

## PATIENT

Khloe Yarbrough

## SPECIES

Canine

## BREED

Miniature Schnauzer

## SEX

Spayed female

## AGE

4 years

## WEIGHT

16.2 lbs

## INTERPRETED BY

Eric Lindquist, DMV,  
DABVP, Cert. IVUSS

## IMAGING PERFORMED BY

Sara Hansen

## HOSPITAL NAME

West Salem AH

## REFERRING VET

Dr. Sirianni

## DATE

2/2/23

## Invoice

42529

## PRESENTING CLINICAL SIGNS

History: Dental done 11/1/2022, pre surgical blood work showed increased ALT, patient was placed on Denamarin and dental was performed. Decreased appetite after dental. Recheck blood work showed decreased ALT but still elevated, continued Denamarin. Pt then came in for blood in urine, recheck blood work and ALT significantly increased.

Abnormal PE/Chem/CBC/UA Results: 10/31/2022 ALT 486 12/07/2022 ALT 241 1/26/2023 ALT 2525 Alkp 344 Current Medications Denamarin Radiographic Findings no concerns

## 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 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. The left kidney measured 3.8 cm. The right kidney measured 4.1 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 2.31 x 1.15 cm at the cranial pole and 0.54 cm at the caudal pole. The left adrenal gland measured 1.43 x 0.47 cm at the caudal pole and 0.36 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 was noted.

### Liver

The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Vascular and biliary tracts were of



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normal volume with no evidence of congestion. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident.

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***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.

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***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.

**AGE**

4 years

***Free Abdomen***

A large amount of falciform fat was noted in this patient.

**WEIGHT**

16.2 lbs

**ULTRASONOGRAPHIC FINDINGS**

Structurally unremarkable abdomen, likely reactive hepatopathy. No evidence of hepatic disease.

**INTERPRETED BY**

Eric Lindquist, DMV,  
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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Ultrasound-guided FNA was performed upon the liver without complication. Leptospirosis titers are warranted and investigation of any inciting cause.

**IMAGING PERFORMED BY**

Sara Hansen

The hepatic clinical sonographic presentation is most consistent with Reactive Hepatopathy which is the most common cause of liver enzyme elevation in dogs and cats. The presumption is that gut and other organ antigen stimuli may be causing a low-grade immune response through portal system with which the liver is reacting to causing low-grade enzyme elevations. US-guided FNA could be performed to assess if low grade lymphoplasmacytic inflammation is present that would support this theory. If FNA is performed, please ask the cytologist to emphasize the primary inflammatory cell type. Empirical treatment measures to address this issue can include diet change to hydrolyzed diet, probiotics, deworming, nutraceuticals (SAME, Actigall...), dental exam and cleaning, and potentially antibiotics such as Clavamox. Metronidazole and Tylosin have traditionally been utilized for this purpose but new studies show that both these antibiotics can disrupt the normal intestinal bacterial flora (intestinal dysbiosis) for weeks and up to 4-6 months. Therefore, Metronidazole and Tylosin should be utilized as a last resort if other efforts have not been effective and sonographic organ appearance remains benign.

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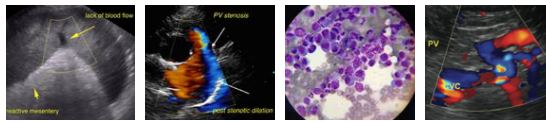
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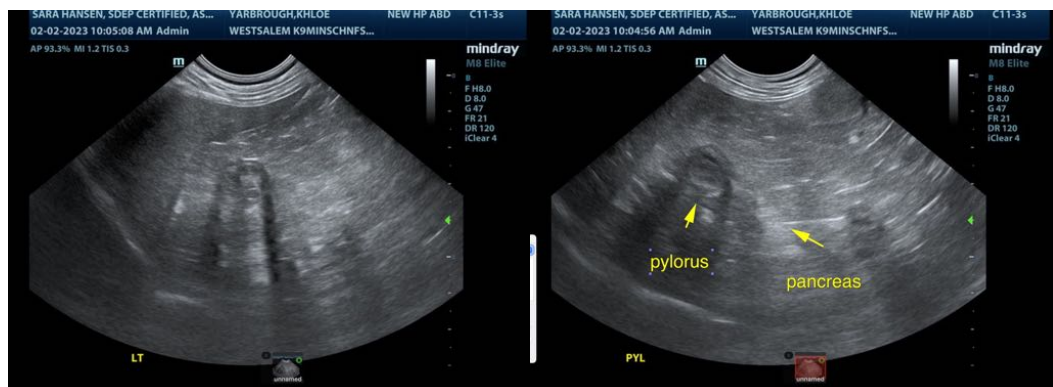
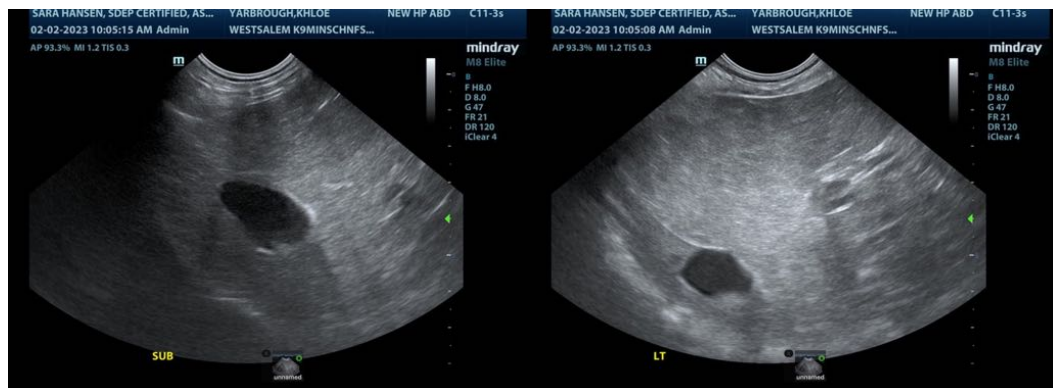
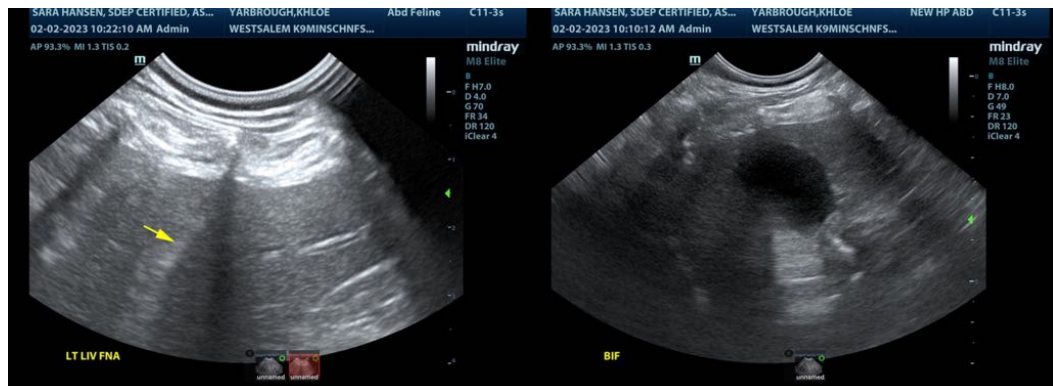
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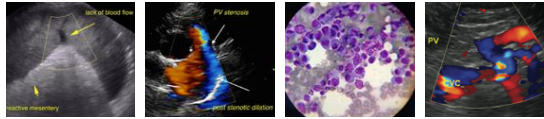
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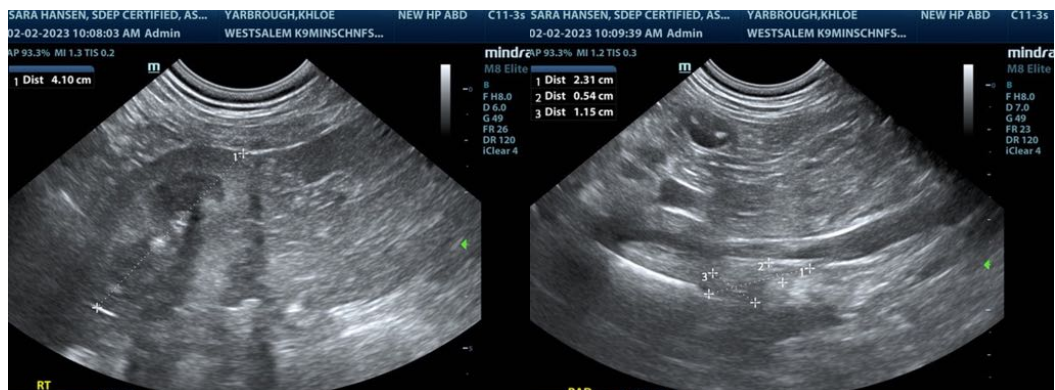
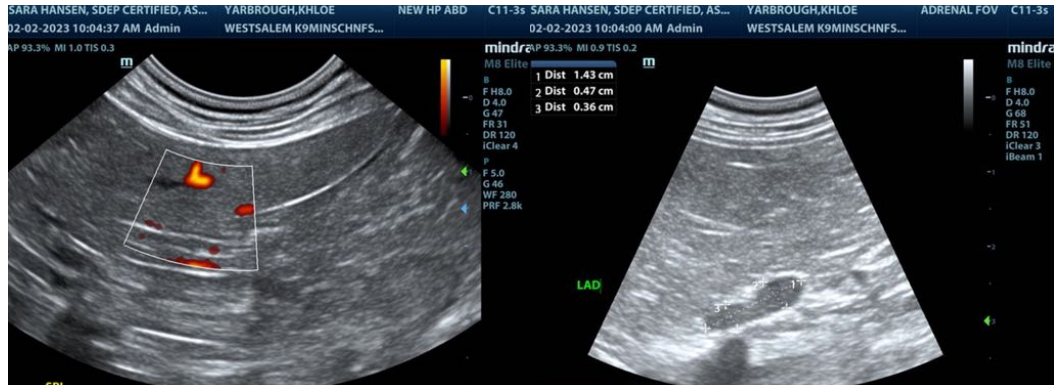
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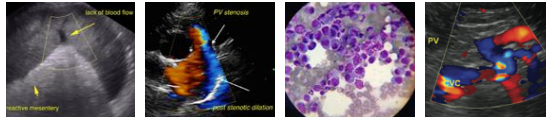


The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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



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Eric.Lindquist@SonoPath.com

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