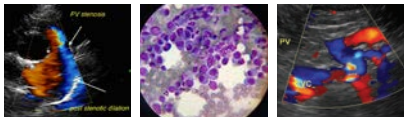
IMAGING PERFORMED BY

IntraPet.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

DATE

10/12/22

PATIENT

Buddy Dauses

SPECIES

Canine

BREED

Shih Tzu

SEX

Intact Male

AGE

4/14/22

WEIGHT

12.8 Pounds

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Andi Parkinson RDMS

HOSPITAL NAME

Northwind AH

REFERRING VET

Dr. Repsher

INVOICE

42031

PRESENTING CLINICAL SIGNS

Presented for neuter and cherry eye surgery. Pre-op BW showed elevated ALT and ALP. Did baseline BA and values came back elevated. Rec. US to R/O shunt/micro hepatica. No abnormalities in behavior/eating noted at home.

Current Medications: BNP Dex Drops as needed for secondary conjunctivitis
Lab Results: ALT 267, ALP 169. BA Pre 16.9 or Post 167.4
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

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 were noted. Ureteral papillae were normal.

The **kidneys** were mildly swollen with slight pinpoint mineralizations noted. The left kidney measured 4.15 cm. The right kidney measured 4.15 cm.

Adrenal Glands

The **left adrenal gland** was flattened and subnormal in size, measuring 1.98 cm x 0.26 cm at the cranial pole and 0.36 cm at the caudal pole.

The **right adrenal gland** was flattened, but technically within normal limits, measuring 1.8 cm x 0.37 cm at the cranial pole and 0.48 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 were noted.

Liver

The **liver** was subnormal in size. The gallbladder and common bile duct were unremarkable. The portal hilus revealed an extra vessel, creating a double aorta sign, which would indicate an azygos shunt, measuring approximately 5.0 mm in width and entering into the diaphragmatic inlet at the level of the esophageal inlet. The portal vein was slightly subnormal in size at the portal hilus, measuring 0.38 cm. The vena cava measured 0.38 cm. Aorta measured 0.62 cm.

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

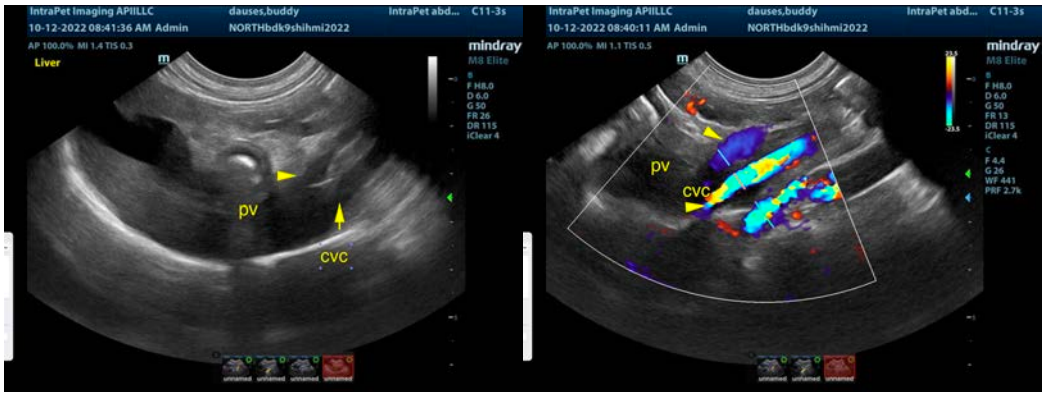
- Double aorta sign – indicative of an azygos shunt.
- Microhepatica
- Swollen kidneys
- Flattened adrenal glands

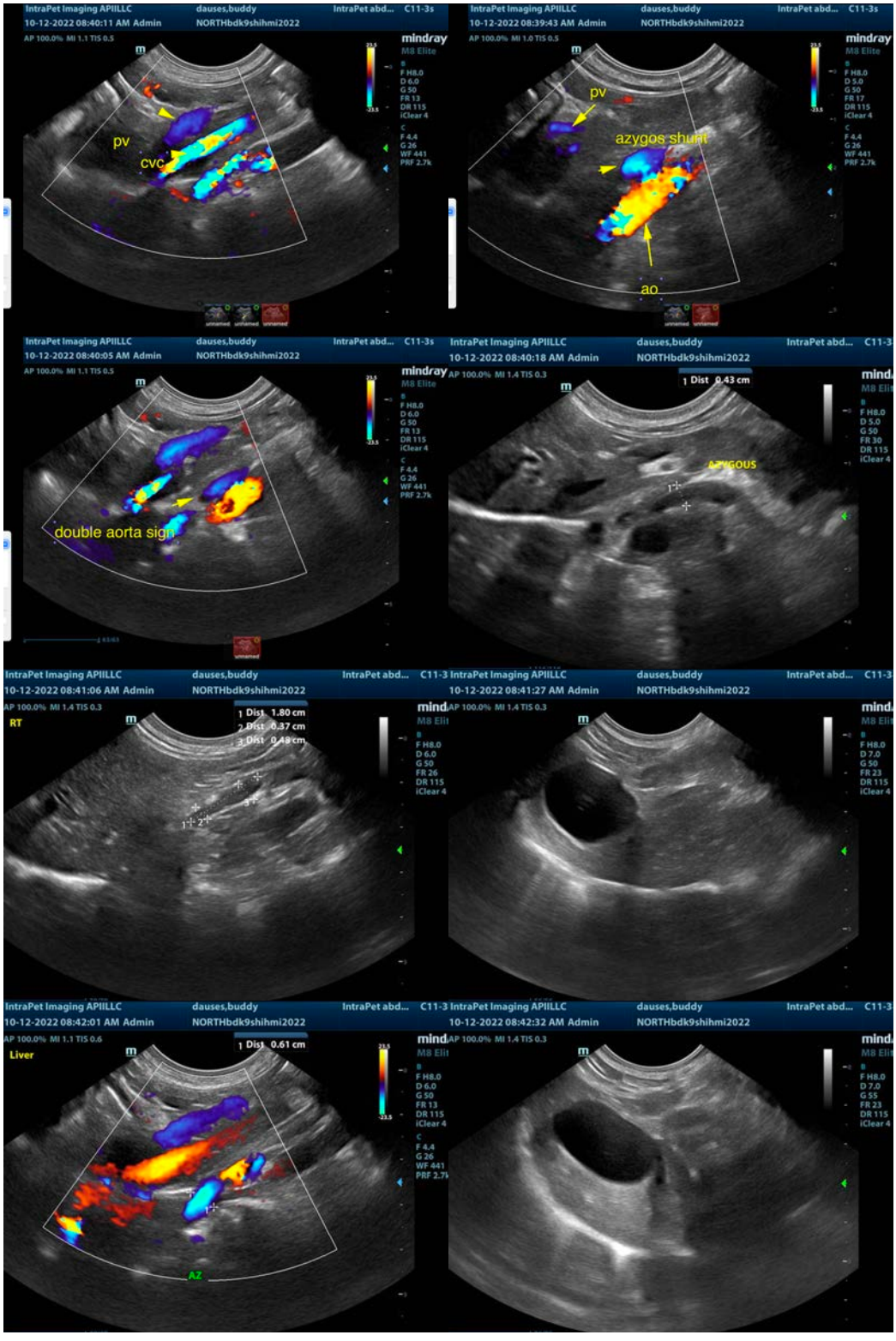
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

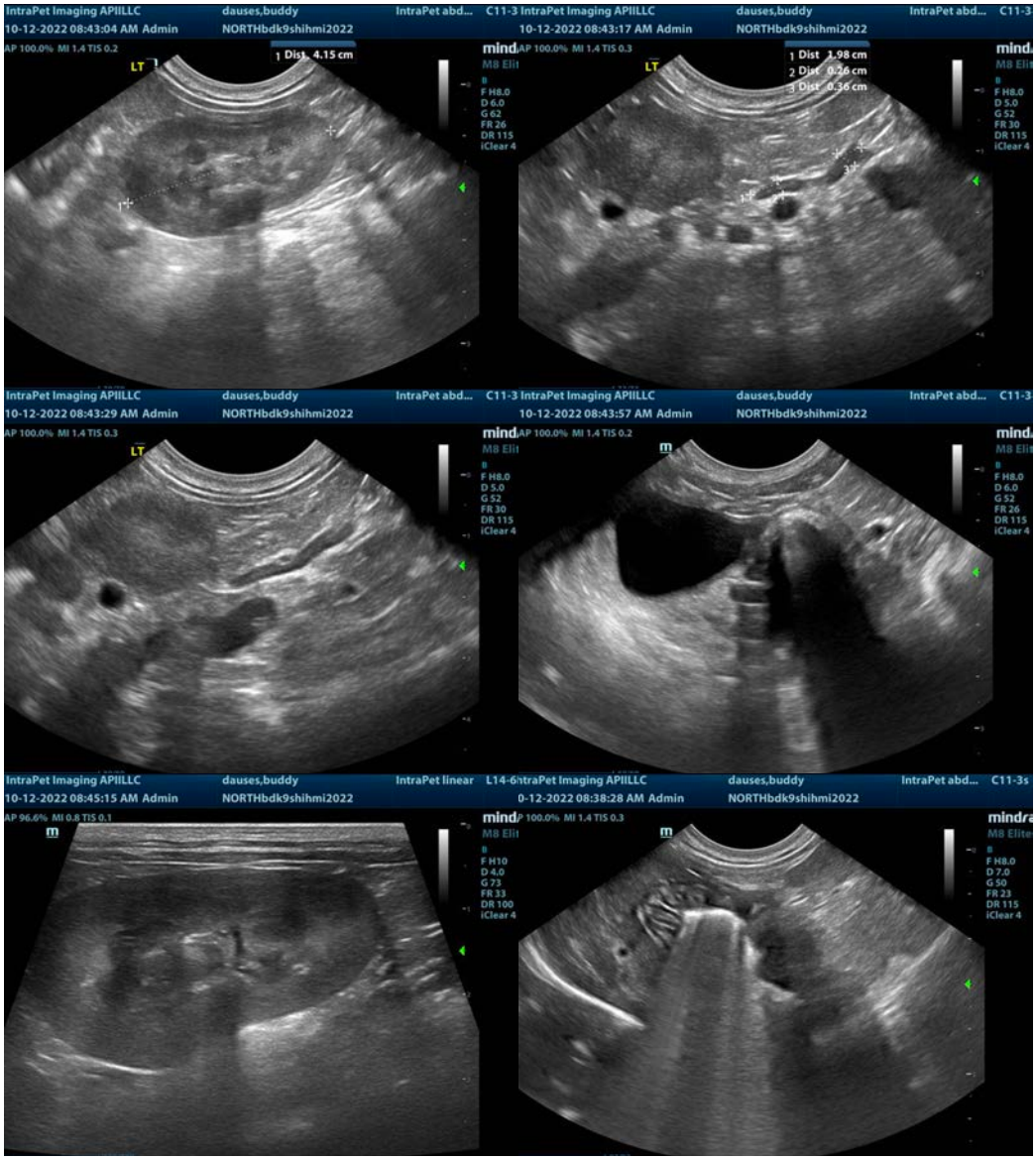
Sonographic appearance of the portal hilus is consistent with azygos shunting. The exact origin of the azygos is likely the splenic vein. CT evaluation for surgical planning recommended. Medical management with the following recommended in the meantime. Screening for Addison's with baseline cortisol or ACTH stimulation recommended to ensure that concurrent Addison's is not an issue, given the flattened adrenal glands. No evidence of bladder calculi at the time of the sonogram. Eventual shunt attenuation and liver biopsy indicated.

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.




pv
cvc
pv
azygos shunt
ao
double aorta sign
AZYGOUS
RT
Liver
AZ



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