



PATIENT

Loki Varga

SPECIES

Canine

BREED

Husky

SEX

Spayed Female

AGE

12 Years 10 Months

WEIGHT

72 Pounds

INTERPRETED BY

Lisa Carioto, DVM,
DVSc, Diplomate
ACVIM

IMAGING PERFORMED BY

A. Murphy, CVT

HOSPITAL NAME

Wauwatosa Vet

REFERRING VET

Dr. Elaine Binor

INVOICE

37447

DATE

5/6/22

PRESENTING CLINICAL SIGNS

History of incontinences - on Proin XR 75mg and arthritis - on Galliprant. She is still leaking urine and vomits bile every couple weeks. She pants and paces at night. Defecated in the house last night. Stool smells like ammonia. Bloodwork indicates severe elevation in hepatic enzymes as well as anemia. Plan to image abdomen to rule out neoplasia or other structural diseases in abdomen

Abnormal PE/Chem/CBC/UA Results: RBCs 4.52 (5.39-8.7) HCT 32.2% (38.3-56.5) HGB 10.6 (13.4-20.7) ALT 2869 (18-121) ALK Phos 327 (5-160) Rest of panel is unremarkable

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is adequately 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. Despite the absence of abnormalities, the surrounding mesentery is severely hyperechoic, which is suggestive of inflammation.

Kidneys

The **left** kidney measures 6.78 cm. The capsule is smooth. The cortex is mildly to moderately hyperechoic; it is isoechoic to the spleen. In addition to the overall hyperechogenicity of the cortex, a few hyperechoic ill-defined regions are also observed, which are suggestive of inflammation, ischemia or fibrosis. A mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is mildly hyperechoic, i.e., it isoechoic to the renal cortex.

The **right** kidney measures 7.02 cm. Findings are similar to the left kidney.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.55 cm at the cranial pole and 0.62 cm at the caudal pole. It is "pudgy" or thickened along its length, i.e., it has lost its "kidney bean" shape. No abnormalities are noted with the gland's overall echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland is not visualized.

Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. Perivascular cuffing is observed surrounding multiple blood vessels which is consistent with myelolipomas. This is not considered clinically significant. The mesentery surrounding the spleen is moderately hyperechoic.

Liver

There are no obvious signs of hepatomegaly and its borders are smooth, but rounded. The liver is diffusely hyperechoic, i.e., it is isoechoic to the spleen. The echotexture is mildly to moderately coarse and granular. A hyperechoic nodule, measuring 1.70 cm in height x 1.35 cm in length is noted within



PATIENT	the hepatic parenchyma, which may be associated with a combination of fibrosis, fat, as well as early mineralization.
Loki Varga	
SPECIES	A mass effect is observed in the left liver lobe. It is mildly to moderately heterogeneous, with relatively smooth borders, measuring 6.43 cm in diameter x 7.45 cm in length. The mass consists of the "normal" coarse liver parenchyma with multiple, ill-defined, hyperechoic nodules, as well as hypoechoic areas interspersed amongst the hyperechoic nodules.
Canine	
BREED	When Loki is in left lateral recumbency, the mass has a more heterogeneous appearance, with the hypoechoic areas appearing as anechoic "patches"; they are not cystic or cavitory. A number of the hyperechoic areas are severely hyperechoic and appear as bridging fibrosis.
Husky	The mesentery surrounding the liver and spleen is moderately hyperechoic.
SEX	No obvious abnormalities are observed with the hepatic vessels visualized.
Spayed Female	The gallbladder (GB) wall is very mildly thickened. Subjectively, the wall is mildly hyperechoic. A small amount of echogenic material (sludge) is observed. The sludge is inspissated, forming small nodules, which are adhered circumferentially to the intramural wall. A nodule is also observed within the GB in one of the views. The latter measures 1.69 cm in height x 1.03 cm in length.
AGE	Gastrointestinal
12 Years 10 Months	The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.
WEIGHT	The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved. Abnormally dilated loops of bowel are not observed.
72 Pounds	The colonic wall is not thickened and mural detail is considered normal.
INTERPRETED BY	There are no obvious signs of a mass, foreign body, infiltrative disease or an obstruction in the gastrointestinal tract.
Lisa Carioto, DVM, DVSc, Diplomate ACVIM	Pancreas
IMAGING PERFORMED BY	The left limb has a mildly coarse echotexture, consisting of very small hypoechoic nodules of variable size and punctate, hyperechoic foci, scattered throughout the parenchyma. These changes are suggestive of nodular hyperplasia and fibrosis, respectively, and likely due to age-related changes, and possibly to previous episodes of pancreatitis. Signs of active pancreatitis or neoplasia are not appreciated.
A. Murphy, CVT	The right limb is not visualized.
HOSPITAL NAME	Other
Wauwatosa Vet	Lymph nodes
REFERRING VET	No abnormalities are observed
Dr. Elaine Binor	Abdominal effusion is not visualized.
INVOICE	ULTRASONOGRAPHIC FINDINGS
37447	<ul style="list-style-type: none"> A well-defined, heterogeneous, hepatic mass is observed. An adenocarcinoma is suspected, however, a sarcoma cannot be excluded. Its appearance is not typical of an adenoma. The mesentery surrounding the liver, spleen and kidneys is suggestive of diffuse inflammation.
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- The renal changes are most likely multifactorial; consisting of age-related changes, and possibly glomerulonephritis. Pyelonephritis cannot be excluded.

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- The mesentery surrounding the urinary bladder and urethra is hyperechoic, therefore, a urethritis cannot be excluded.

BREED

Husky

- The pancreatic changes are suggestive of age-related changes, such as nodular hyperplasia and fibrosis. The latter may occur due to age, and possibly secondary to previous episodes of pancreatitis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

SEX

Spayed Female

Thoracic radiographs (3 views) are suggested to exclude metastatic disease.

A fine needle aspirate of the mass is recommended to obtain a definitive diagnosis to determine a more accurate prognosis and appropriate therapeutic plan.

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A coagulation profile is suggested prior to performing a FNA. Administration of vitamin K (0.5 mg/kg SQ q8-12h for 1-3 doses) is suggested even if the results of the PT/PTT are within normal limits.

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Analgesics, such as gabapentin, methadone and possibly amantadine are suggested to help control Loki's discomfort associated with her osteoarthritis and hepatic mass. Multimodal therapy will help decrease the dose of the non-steroidal anti-inflammatory. A NSAID other than carprofen is suggested. For example, meloxicam or deracoxib, as these two drugs have anti-neoplastic effects against carcinomas.

INTERPRETED BY

Lisa Carioto, DVM,
DVSc, Diplomate
ACVIM

Cartrophen may be considered to help treat her osteoarthritis, in addition to laser therapy, although avoid treating the areas in which the hepatic mass may be inadvertently treated, for example, the thoracic vertebrae.

A urine culture and sensitivity is suggested to exclude pyelonephritis.

IMAGING PERFORMED BY

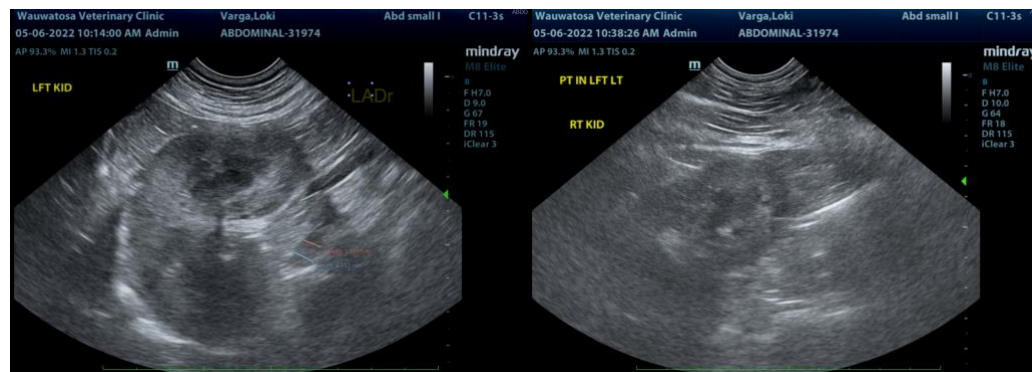
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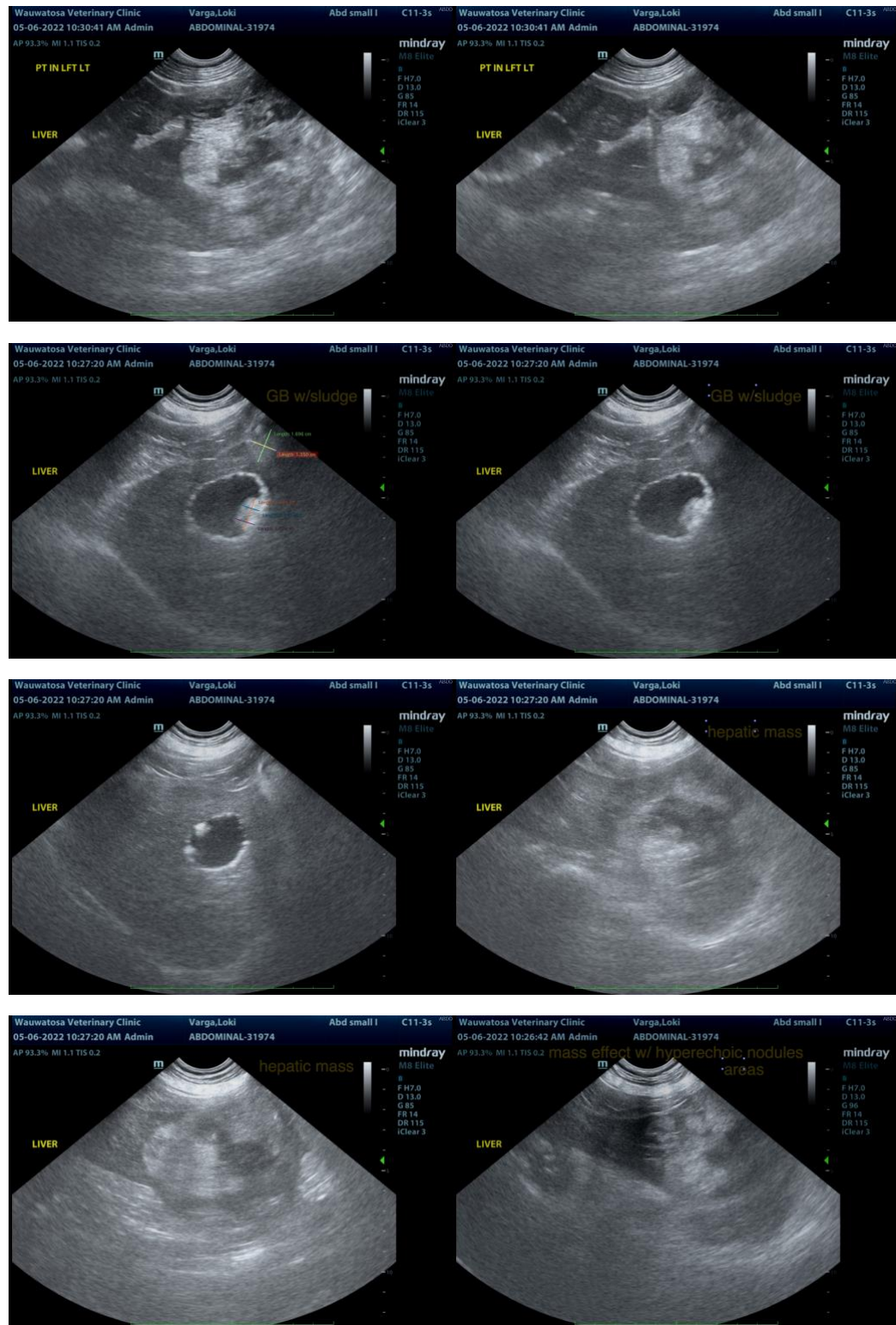
Dr. Elaine Binor

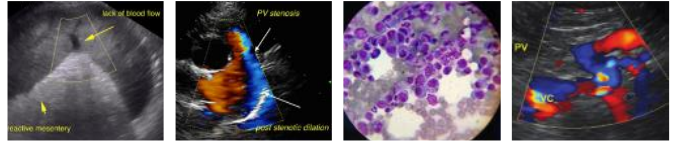
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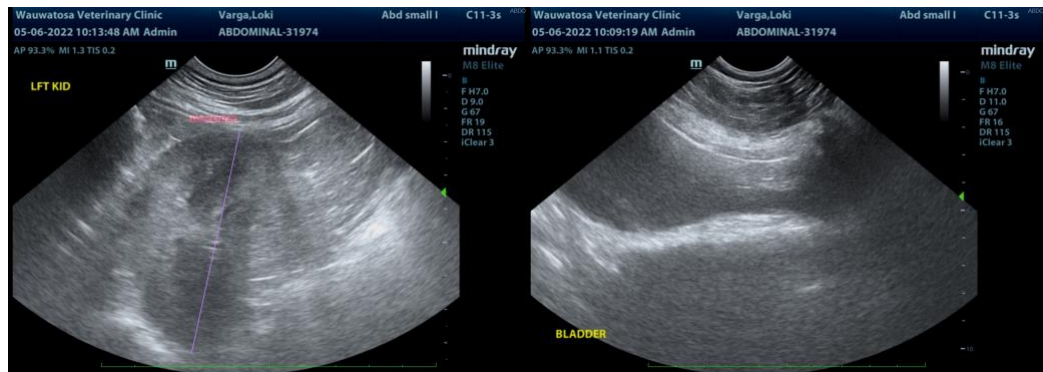
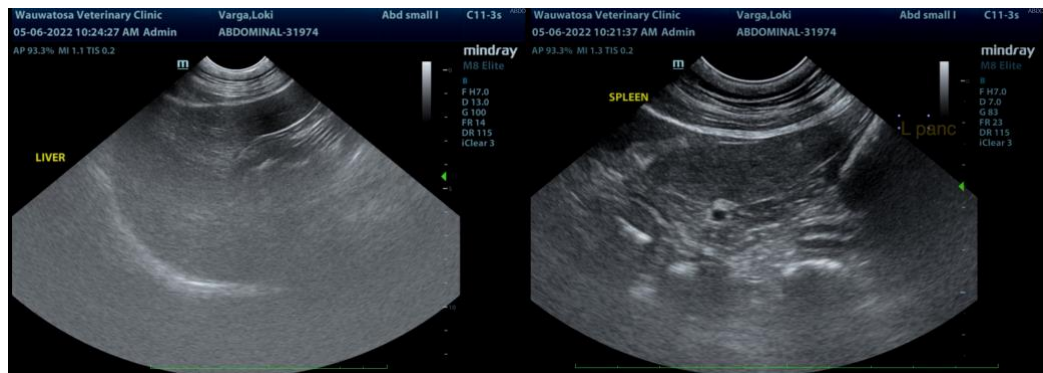
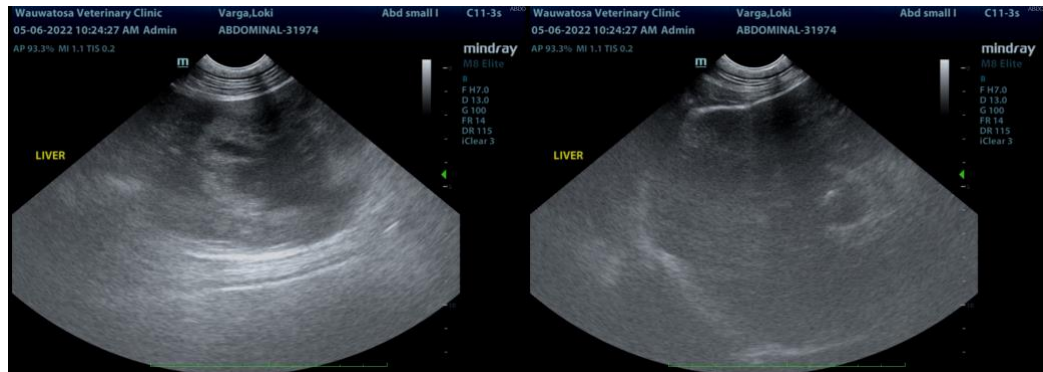
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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

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Lisa.Carioto@sonopath.com

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