



## PATIENT

Harley Owens

## PRESENTING CLINICAL SIGNS

## SPECIES

Canine

ALKP trending upward since Jan 2021- has been declining AUS until now- Came in for routine Labs and pre dental exam- doing well at home. No concerns per owner-  
Abnormal PE/Chem/CBC/UA Results: May 2022: ALKP 3545 (results verified) CHOLESTEROL 348 TRIGLYCERIDE 97 Total protein 8.1 Globulin 3.7 All else WNL urinalysis: RBC 21-50, Protein 1+, Occult blood3 + JAN 2021 ALKP 2186 AUGUST 2019 ALKP 915

## BREED

Rat Terrier

## ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

### Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

## SEX

Neutered Male

The prostate is normal in size (0.71 cm) and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

## AGE

11 Years

The left kidney has a normal shape and size (6.01 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

## WEIGHT

25 Pounds

The right kidney has a normal shape and size (5.9 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

## INTERPRETED BY

Kathleen Sennello DVM,  
MS, Diplomate ACVIM  
(Small Animal Internal  
Medicine)

### Adrenal Glands

The left adrenal gland is normal in size measuring 0.65 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

## IMAGING BY

Loetitia Saint-Jacques,  
LVT

The right adrenal gland is normal in size measuring 0.72 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

## HOSPITAL NAME

VCA Lakeside

### Spleen

The spleen is subjectively normal in size, but slightly irregular. The blood flow through the hilus and splenic parenchyma appears normal. There is a hyperechoic shadowing structure towards the tail of the spleen measuring 2.98 cm x 3.42 cm, most consistent with a hyperechoic splenic mass. Additionally, there is an ill-defined hypoechoic lesion measuring 0.63 cm in diameter.

## REFERRING VET

Dr.

### Liver

The liver is large in size, and normal in echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. There is a small hyperechoic nodule

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visualized measuring 0.65 cm as well as an ill-defined, subtle hypoechoic region measuring 1.26 cm x 0.58 cm.

## SPECIES

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The gall bladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. There is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

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### **Gastrointestinal**

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

## SEX

Neutered Male

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. The duodenum measured as normal (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.) Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

## AGE

11 Years

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

## WEIGHT

25 Pounds

### **Pancreas**

The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

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### **Free Abdomen**

Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

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### **Other**

A brief view of the heart was submitted. No significant pericardial effusion was seen.

## ULTRASONOGRAPHIC FINDINGS

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- Hyperechoic, shadowing splenic mass with additional ill-defined hypoechoic lesion – The hyperechoic shadowing lesion appears to be arising from the spleen. This is an atypical mass lesion for the spleen, and could be a very large myelolipoma or other. The appearance of this lesion trends towards a more benign lesion, but it is very large, and there is still the possibility for rupture at some point in the future.

## REFERRING VET

Dr.

- Large, heterogeneous liver with a small hyper- and hypoechoic lesion – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

**SPECIES**

Canine

There is a moderate sized hyperechoic shadowing lesion in the spleen. This is somewhat atypical for a splenic lesion, as it is hyperechoic, but this could represent a large myelolipoma, etc. Options moving forward would include splenectomy for both diagnostic and therapeutic purposes. Alternately, a fine needle aspirate could be considered.

**BREED**

Rat Terrier

Consider three view thoracic radiographs to rule out concurrent thoracic disease/involvement.

The changes observed in the liver are relatively mild and non-specific. The appearance of the two lesions described trends towards a more benign appearance, as these do not disrupt the architecture and are subtle. These are my recommendations for a primary ALP elevation in a canine:

**SEX**

Neutered Male

- Induction phenomena are the most common cause for an elevation in ALP. These are systemic illnesses that 'turn on' the liver enzyme. Causes of this include Cushing's disease, dental disease, arthritis, and numerous others. In many cases the exact cause is unclear but as long as ultrasound and bile acids tests are normal most patients do not have progressive changes in their liver. While liver biopsy is not routinely performed, vacuolar hepatopathy, is noted on most biopsies. This is often non-progressive but in rare cases can be more severe and lead to liver failure.

**AGE**

11 Years

**WEIGHT**

25 Pounds

- If signs of cushings disease are present recommend endocrine function testing to evaluate for cushings disease.
- Consider fine needle aspirate to rule out round cell neoplasia -if this is a concern. Recommend continued monitoring of the two lesions observed within the hepatic parenchyma.
- If a cause for the ALP elevation is not identified: I recommend recheck general blood work every 6 months, ultrasound once per year, and bile acids test every 1-2 years based on other results. If the ALP continues to climb a biopsy could be considered.

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- Consider long term use of denamarin, and monitoring for the signs of cushings developing.
- A primary vacuolar hepatopathy can be breed related and is seen in Scottish Terriers, Schnauzers, Cocker spaniels etc.

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**REFERRING VET**

Dr.

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**SEX**

Neutered Male

**AGE**

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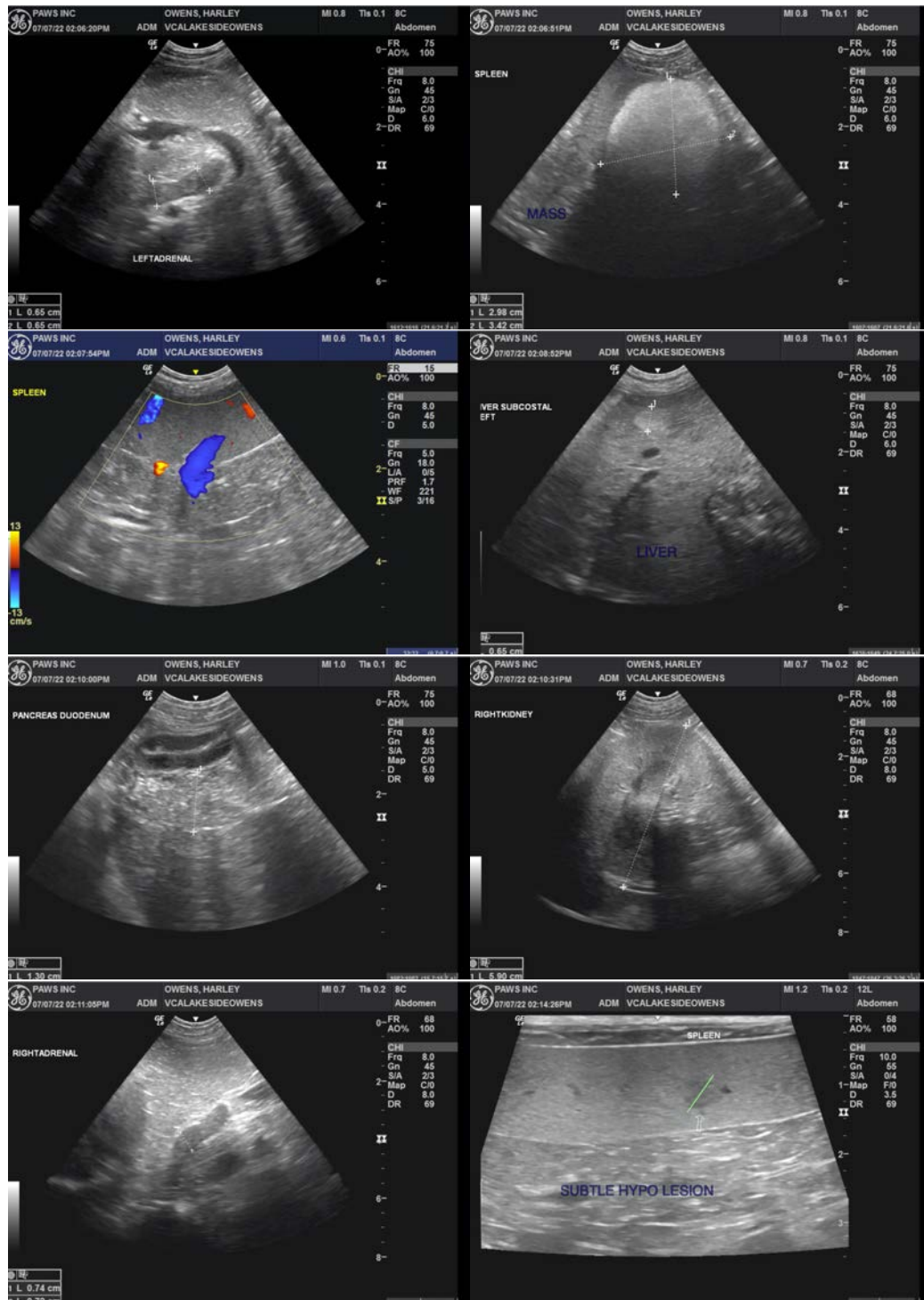
Dr.

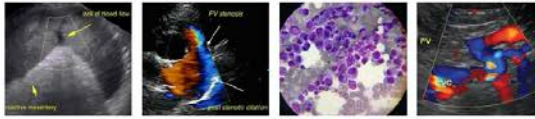
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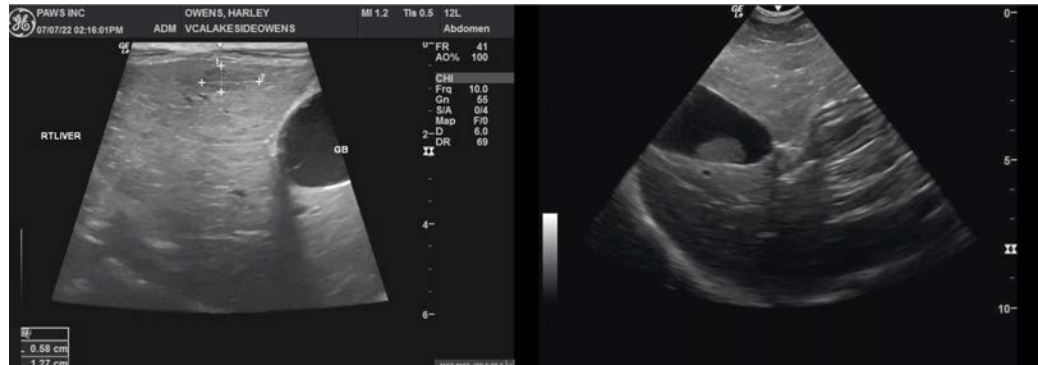
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Kathleen Sennello DVM,MS, Diplomate ACVIM (Small animal Internal Medicine)  
kathleen.sennello@sonopath.com