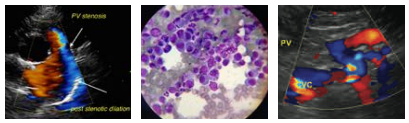
IMAGING PERFORMED BY

IntraPet.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

DATE
6/27/22

PATIENT
Sophie Pendergrass

SPECIES
Canine

BREED
Norwich Terrier

SEX
Spayed Female

AGE
7/26/12

WEIGHT
11.4 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME
Bay Country VH

REFERRING VET
Dr. McLean

INVOICE
31264

PRESENTING CLINICAL SIGNS

Retching non-productively many times a day for approximately 3 weeks. No improvement on Cerenia, Prednisone, or codeine. E/D/U/D fine.
Thoracic rads: NSF Abdominal rads: change to gastric axis - appears V shaped rather than straight. Unsure of significance (if significant) - not seeing obvious mass.
Current Medications: None listed.
Lab Results: NSF.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Rachel Brilhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is not fully distended, however its contents are anechoic. Therefore it is difficult to assess the thickness of the bladder wall. The wall is smooth and regular, except for a very mildly irregular apex. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 3.74 cm. The capsule is smooth. The cortex is slightly hyperechoic, as it is only mildly hypoechoic to the spleen. A very mild loss of the normal definition of the cortico-medullary junction is present. Fat and possible early mineralization are observed along the diverticulae and within the pelvis. There is no evidence of nephroliths. Minimal pyelectasia (0.12 cm) is present. Blood flow is within normal limits. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 4.03 cm. The capsule is smooth. The cortex is isoechoic to the liver. A very mild loss of the normal definition of the cortico-medullary junction is present. Fat and possible early mineralization are observed along the diverticulae and within the pelvis. There is no evidence of nephroliths. Pyelectasia of 0.34 cm is noted in one view. Blood flow is within normal limits. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.56 cm at the cranial pole, 0.57 cm at the caudal pole and 1.77 cm in length. 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 0.66 cm at the cranial pole, 0.58 cm at the caudal pole and 1.73 cm in length. The cranial pole is rounded with the presence of a nodule. A hyperechoic nodule is observed within the nodule (i.e., the cranial pole). The hyperechoic module measures 0.51 cm in diameter by 0.52 cm in length. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

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.

Liver

Hepatomegaly is present, which was also evident radiographically. The liver's borders are smooth, but rounded. The liver's echotexture is homogeneous and it is within normal limits in echogenicity. A hypoechoic nodule measuring 0.48 cm in diameter x 0.81 cm in length is noted subcapsularly. It does not disrupt the integrity of the capsule. A second hypoechoic nodule is observed. It measures 0.33 cm in diameter x 0.63 cm in length. Perivascular cuffing surrounding a few of the larger blood vessels is observed. This may be due to an accumulation of fat, mineralization or a combination of both. Ischemia and fibrosis are not likely based on the appearance of the liver, overall. No major abnormalities are observed with the hepatic vessels visualized.

The **gallbladder** wall is within normal limits in thickness and echogenicity. A trivial to small amount of echogenic material is present within 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. However the mucosa is significantly thickened compared to normal. No obvious abnormalities are noted with the rugal folds or with its peristalsis.

Duodenum and jejunum: Within normal limits in thickness. Definition of the wall layers is preserved, however fogging and mild stippling of the mucosa are noted in the duodenum and multiple segments of the jejunum. A moderate amount of gas is present in the gastrointestinal (GI) tract.

No abnormalities are observed with the ileocecal colic junction.

Abnormally dilated loops of bowel are not observed.

The colonic wall is not thickened and mural detail is considered normal. Gas is present within the colon in addition to formed stools.

Pancreas

The pancreas has a mildly coarse echotexture, and is mildly heterogeneous. It consists of hypoechoic nodules of variable size and and hyperechoic foci scattered throughout the parenchyma. These changes are suggestive of nodular hyperplasia and fibrosis, respectively. Fibrosis may be an age-related change, secondary to previous episodes of pancreatitis, mineralization and amyloid deposition. There is no evidence of hyperechogenicity of the surrounding mesentery. Signs of active pancreatitis or neoplasia are not appreciated.

Other

Lymph nodes
No abnormalities are observed

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Gastrointestinal tract**: Mucosal thickening of the stomach is suggestive of chronic irritation and/or inflammation. Other subtle findings are suggestive of GI inflammation, such as inflammatory bowel

disease (IBD), food intolerance. Although overt signs of neoplasia are not identified, lymphoma, or other round cell neoplasia, cannot be excluded.

- **Liver**: The two **hypoechoic nodules** are most likely associated with nodular hyperplasia, which is a benign, age related change. The nodules are not considered clinically significant.

- **Gallbladder**: Although the amount of **gallbladder sludge** is very small, Norfolk terriers are predisposed to the development of biliary sludge and associated diseases. Signs of cholecystitis are not apparent. Gallbladder sludge is often clinically insignificant, however, Sophie may be suffering from signs of gastroesophageal reflux disease (GERD), which can occur in some patients. Obtaining a history regarding other signs of GERD from the client is suggested. Treatment with an anti-acid or proton pump inhibitor may be required.

- **Pancreas**: The mild heterogeneous, coarse echotexture may be due to age-related changes, as well as fibrosis due to previous episodes of pancreatitis. Obvious signs of acute pancreatitis and neoplasia are not appreciated.

- **Urinary bladder:** Very mild irregularity of the mucosa at the apex, which may be real, or may be due to mild underfilling of the bladder.

- **Kidneys**: Mild degenerative changes of both kidneys are suggestive of *age related degeneration*. The very mild (left) to mild (right) pyelectasia may be due to polydipsia/polyuria, as well as subclinical pyelonephritis. There are no other signs suggestive of pyelonephritis, however, their absence does not exclude a diagnosis.

- **Adrenal glands**: The cranial pole is very mildly increased for a dog of Sophie's stature. The **nodule at the cranial pole** of the **right** adrenal may be due to a benign adenoma or myelolipoma. The hyperechoic nodule within the primary nodule of the cranial pole include fibrosis, ischemia, mineralization, fat, as well as a combination of these. Obvious signs of neoplasia are not appreciated. Hyperplasia of pituitary dependent HAC is considered unlikely.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following are suggested/recommended:

Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid or proton pump inhibitor be required depending on the patient's history (0.7-1 mg/kg PO **q12h**). Sucralfate (liquid) may also be required.

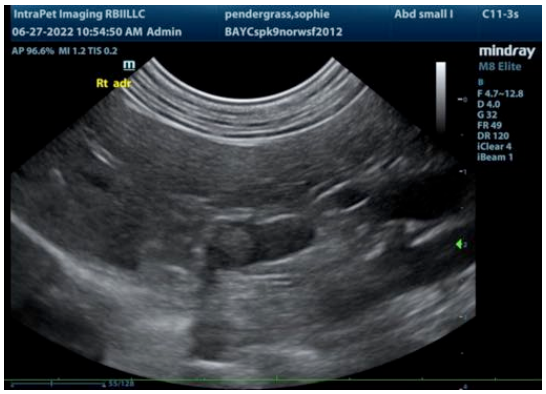
A bland, easily digestible, mildly to moderately low fat diet is suggested.

Cardiomegaly is present on the radiographs. An echocardiogram is recommended given the cardiomegaly and possible compression of the mainstem bronchus by the left atrium. Pulmonary vessels are equal in size, i.e., overt signs of congestive heart failure are not present.

Evaluate Sophie's current diet, ensure not grain free or a raw meat diet for cause of cardiomegaly if a murmur is not present.

Determine Sophie's daily water consumption.

Urinalysis, +/- urine culture, due to urinary bladder and renal changes, respectively.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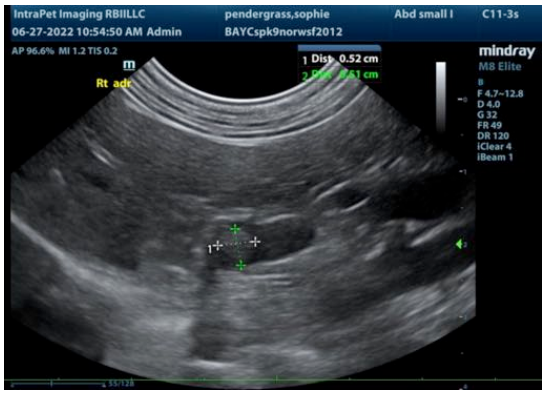
M8 Elite
Rt adr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AP 96.6% MI 1.2 TIS 0.2
mindray
M8 Elite
Rt adr
1 Dist 0.52 cm


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AP 96.6% MI 1.2 TIS 0.2
mindray
M8 Elite
Bladder


IntraPet Imaging RBIILLC
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AP 96.6% MI 1.2 TIS 0.2
mindray
M8 Elite
RT CR
GB/sludge
liver
stomach


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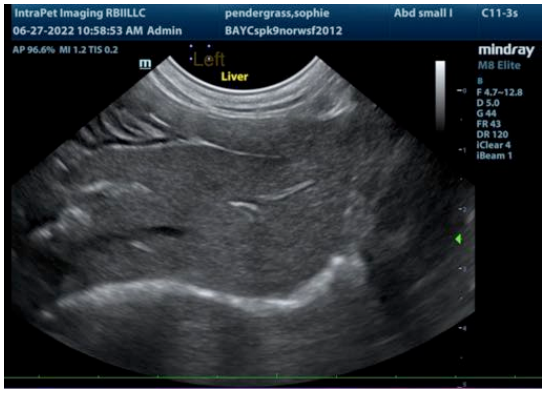
GB w/sludge
Liver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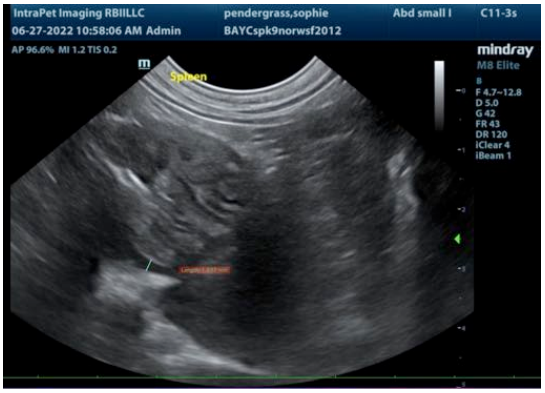
Loft
Liver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mindray
M8 Elite
Spleen


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AP 96.6% MI 1.2 TIS 0.2
mindray
M8 Elite
stomach
Spleen
L liver


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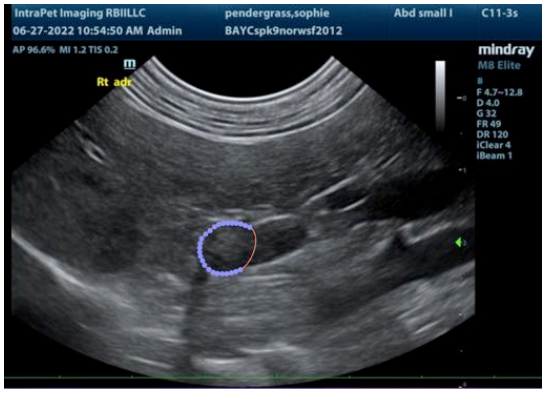
mindray
M8 Elite
CAUD
Fogging of mucosa
jejunum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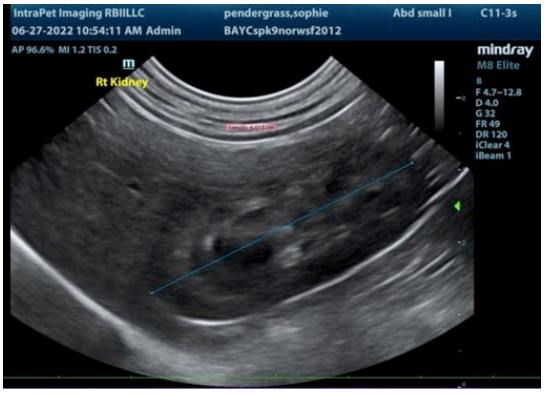
mindray
M8 Elite
Rt adr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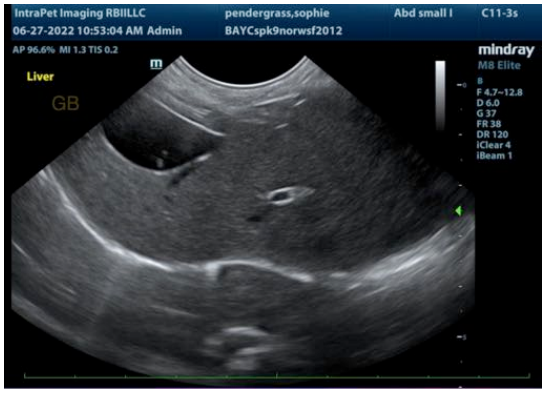
Rt Kidney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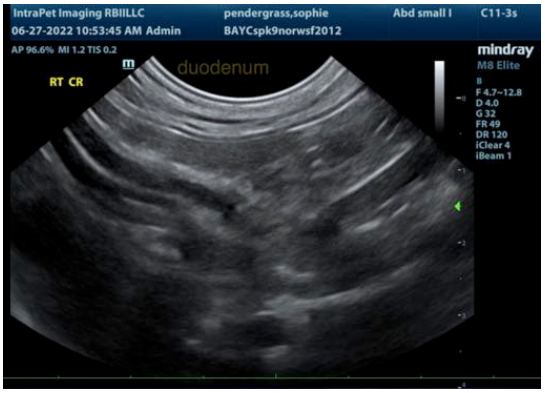
Liver
GB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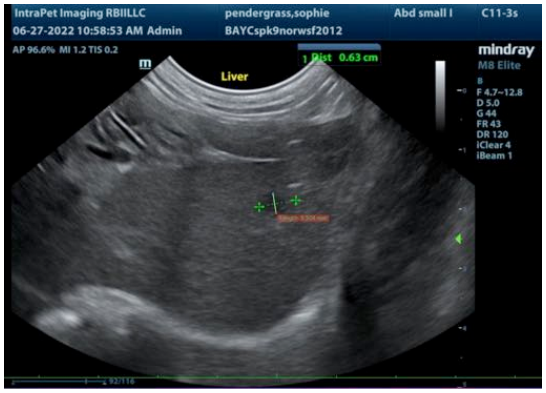
M8 Elite
RT CR
duodenum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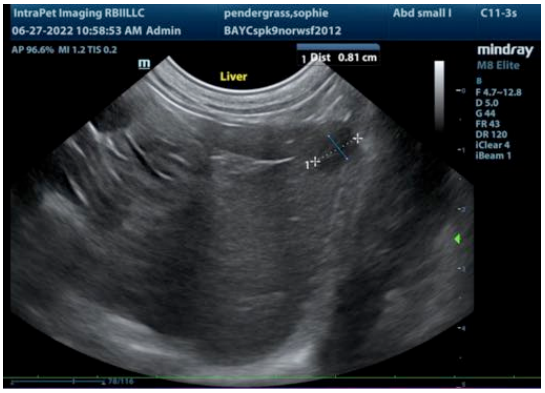
mindray
M8 Elite
1 Dist 0.63 cm
Liver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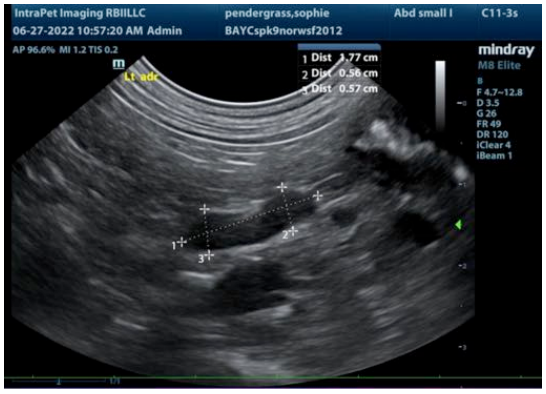
Liver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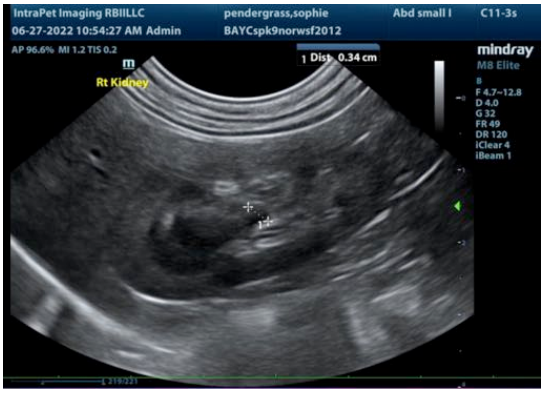
1 Dist 1.77 cm
2 Dist 0.56 cm
3 Dist 0.57 cm
Lt adr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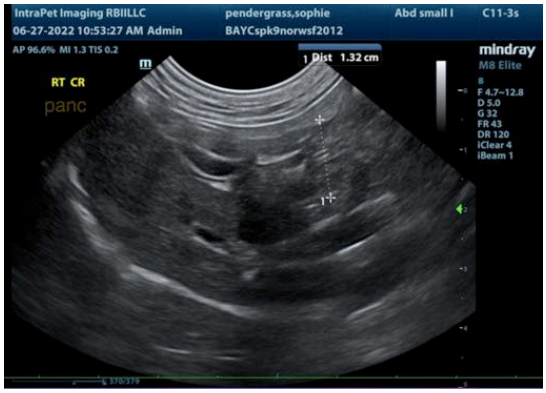
M8 Elite
1 Dist 0.34 cm
Rt Kidney



The information and recommendations provided are based on the images presented by the referring veterinarian. 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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM
Lisa.Carioto@sonopath.com