



PATIENT

Lulu Laterza

PRESENTING CLINICAL SIGNS

History: Check for liver shunt again

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** was structurally normal. The pelvic urethra was imaged 2.0 cm beyond the cystourethral junction. A grouping of calculi, measuring 2.0 cm was noted, non-obstructive. Acoustic shadowing noted with a bright and clean contour to the calculi, would suggest ammonium biurate, especially given the patient history.

BREED

Shih Tzu

SEX

Spayed Female

The **kidneys** were bilaterally swollen with pelvic mineralization. The left kidney measured 5.8 cm. The right kidney measured 5.4 cm. A 5.0 mm calculus was noted in the right renal pelvis, non-obstructive.

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 1.4 cm x 0.35 cm. The right adrenal gland measured 2.06 cm x 0.81 cm.

AGE

4 Years

WEIGHT

14 Lbs.

Spleen

The **spleen** was largely normal with a focal hypoechoic nodule (0.71 cm) adjacent to the splenic hilus.

Liver

The **liver** was subnormal in size with increased portal markings, consistent with remodeling. The vena cava measured 6.0 mm at the level of the portal vein. The portal vein measured 6.7 mm. The portal vein was tortuous. PW doppler performed on forward flow with the portal vein at its branching into the portal hilus. Flow was slow at 15 cm/s. A forward flow of the portal vein was tortuous. There is a concern for portal hypertension from 12.7- 15 cm/s.

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

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Gastrointestinal

The **gastric** wall was subjectively hypertrophied. The gastrointestinal lumen was unremarkable. The small intestine and colon were unremarkable.

HOSPITAL NAME

Whippany VH

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.

REFERRING VET

Dr. Smith

ULTRASONOGRAPHIC FINDINGS

- Tortuous portal vein with slow flow and early portal hypertension
- Microhepatica with hepatic remodeling
- Bladder calculi, non-obstructive
- Swollen kidneys and renal calculi
- Splenic nodule
- Hypertrophied gastric wall

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2/4/22



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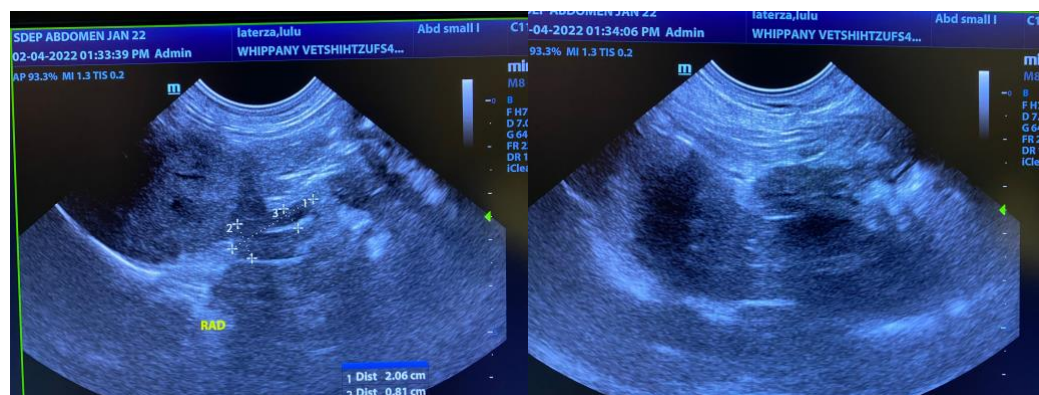
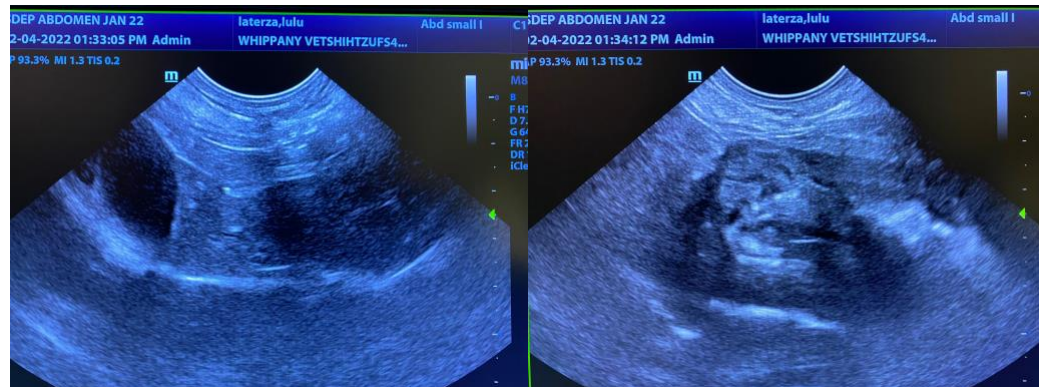
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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

I recommend reassessment of the liver biopsies from surgery in this patient and surgical procedure. There is likely diffuse liver disease that is inducing portal hypertension and tortuosity to the portal vein. Rapid cystotomy to remove the bladder calculi warranted. I suggest the following protocol. Monitoring pre-and postprandial bile acids every 4-6 months and strict dietary regimen recommended in this patient. Prognosis is guarded long term, depending upon the ability of the liver to deal with metabolic need over long term.

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.





PATIENT

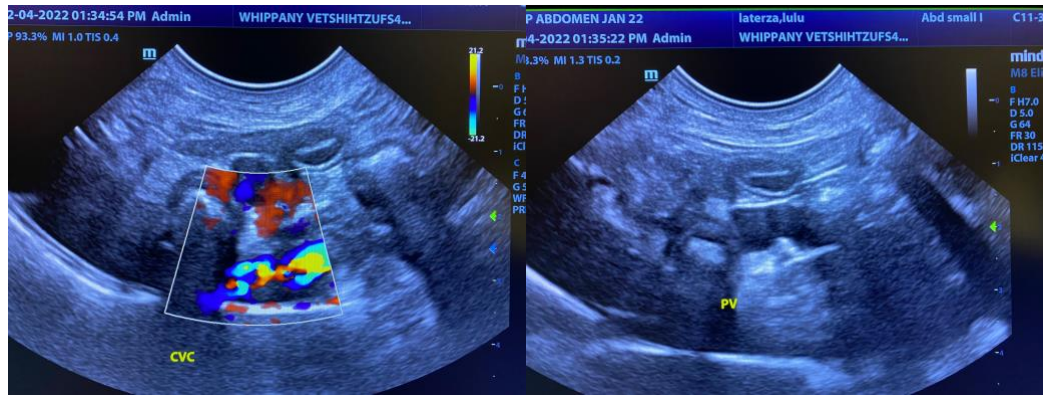
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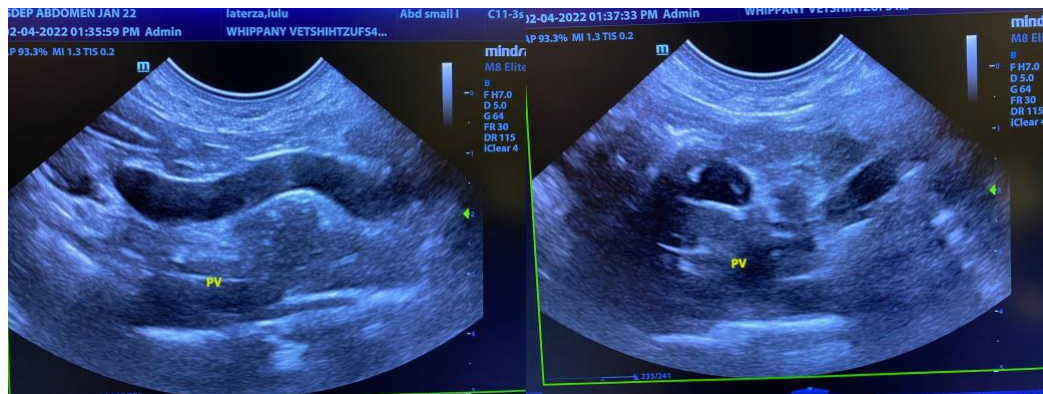
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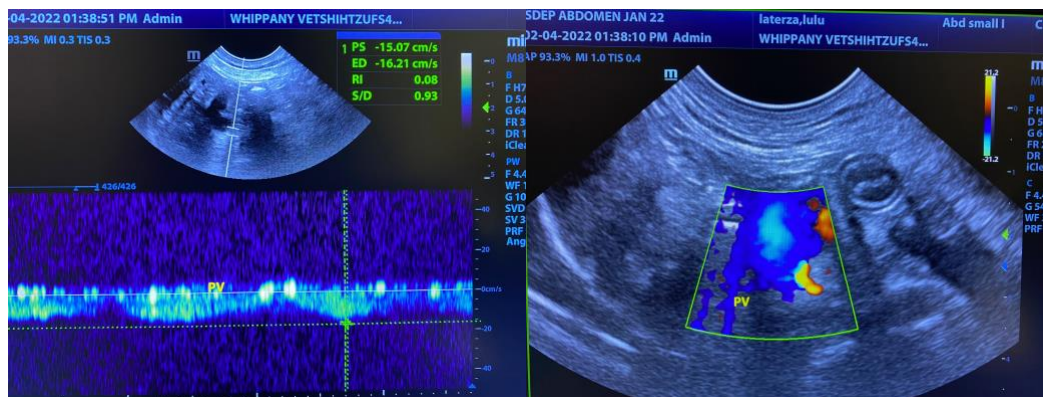


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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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