



**PATIENT PRESENTING CLINICAL SIGNS**

Nina Carver Clinical Exam Findings: PE: WNL. \*History of seizures\*

Abnormal lab-work values:

**SPECIES**

Historic elevated liver enzymes

Canine

02/2022- ALT 123; ALk P 1461- rx Denamarin- abd U/S performed by Cypress Mobile

04/18/2022- ALT 126; 1756- Continued Denamarin

10/07/2022- ALT WNL; ALK P 1952- Performed Bile acid study- WNL

**BREED**

Siberian Husky

02/17/2023- Increased ALT 129 (18-121);- Increased ALKP 2569 15-16x Normal;- Increased Conj Bili 0.2 (0-0.1);- Increased Lipase ENDOCRINE -- Decreased TT4 = 0.7

IDEXX 4DX - All assay results are NEG.

02/20/2023- ALT - MILD ELEVATION (159), ALKP - 10X NORMAL (2509); T4 - 0.8. LOW.

03/23/2023- ALT 153; ALKP > 2500;

2/17/23 - PHENOBARB LEVEL: (22.1) In IDEAL therapeutic range.

**SEX**

Female Spayed

Current Medications: Denamarin; Phenobarbital 64.8 1 tab BID; Kepra XR ER 500 1 T BID

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**AGE**

**Urinary System**

NP

The urinary bladder and visible portion of the pelvic urethra are normal for the degree of luminal distension. The urine is anechoic with no evidence of debris. Cystic calculi and discrete masses are not observed. The region of the trigone and visible portion of the proximal urethra are normal.

**WEIGHT**

68 lbs

The left kidney is normal in size (6.59 cm in length) with a normal shape, architecture and smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal to mild loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**INTERPRETED BY**

Andrea Nicastro, DVM,  
Diplomate ACVIM (*Small Animal Internal Medicine*)

The right kidney is normal in size (7.39 cm in length) with a normal shape, architecture and smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal to mild loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**IMAGING PERFORMED BY**

Andrea Nicastro, DVM,  
Diplomate ACVIM (*Small Animal Internal Medicine*)

**Adrenal Glands**

The left adrenal gland is normal in size (0.42 cm at cranial pole) (0.42 cm at caudal pole) with a normal shape and homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

**HOSPITAL NAME**

Southside AH

The right adrenal gland is in normal size (0.43 cm at cranial pole) (0.55 cm at caudal pole) with a normal shape and homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

**REFERRING VET**

Michael Forcier

**Spleen**

The spleen is normal in size (1.84 cm in width at the level of the hilus) with a normal capsular contour. There is appropriate echogenicity and echotexture. No focal lesions are observed. Splenic vasculature is normal.

**INVOICE**

12526

**Liver**

The liver is subjectively prominent in size with normal curvilinear peripheral contours. The parenchyma is hyperechoic relative to the spleen and diffusely mottled in appearance, with a few, small, ill-defined

**DATE**

3.27.23

hypoechoic nodules throughout the organ. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion.

The gall bladder lumen is moderately distended. The wall is thin and smooth. A moderate amount of aggregated, echogenic suspended sludge in a partially stellate pattern is observed within the lumen. The cystic and common bile ducts are normal/not seen.

### ***Gastrointestinal***

The stomach and intestine are free of stasis and exhibit normal peristaltic activity. The gastric lumen is mildly distended with ingesta. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The pyloric outflow tract is patent. The small intestinal lumen is segmentally dilated with chyme. The small intestinal wall is normal in thickness with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The colonic wall is normal. There is no evidence of an obstructive pattern.

### ***Pancreas***

The region of the pancreas is isoechoic relative to surrounding omental fat. No obvious parenchymal abnormalities are observed. There is no evidence of regional inflammation or effusion.

### ***Free Abdomen***

The peritoneal cavity is normal. There is no evidence of inflammation or effusion. The abdominal lymph nodes are normal/not visible.

### ***Other***

A brief echocardiogram reveals no evidence of pericardial effusion or obvious right atrial/auricular mass.

## **ULTRASONOGRAPHIC FINDINGS**

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### **Primary Findings**

- The gall bladder changes are consistent with an emerging mucocele.
- The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, regenerative nodular hyperplasia, and/or age-related remodeling. Inflammatory and infiltrative disease are considered less likely. The ALP elevation may also be, in part, due to enzyme induction by phenobarbital.

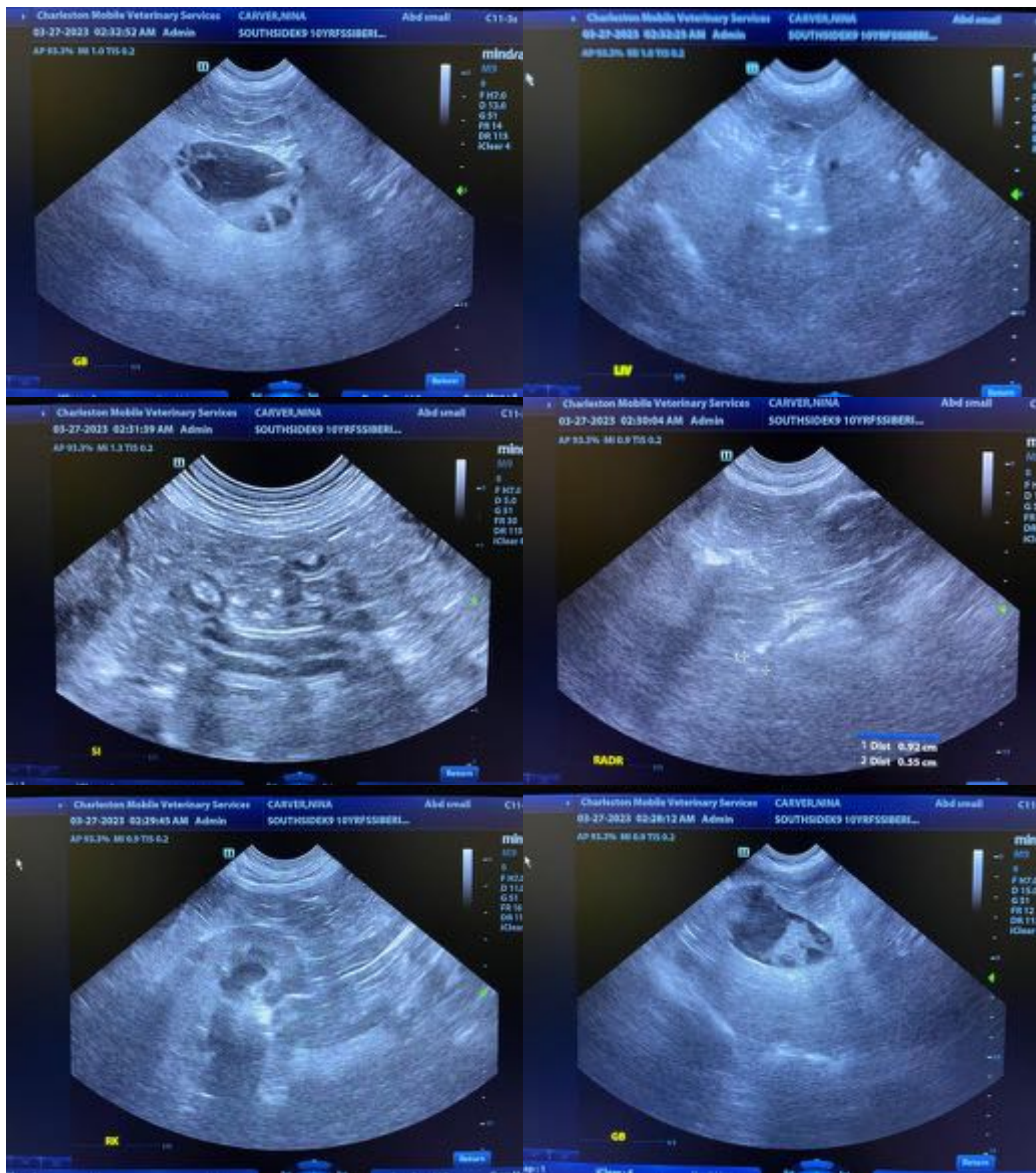
### **Secondary Findings**

- Minor bilateral age-related remodeling renal changes

## **INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

- Given the gall bladder changes, Ursodeoxycholic acid (Ursodiol) is recommended. Serial sonographic monitoring (e.g., every 8-12 weeks) of the gall bladder is recommended to assess for progression to a fully formed mucocele. If progression occurs, a cholecystectomy may be warranted.

- Recheck of the patient's liver values is recommended in 8-12 weeks. If values continue to increase, a repeat abdomen ultrasound +/- a more advanced hepatic work-up (i.e., tissue sampling) may be warranted. In addition, the patient may need to be tapered off of phenobarbital if liver values continue to worsen.





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.

**Andrea Nicastro, MPH, DVM, Diplomate DACVIM (Small Animal Internal Medicine)**  
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