

## PATIENT

Bella Barajas

## SPECIES

Canine

## BREED

Chihuahua

## SEX

Intact Female

## AGE

8 Years

## WEIGHT

3.9 Pounds

## INTERPRETED BY

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

## IMAGING PERFORMED BY

Loetitia-Saint Jacques,  
LVT, RVT

## HOSPITAL NAME

Animal Medical  
Center of Reno

## REFERRING VET

Dr. Eryn Taormina

## INVOICE

25340

## DATE

9/11/21

## PRESENTING CLINICAL SIGNS

BILE ACIDS PRE 226.4 AND POST 130.7 History: Hx of elevated liver enzymes as long as has been a patient at AMC. Have been recommending imaging to look for a shunt for a while. Previous BA came back elevated. Physical exam findings: P is BAR on exam. Grade 3 dental disease. Abnormal CBC Values: MCH - 20.5 MCHC - 32.1 Reticulocytes 118 Reticulocytes HGB 23.3 Abnormal Chemistry Values: cREA - 0.4 BUN 7 ALT 2,2071 AST 955 ALP 406 CHOL 111 AMYL 235 Abnormal UA Values: 2+ bili Radiograph Findings: Reason for Ultrasound: looking for shunt vs. other hepatopathy causing increasing liver enzymes over time  
Abnormal PE/Chem/CBC/UA Results: BILE ACIDS PRE 226.4 AND POST 130.7 ALT 22071

## 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 evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal. A minor amount of debris was noted.

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 3.56 cm. The left kidney measured 3.11 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 right adrenal gland measured 0.29 cm at the caudal pole and 0.31 cm at the cranial pole. The left adrenal gland measured 0.35 cm at the caudal pole and 0.28 cm at the cranial pole.

### Spleen

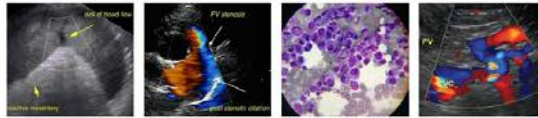
The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted.

### Liver

The **liver** was subnormal in size with minor excessive gallbladder debris and overdistention, not to the level of mucocele formation. The portal hilus was not completely visible, however was visualized obliquely at the portal hilus, and appeared to be subnormal in size at approximately 2.0 mm. The vena cava was normal size at 3.5 mm. There appeared to be a dorsally directed abnormal vessel in a position of potential azygos shunt. However, this cannot be confirmed on the image set provided. Further imaging (ideally CT with contrast) would be performed.

### 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.



**PATIENT**

Bella Barajas

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

Intact Female

**AGE**

8 Years

**WEIGHT**

3.9 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Loetitia-Saint Jacques,  
LVT, RVT

**HOSPITAL NAME**

Animal Medical  
Center of Reno

**REFERRING VET**

Dr. Eryn Taormina

**INVOICE**

25340

**DATE**

9/11/21

**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.

**Reproductive Tract**

The uterus was uniform. The left ovary was uniform at 0.48 cm. In each horn the uterine body measured 0.56 cm.

**ULTRASONOGRAPHIC FINDINGS**

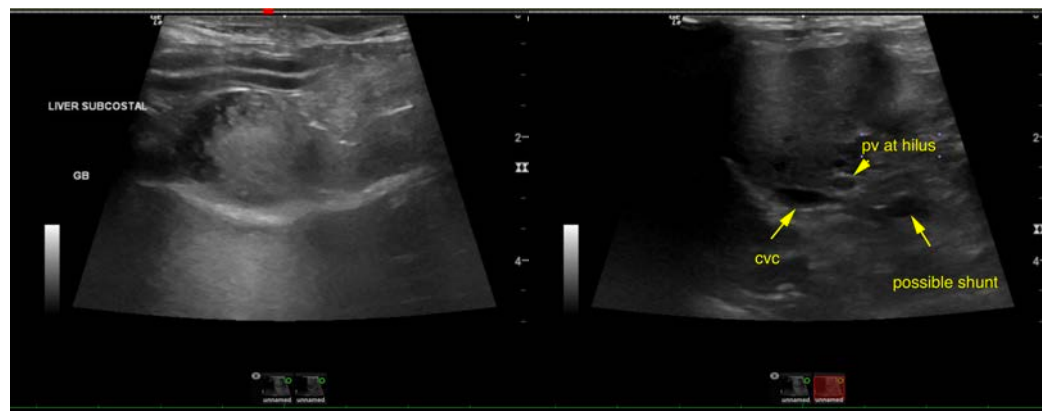
- Microhepatica
- Minor urinary bladder debris

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Subjectively the liver appeared to have subnormal vascular volume, which would suggest portosystemic shunt. However, given that the vena was normal in size, the termination of a potential shunt would likely be the azygos vein. CT with contrast warranted. Causes of acute hepatic insult causing the high ALT such as mushroom toxicity, Leptospirosis and similar or other toxin or infectious agents should be considered. A clinical trial of the following is recommended. Ampicillin warranted to treat for Leptospirosis in endemic in your origin.

**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**

Bella Barajas

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

Intact Female

**AGE**

8 Years

**WEIGHT**

3.9 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Loetitia-Saint Jacques,  
LVT, RVT

**HOSPITAL NAME**

Animal Medical  
Center of Reno

**REFERRING VET**

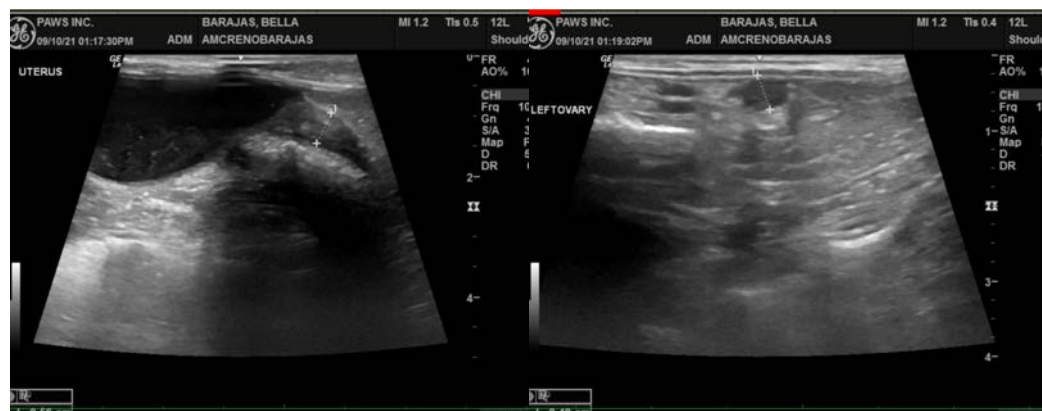
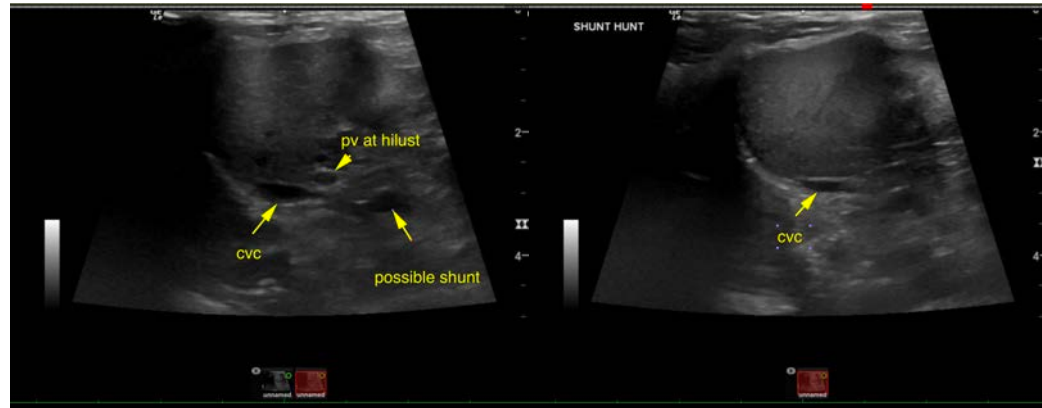
Dr. Eryn Taormina

**INVOICE**

25340

**DATE**

9/11/21





**PATIENT**

Bella Barajas

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

Intact Female

**AGE**

8 Years

**WEIGHT**

3.9 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Loetitia-Saint Jacques,  
LVT, RVT

**HOSPITAL NAME**

Animal Medical  
Center of Reno

**REFERRING VET**

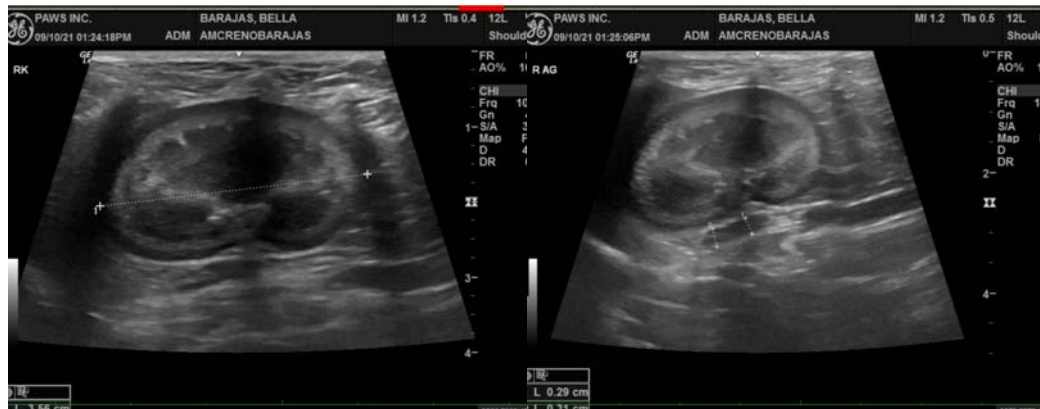
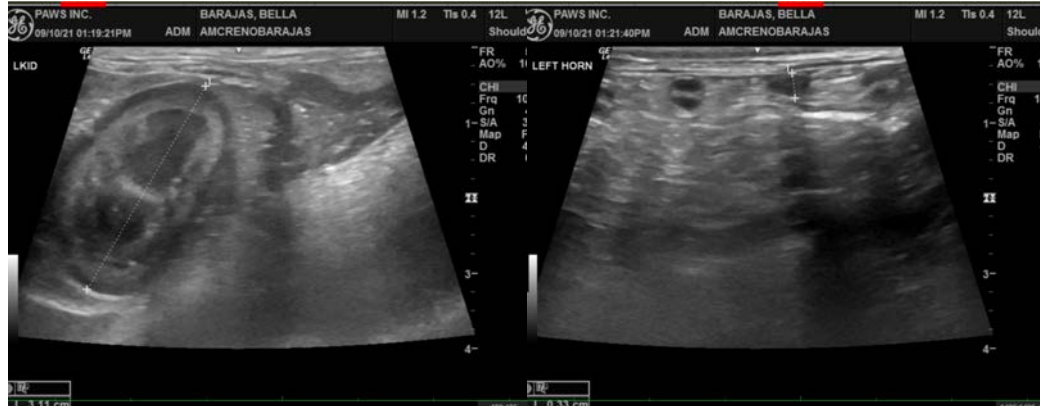
Dr. Eryn Taormina

**INVOICE**

25340

**DATE**

9/11/21



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