



PATIENT

Kiko Youngvorst

PRESENTING CLINICAL SIGNS

History: Kiko has a history of Lyme disease and elevated liver enzymes. He is currently on doxycycline for the Lyme disease. He has had a decreased appetite and is stiff.

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

BREED

Retriever Mix

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.

SEX

Neutered male

The prostate measures 8.6 mm, which is within normal limits for a neutered male. It is homogenous except for a few pinpoint hyperechoic foci, which are most likely due to age-related mineralizations.

AGE

11 years

The **left** kidney measures 7.11 cm (within normal limits for Kiko's weight). The capsule is smooth, however, the cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae are present, without evidence of nephroliths or pyelectasia. Intrapelvic fat is observed. The surrounding mesentery is isoechoic to the cortex.

WEIGHT

73 lbs

The **right** kidney measures 7.64 cm (within normal limits for Kiko's weight).

INTERPRETED BY

Lisa Carioto, DVM,
DVSc, Diplomate
ACVIM

Adrenal Glands

The **left** adrenal gland measures 0.49 cm (oblique view); within normal limits. No abnormalities are noted with the gland's architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

IMAGING PERFORMED BY

A Murphy CVT

The **right** adrenal gland measures 0.62 cm; within normal limits. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

HOSPITAL NAME

Wauwatosa

Spleen

Subjectively, Kiko's spleen is mildly to moderately enlarged, however, no abnormalities are observed with its overall architecture, echotexture, or echogenicity, and the capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. Mild perivascular cuffing consistent with myelolipomas is observed, which is not considered clinically significant. Differential diagnoses for splenomegaly include, antigenic stimulation and secondary inflammation (splenitis), as well as immune-mediated induced inflammation. Other differential diagnoses, such as extramedullary hematopoiesis and reactive hyperplasia are also possible. Neoplasia, such as lymphoma, mast cell tumour, or other round cell tumour, is considered unlikely.

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Liver



PATIENT	There are no obvious signs of hepatomegaly. Liver borders are smooth and are sharp, with some that are slightly rounded. The liver's echotexture is homogeneous, however, it is mildly hyperechoic. No abnormalities are observed with the hepatic vessels. There are no target lesions or other criteria to suggest malignancy.
Kiko Youngvorst	
SPECIES	
Canine	Gall bladder
BREED	The gall bladder is moderately distended with a moderate amount of echogenic material (sludge) within the lumen. The sludge is free floating and gravity-dependent. It is also inspissated, forming nodules, which are also adhered to the wall. The wall is not abnormally hyperechoic or thicker than normal. Its luminal surface is mildly irregular. There are no signs of edema surrounding the gallbladder. The portion of the cystic duct observed is not dilated or tortuous, and the rest of the biliary tree is unremarkable, i.e. there are no signs of an obstruction.
Retriever Mix	
SEX	
Neutered male	Gastrointestinal
AGE	The majority of the gastric wall is within normal limits in thickness, however, a segment of the stomach, approximately 3 cm long, has a thickened submucosa (approximately 0.5 cm) and a loss of definition of the individual wall layers is observed in this same region. The mesentery surrounding the stomach is mildly hyperechoic. An in-depth exam of the stomach is difficult to perform due to the moderate amount of ingesta, fluid and gas present within the lumen. A re-evaluation of the stomach is strongly recommended to ensure a lesion has not been overlooked.
11 years	
WEIGHT	The small intestinal wall thickness, including the duodenum, is within normal limits. The definition of the wall layers is preserved, although mild mucosal fogging is observed in some loops of jejunum. A small amount of liquid ingesta is observed, without signs of abnormally dilation. The colonic wall is not thickened and mural detail is considered normal.
73 lbs	
INTERPRETED BY	
Lisa Carioto, DVM, DVSc, Diplomate ACVIM	Pancreas
IMAGING PERFORMED BY	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.
A Murphy CVT	
HOSPITAL NAME	Other
Wauwatosa	Lymph nodes No abnormalities are observed.
REFERRING VET	Abdominal effusion is not visualized.
Dr. Oakes	
INVOICE	ULTRASONOGRAPHIC FINDINGS
99216	<ul style="list-style-type: none"> The prostate is within normal limits for a neutered male. The small number of pinpoint hyperechoic foci are most likely due to age-related mineralizations. There are no signs of neoplasia. Age-related degeneration of both kidneys are observed. However, glomerulonephritis as a result of an infection with <i>Borrelia burgdorferi</i>, cannot be excluded.
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PATIENT

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- Splenomegaly may be due to antigenic stimulation and splenitis, secondary to an infection with *Borrelia burgdorferi*. Other differential diagnoses, such as extramedullary hematopoiesis and reactive hyperplasia are also possible. Neoplasia, such as lymphoma, mast cell tumour, or other round cell tumour, is considered unlikely.

SPECIES

Canine

- The diffuse hyperechogenicity of the liver is highly suggestive of a vacuolar hepatopathy, which may occur due stress (chronic illness). Hyperadrenocorticism is considered highly unlikely. Differential diagnoses, such as hepatitis, is also considered less likely, however, cholestasis and cholangitis/cholangiohepatitis with a secondary bacterial infection cannot be excluded due to the accumulation of gall bladder sludge.

BREED

Retriever Mix

- Although the presence of sludge in the gallbladder is often clinically insignificant, some dogs may show clinical signs of gastroesophageal reflux disease (GERD), therefore, obtaining a history regarding signs of GERD from the client is suggested. Signs may be present or worse due to nausea associated with the administration of doxycycline. Treatment with ursodeoxycholic acid may be required depending on the patient's history, however, it is not suggested until after the doxycycline has been discontinued.

SEX

Neutered male

AGE

11 years

- The majority of the gastric wall is within normal limits in thickness, however, the abnormal segment of thickened submucosa and loss of definition of the individual wall layers may be due to gastritis secondary to the administration of doxycycline. Gastritis could also explain the mildly hyperechoic mesentery surrounding the stomach, as well as delayed gastric emptying (assuming Kiko was not fasted. An in-depth exam of the stomach was difficult to perform due to the moderate amount of ingesta, fluid and gas present within the lumen, therefore, a re-evaluation of the stomach is strongly recommended to ensure a lesion has not been overlooked. This should be performed 10-14 days after the discontinuation of doxycycline and after an 8 – 12 hour fast.

WEIGHT

73 lbs

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ACVIM

- The intestinal changes may occur due to inflammation secondary to gastritis, although underlying inflammatory bowel disease cannot be excluded. Infiltrative disease, such as lymphoma or other round cell tumour is considered less likely.

IMAGING PERFORMED BY

A Murphy CVT

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Although some of the changes observed with the kidneys may be age related, glomerulonephritis or interstitial nephritis associated with *Borrelia burgdorferi* cannot be excluded.

HOSPITAL NAME

Wauwatosa

A urine culture and sensitivity is suggested. If negative, a urine protein: creatinine ratio is strongly recommended.

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A fundic exam is also recommended, as is an evaluation of the blood pressure, ideally in the presence of the client to minimize the effects of stress.

Fine needle aspirates of the spleen and liver are not considered necessary at this time.

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A trial of analgesics for visceral pain (gastritis, GERD) and/or osteoarthritis, is suggested to exclude pain as a cause of Kiko's decreased appetite and stiff gait. Non-steroidal anti-inflammatory medications should be avoided due to their effects on the GI tract and renal function. Medications such as gabapentin may be considered. Opioids, such as methadone may be administered in conjunction with gabapentin.

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If Kiko was not showing clinical signs of Lyme disease at the time of diagnosis, doxycycline may be discontinued. A dose of 5 mg/kg PO BID may be administered and should be given on a full stomach. If he requires treatment, cefovecin (Convenia) has been proven to be effective against *Borrelia burgdorferi*.

SPECIES

Canine

Although some treatment recommendations have been described, an internal medicine consult may be requested to describe all possible options in further detail. This may be done by email or telephone.

BREED

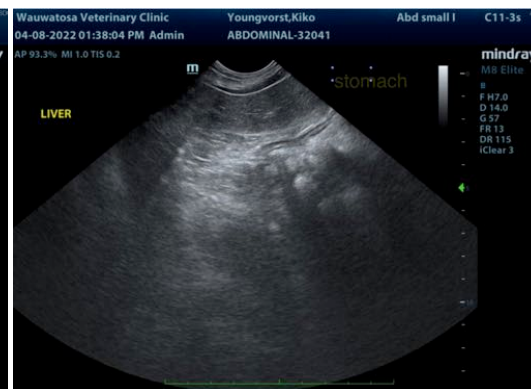
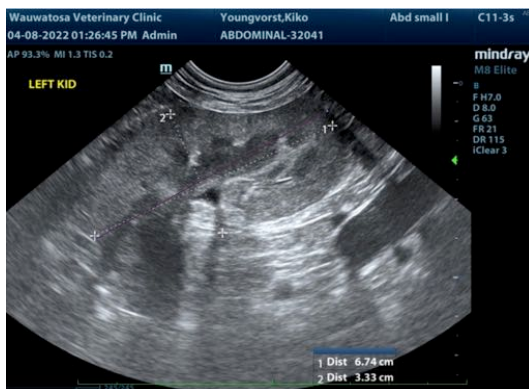
Retriever Mix

SEX

Neutered male

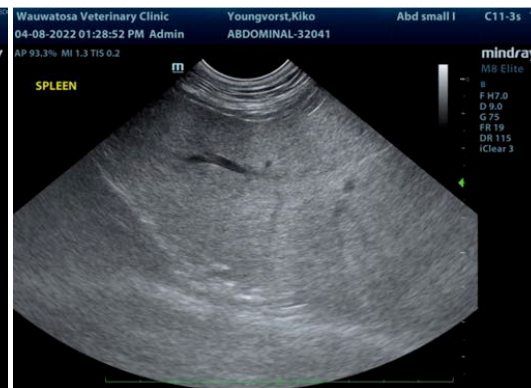
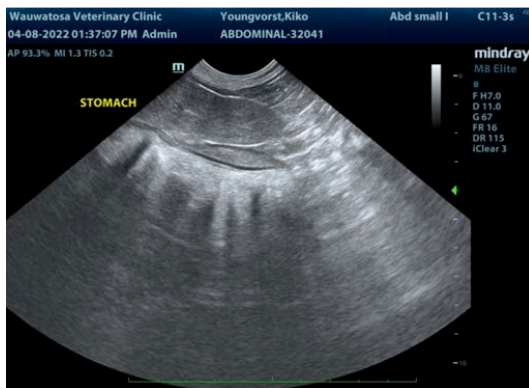
AGE

11 years



WEIGHT

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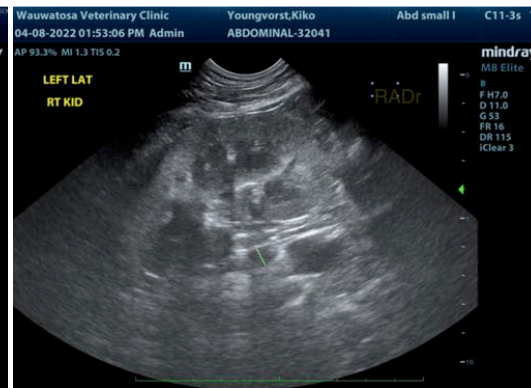
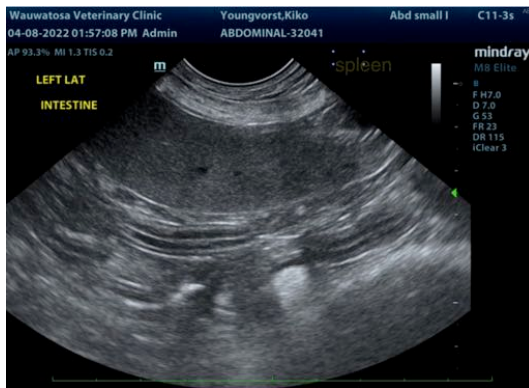
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HOSPITAL NAME

Wauwatosa



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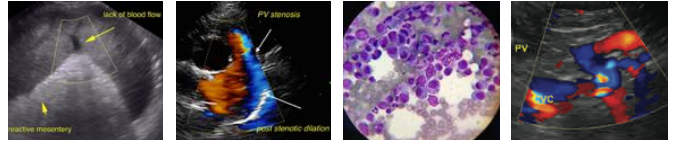
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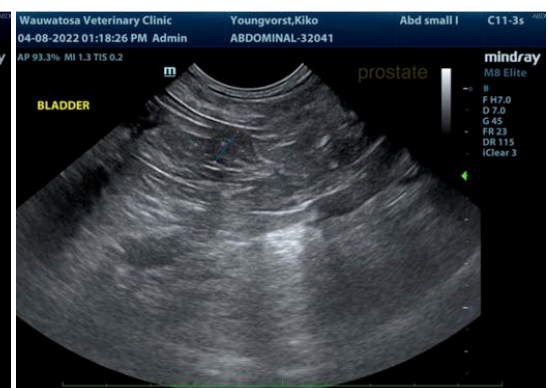
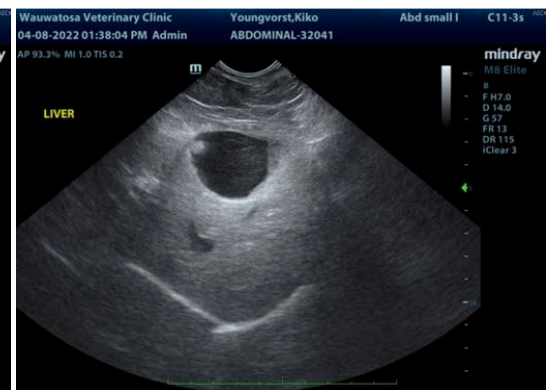
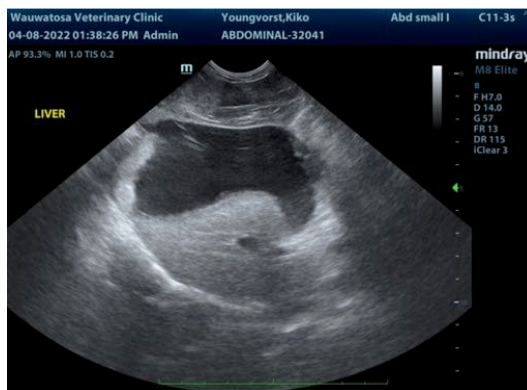
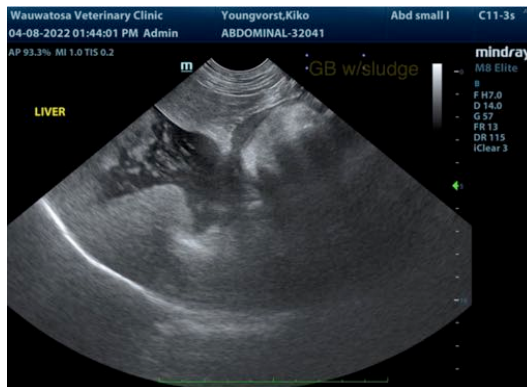
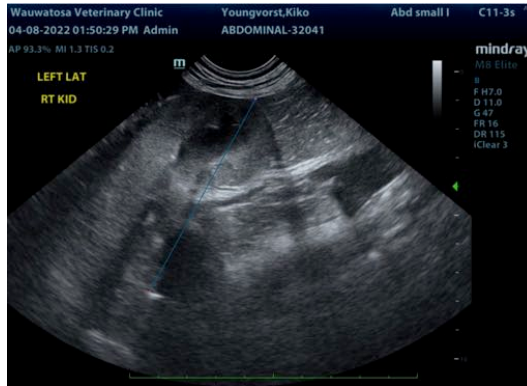
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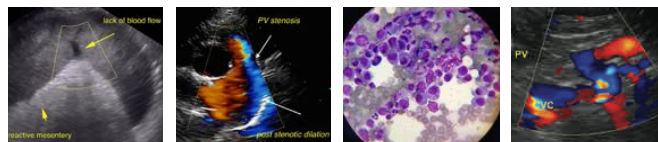
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

Lisa.Carioto@sonopath.com

BREED

Retriever Mix

SEX

Neutered male

AGE

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WEIGHT

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