

Itty Bitty Kopec

SPECIES

Canine

BREED

Pomeranian

SEX

Intact male

AGE

8 months

WEIGHT

1.7 kg

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Mariusz Chmielinksi

HOSPITAL NAME

Apex Veterinary Services

REFERRING VET

VetDirect/Dr. Bregliano

INVOICE

74656

DATE

4/20/26

PRESENTING CLINICAL SIGNS

History: 8-month-old puppy – r/o congenital liver shunt (episodic neurologic signs)
Acute episode of abnormal behavior (pacing, wall-hugging, drooling, lethargy, inappetence) lasting ~3 days, now improved
Post-prandial lethargy reported
No seizures observed
Intermittent dry cough
Dark yellow urine since puppyhood
One episode of vomiting; mild constipation (resolved)
Abnormal PE/Chem/CBC/UA Results: Physical exam unremarkable (BAR, normal CV/resp, abdomen NAF) CBC/chemistry: WNL Preliminary U/S: abdominal organs subjectively normal Bladder: mildly hazy luminal content UA: mild bacterial crystalluria

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 and appeared normal. The ureters were not visible which is normal. The bladder revealed calculi and suspended debris. The largest calculus measured 0.24 cm. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

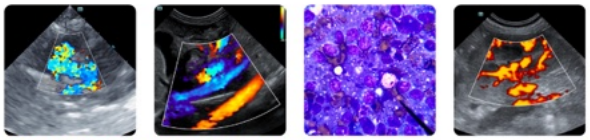
The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. Renal mineralization was noted in both kidneys and was non-obstructive. Subjectively the kidneys were hypervascular. The right kidney measured 3.52 cm. The left kidney measured 3.39 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 0.3 cm at the caudal pole and 0.25 cm at the cranial pole. The right adrenal gland measured 0.48 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



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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. The portal vein measured 0.4 cm cranial to the entry of the gastroduodneal vein. At the same level the vena cava measured 0.36 cm and aorta measured 0.4 cm. The portal vein was normal in the extrahepatic space. However, there appears to be direct connection of the tortuous vessel from the right branch of the portal vein into the vena cava. The gallbladder and common bile duct were unremarkable.

Gastrointestinal

There was some residual chyme and gas was noted in the **stomach**, yet not pathological. This is consistent with post prandial presentation. Transit of chyme into the small intestine was normal. Curvilinear patterns were maintained throughout the GI tract. No evidence of pathology. 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

Microhepatica.

Bladder and renal calculi, which are positive predictive factors for macroscopic shunting.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

CT evaluation with contrast is warranted for confirmation of suspected intrahepatic shunt. Right divisional is likely.

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.

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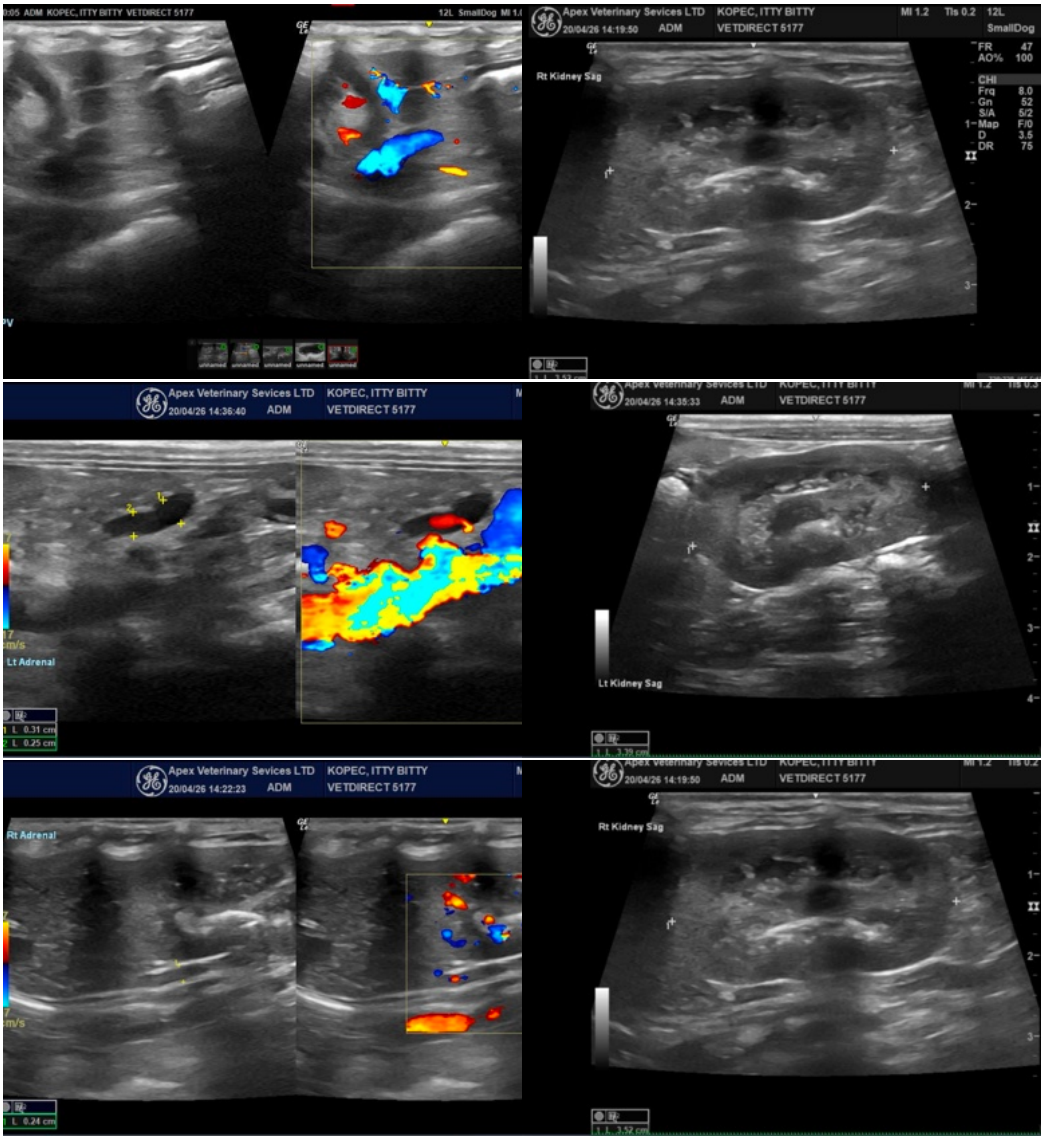
Ursodiol (10-15 mg/kg p.o. q24h) can be considered as hepatoprotectant and to enhance bile flow. **Zinc** serum level keep between 200—500 ug/dl. If deficient then Tx zinc acetate 1-3 mg/kg/day. Gastrointestinal protectants are recommended if the patient is anorexic.



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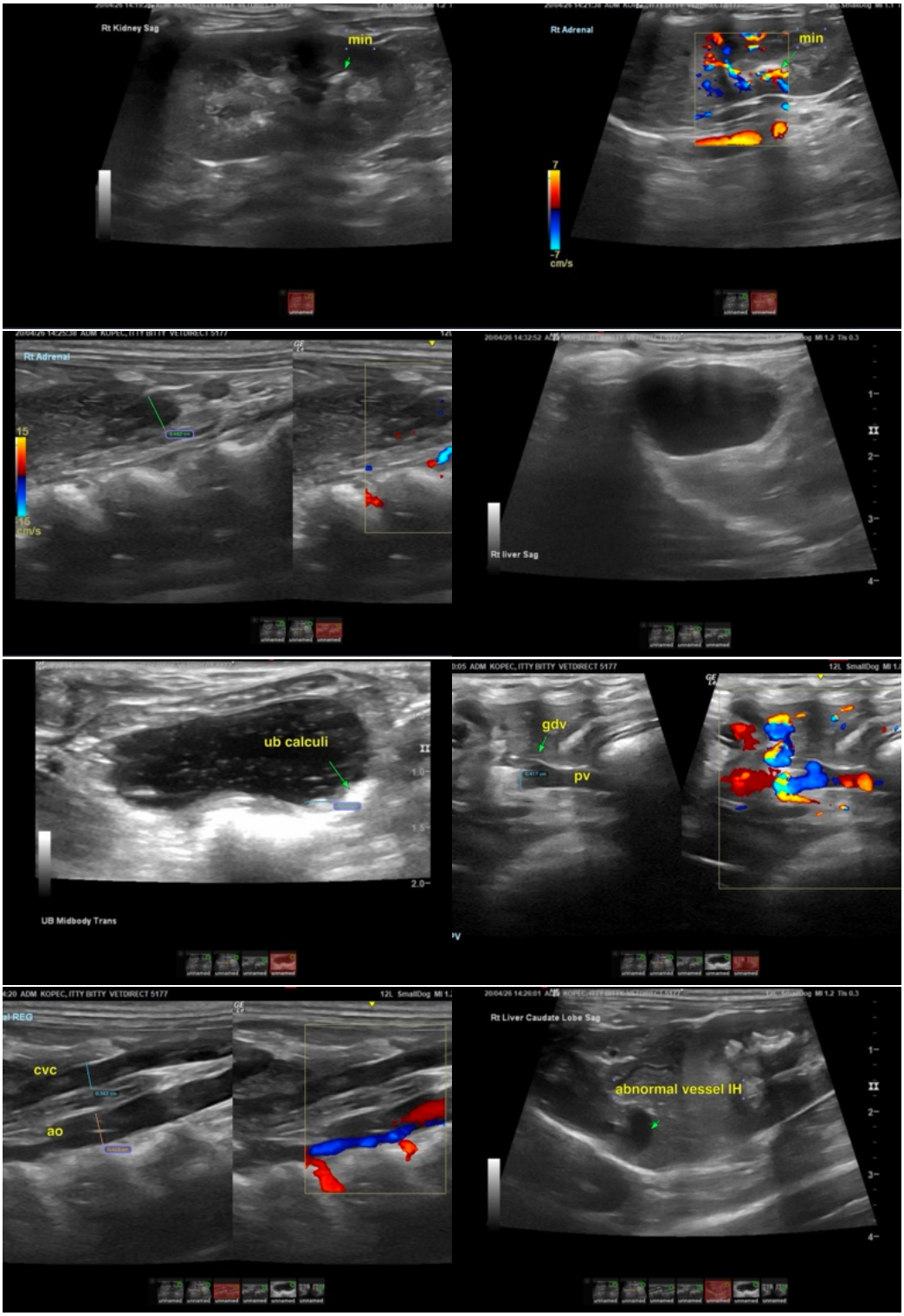

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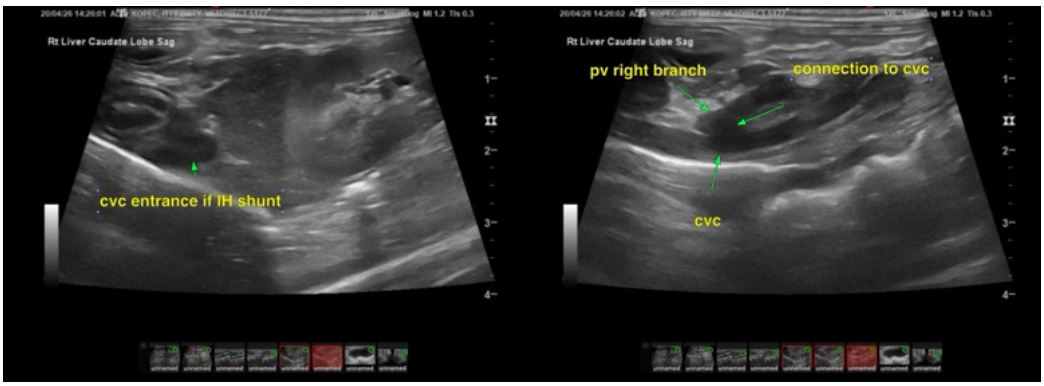

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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 (CFM), Cert. IVUSS, CEO of SonoPath.com

info@SonoPath.com