

**PATIENT**

Sox Vaughn

SPECIES

Canine

BREED

Labrador Mix

SEX

Neutered Male

AGE

10 years

WEIGHT

78.5 Pounds

INTERPRETED BYLisa Carioto, DVM,
DVSc, Diplomate
ACVIM**IMAGING PERFORMED BY**

Amy Mayhew LVT

HOSPITAL NAME

Oxford VH

REFERRING VET

SVS Imaging Michigan

INVOICE

99332

DATE

4/18/22

PRESENTING CLINICAL SIGNS

Annual exam, no reported symptoms. Increased ALT on blood work. ALT value continues to elevate despite being on liver support supplements. Was 255 in December and is now 343

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System**

The urinary bladder is well distended with anechoic contents. The wall is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

Prostate

The prostate is homogenous and within normal limits for a neutered male.

Kidneys

The **left** kidney measures 6.89 cm. The capsule is smooth. The cortex is mildly hyperechoic, yet remains hypoechoic to the spleen. A mild loss of definition of the corticomedullary junction is present. A very mild amount of mineralization is present without no signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 7.45 cm. Findings are similar to the left kidney.

Aortic Bifurcation/Trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.71 cm at the cranial pole, 0.71 cm at the caudal pole. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.61 cm at the cranial pole, 0.63 cm at the caudal pole. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size, architecture, and the capsule is smooth. However, multiple hypoechoic, well circumscribed nodules of variable size, are dispersed haphazardly throughout the the parenchyma. None of the nodules affects the integrity of the capsule. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. Perivascular cuffing is present, Which is not considered clinically significant.

**PATIENT**

Sox Vaughn

SPECIES

Canine

BREED

Labrador Mix

SEX

Neutered Male

AGE

10 years

WEIGHT

78.5 Pounds

INTERPRETED BYLisa Carioto, DVM,
DVSc, Diplomate
ACVIM**IMAGING
PERFORMED BY**

Amy Mayhew LVT

HOSPITAL NAME

Oxford VH

REFERRING VET

SVS Imaging Michigan

INVOICE

99332

DATE

4/18/22

Liver

There are no obvious signs of hepatomegaly. The liver is hypoechoic to the spleen (normal finding). It has a moderately coarse granular echotexture, slightly more than what is normally expected. Its borders are smooth and sharp. Focal lesions are not observed. No abnormalities are observed with the hepatic vessels visualized.

The gallbladder wall is within normal limits in thickness and echogenicity. A moderate amount of echogenic material is present within the GB. The sludge is free floating and gravity dependent. There is no evidence of edema surrounding the GB. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous, i.e. there are no signs of an obstruction.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

The small intestinal wall thickness, including the duodenum, is within normal limits in thickness and the definition of the wall layers is preserved. Subjectively, the mucosa of the duodenum has both fogging and stippling. A mild amount of ingesta is present. Abnormally dilated loops of bowel are not observed. No abnormalities are observed with peristalsis of the GI tract.

A large amount of fecal matter that is semi formed is present in the colon. The colonic wall is not thickened and mural detail is considered normal.

There are no obvious signs of a mass, foreign body, infiltrative disease or an obstruction in the gastrointestinal tract.

Pancreas

No overt abnormalities are observed with the parenchymal echogenicity or echotexture. There is no evidence of hyperechogenicity of the surrounding mesentery, i.e., signs of active pancreatitis are not present.

Other**Lymph nodes**

No abnormalities are observed

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- Although Multiple nodules are present in the spleen their appearance is suggestive of nodular or lymphoid hyperplasia. Extramedullary hematopoiesis is another differential diagnosis. Neoplasia, such as lymphoma, mast cell or other round cell tumour, is considered unlikely. However, an ultrasound-guided fine needle aspirate (FNA) would be necessary to confirm the suspicion of a benign diagnosis.

**PATIENT**

Sox Vaughn

- An obvious cause for the elevated ALT enzyme activity is not identified on today's abdominal ultrasound. The hepatic changes are suggestive of a reactive hepatopathy. However, some of the changes may also be consistent with chronic hepatitis.

SPECIES

Canine

- Labrador retrievers are predisposed to copper hepatopathy, which may be exacerbated due to diet, therefore, the evaluation of Sox's diet is recommended. Cholestasis, immune mediated hepatitis, hepatitis due to infectious causes, toxin exposure, medications, etc., as well as cholangitis/cholangiohepatitis are other differential diagnoses that cannot be excluded. A liver biopsy with copper quantification of tissue is required to diagnose copper hepatopathy. It will also help exclude neoplasia, albeit considered unlikely.

BREED

Labrador Mix

- The presence of sludge in the gallbladder is most likely clinically insignificant, however, some dogs may show clinical signs of gastroesophageal reflux disease (GERD), therefore, obtaining a history regarding signs of GERD from the client is suggested. Treatment with ursodeoxycholic acid may be required depending on the patient's history.

SEX

Neutered Male

- Very mild renal changes suggestive of age related degeneration.

AGE

10 years

- The adrenal glands are at the high end of the normal reference range; not clinically significant at the moment.

WEIGHT

78.5 Pounds

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Evaluation of Sox's diet is recommended

Obtaining a history regarding signs of GERD from the client is suggested.

INTERPRETED BYLisa Carioto, DVM,
DVSc, Diplomate
ACVIM

Obtaining a history regarding all medications, and natural supplements including topical products is recommended to exclude a external hepatotoxin.

Deworming with a broad spectrum dewormer, such as fenbendazole, is suggested even if Sox receives monthly heartworm prevention.

IMAGING PERFORMED BY

Amy Mayhew LVT

As mentioned above, copper hepatopathy, cholestasis and cholangitis/cholangiohepatitis cannot be excluded. Secondary ascending bacterial infections may also occur. Although a fine needle aspirate of the liver can be performed the architecture of the liver is not evaluated and certain diagnoses can be missed. Therefore, liver tissue biopsies are recommended, in addition to measuring copper concentrations of the liver tissue. Another option is to change Sox's diet to one of the hepatic diets available and recheck liver enzymes including, a GGT, in approximately 3 months. Although indiscriminate use of antibiotics is not normally recommended, one could start treatment with a broad-spectrum antibiotic and reassess liver enzyme activities, including a GGT, in a few weeks.

HOSPITAL NAME

Oxford VH

REFERRING VET

SVS Imaging Michigan

INVOICE

99332

DATE

4/18/22

IMAGING PERFORMED BY

SVS Mobile Imaging MI 734-637-7711
svsimagingmi@gmail.com



PATIENT

Sox Vaughn

SPECIES

Canine

BREED

Labrador Mix

SEX

Neutered Male

AGE

10 years

WEIGHT

78.5 Pounds

INTERPRETED BY

Lisa Carioto, DVM,
DVSc, Diplomate
ACVIM

**IMAGING
PERFORMED BY**

Amy Mayhew LVT

HOSPITAL NAME

Oxford VH

REFERRING VET

SVS Imaging Michigan

INVOICE

99332

DATE

4/18/22



IMAGING PERFORMED BY

SVS Mobile Imaging MI 734-637-7711
svsimagingmi@gmail.com



PATIENT

Sox Vaughn

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.

SPECIES

Canine

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.

BREED

Labrador Mix

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

Lisa.Carioto@sonopath.com

SEX

Neutered Male

AGE

10 years

WEIGHT

78.5 Pounds

INTERPRETED BY

Lisa Carioto, DVM,
DVSc, Diplomate
ACVIM

**IMAGING
PERFORMED BY**

Amy Mayhew LVT

HOSPITAL NAME

Oxford VH

REFERRING VET

SVS Imaging Michigan

INVOICE

99332

DATE

4/18/22