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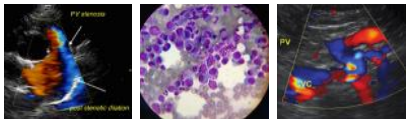


SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

DATE

5/9/22

PATIENT

Ninja Dopkin

SPECIES

Feline

BREED

DSH

SEX

Neutered Male

AGE

10/10/12

WEIGHT

13.8 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Stephanie Pearce RDCS, RVT

HOSPITAL NAME

Cat Hospital at Towson

REFERRING VET

Dr. Brunt

INVOICE

37535

PRESENTING CLINICAL SIGNS

Weight loss, vomiting, GI disease, decreased appetite.

Current Medications: Metronidazole 62mg BID.
Lab Results: See attached.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Dexdomitor/Torbugesic.
Stat Report: Requested by DVM.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is adequately distended, primarily with anechoic contents. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra. A trivial amount of free floating sediment is present, however, there is no evidence of cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 4.58 cm (3.80-4.40 cm). The capsule is smooth. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Small mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. An accumulation of intrapelvic fat is noted. Blood flow is adequate. The surrounding mesentery is moderately to markedly hyperechoic.

The **right** kidney measures 4.85 cm (3.80-4.40 cm); mildly enlarged. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Small mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. An accumulation of intrapelvic fat is noted. Blood flow is adequate. The surrounding mesentery is moderately to severely hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.57 cm in diameter. It is within normal limits in architecture, echogenicity or echotexture, however, it is mildly “plump” and somewhat enlarged for a cat. The phrenico-abdominal vein and surrounding vasculature are unremarkable. The mesentery surrounding the adrenal gland is moderately hyperechoic.

The **right** adrenal gland measures 0.64 cm in diameter. It is enlarged and “plump”, however, no abnormalities are noted with the gland’s overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature are unremarkable. The mesentery surrounding the adrenal gland is moderately hyperechoic.

Spleen

Splenomegaly is present, 14.5 mm (normal = 10 mm). It is within normal limits in echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. The mesentery surrounding the spleen is markedly hyperechoic.

Liver

Hepatomegaly is suspected and its borders are smooth and sharp. The liver's echotexture is homogeneous. It is mildly hyperechoic, i.e., it is isoechoic to the falciform fat. No abnormalities are observed with the hepatic vessels visualized.
The gallbladder (GB) is within normal limits. The GB wall is mildly thickened at 1.27 mm and very mildly hyperechoic. A scant amount of free floating 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

Food, gas and ingesta are present within the lumen of the stomach. 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 varies in thickness. Some layers are at the high end of the normal reference range (0.28 cm). Fogging of the mucosa is present and significant thickening of the muscularis is observed. Fogging of the individual layers of the ileo-cecal-colic junction is present. Abnormally dilated loops of bowel are not observed.

Gas and ingesta are present in the transverse colon.
The colonic wall is not thickened and mural detail is considered normal. Soft stools are present within the colon.

Pancreas

The **left limb** is enlarged and moderately hypoechoic with irregular contours, which is suggestive of edema and pancreatitis. Punctate, hyperechoic foci are scattered throughout the parenchyma in a haphazard fashion. The latter are suggestive of fibrosis, likely due to age-related changes, and possibly to previous episodes of pancreatitis. The surrounding mesenteric fat is markedly hyperechoic, suggestive of saponification. These findings are highly suggestive of active pancreatitis, in addition to chronic fibrosis. A very small amount of anechoic fluid is noted surrounding the pancreas. Overt signs of neoplasia are not noted.

The **right limb** and **body** are mildly enlarged and moderately hypoechoic. Similarly to the left limb, multifocal hyperechoic foci are observed. The surrounding mesenteric fat is moderately to severely hyperechoic. These findings are highly suggestive of active pancreatitis. The multifocal hyperechoic foci may be associated with fibrosis, deposition of fat, and/or amyloidosis. Overt signs of neoplasia are not noted.

Other
Lymph nodes
Mesenteric lymph nodes are visualized due to the severe hyperechogenicity of the mesentery, however, they remain within normal limits in size (0.31 cm). No abnormalities are observed with their echogenicity or echotexture.

Abdominal effusion
A trivial amount of anechoic fluid is noted surrounding the pancreas.

The mesentery is diffusely hyperechoic throughout the abdomen, primarily in the cranial to mid abdomen, which is consistent with severe steatitis.

ULTRASONOGRAPHIC FINDINGS

- High index of suspicion of very severe, acute pancreatitis, with signs of chronic fibrosis, likely due to previous episodes, and possibly age-related fibrosis and/or amyloid deposition. There are no overt signs of neoplasia.

- The gastrointestinal changes are suggestive of inflammation, which may occur due to underlying inflammatory bowel disease (IBD). The definition of wall layers is preserved and the overall thickness of the intestines remains within the normal reference range, therefore, IBD is considered more likely than neoplasia, however, one cannot exclude lymphoma or other round cell tumour, as well as leiomyosarcoma, without performing biopsies.

- A delay in gastric emptying may be present *if Ninja was fasted*, which may occur in patients suffering from IBD. Although no abnormalities are observed with the stomach, the presence of food, gas and ingesta may prevent visualization of pathology, therefore, it may be worthwhile to repeat the ultrasound of the stomach after a longer fasting period of approximately 14-20 hours.

- The hepatic changes may be due to subclinical cholangitis/cholangiohepatitis and cholecystitis. Secondary bacterial infections ascending from the GI tract may also occur. Furthermore, inflammation from the pancreas may also cause inflammation of the liver. A component of the hyperechogenicity of the liver may be due to subclinical hepatic lipidosis.

- Based on the above findings, severe "triaditis" cannot be excluded.

- Bilateral adrenomegaly is suggestive of adrenal hyperplasia secondary to stress and chronic illness.

- Splenomegaly with preservation of the normal architecture. Differential diagnoses include splenitis due to antigenic stimulation and secondary inflammation, including immune mediated induced inflammation. Other differential diagnoses include extramedullary hematopoiesis, hypersplenism and reactive hyperplasia. Neoplasia, such as lymphoma, mast cell tumour, histiocytic sarcoma, or other round cell tumour, is considered highly unlikely, but cannot be excluded. A fine needle aspirate is required to obtain a definitive diagnosis.

- Mild renal changes are present, which are suggestive of age related degeneration. A urinary tract infection and pyelonephritis cannot be excluded based on the urinalysis results and the sonographic signs.

- The scant abdominal effusion may be due to vasculitis, associated with pancreatitis and diffuse systemic inflammation.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A re-evaluation of the urinalysis may be performed and if necessary, a urine culture and sensitivity is suggested to exclude a possible urinary tract infection and pyelonephritis.

Inflammatory bowel disease is suspected, however, tissue biopsies are required to exclude neoplasia.

Treatment for triaditis is recommended for the moment, prior to pursuing further diagnostics as general anesthesia will cause hypotension and risk further pancreatic ischemia.

Hospitalization is recommended.

Intravenous fluids and intravenous analgesics for visceral pain, such as buprenorphine, and possibly CRIs consisting of lidocaine, ketamine, other opioid, if buprenorphine is insufficient is suggested.

Other supportive care, such as maropitant IV once a day during hospitalization and then for a few days following discharge.

Mirtazapine may be helpful as an anti-emetic and appetite stimulant.
Subcutaneous fluids (administered at home, if necessary).

Deworming with a broad spectrum dewormer, such as fenbendazole, is suggested if Ninja goes outdoors or if he lives with other pets that go outdoors.

A veterinary prescription brand hypoallergenic diet, whether hydrolyzed or novel protein, may be tried. Multiple diets may be required, including only canned food, as some individuals cannot digest dry. The kibble may be soaked if an all canned diet is cost prohibitive.

Small, frequent meals are recommended.

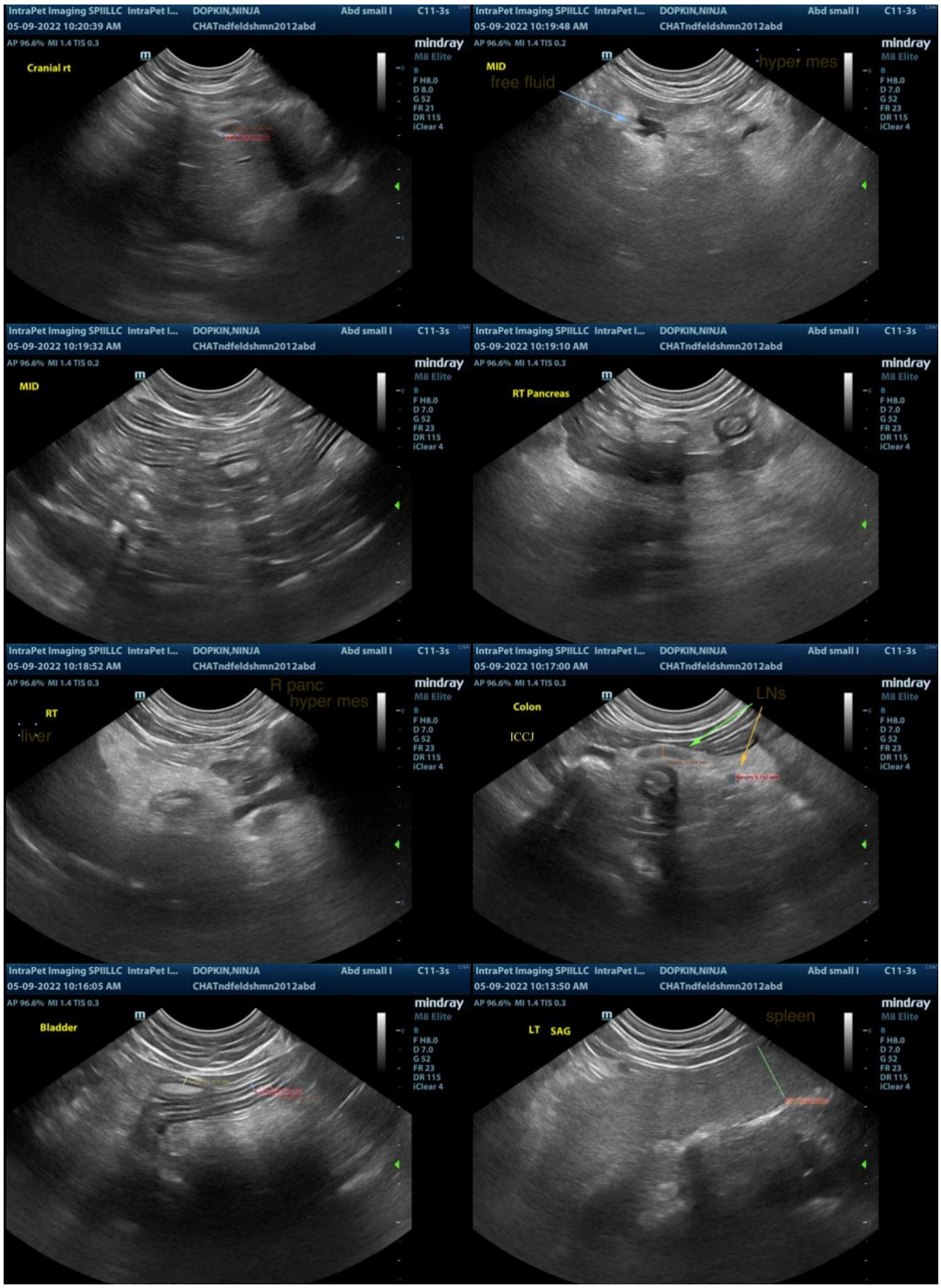
A 10-14 day trial with famotidine or omeprazole may be considered.

As mentioned above, cholestasis, cholangitis/cholangiohepatitis and cholecystitis cannot be excluded, and secondary ascending bacterial infections are common. Although indiscriminate use of antibiotics is not normally recommended, one could start treatment with a broad-spectrum antibiotic. Ninja may not tolerant oral antibiotics. If this is the case, although not ideal, an injection of cefovecin (Convenia) may be tried, i.e., it avoids the GI tract. Discussion with the client that this is not necessarily an ideal drug is suggested, however.
If an improvement is observed, at least 2 additional doses are recommended 10-12 days apart.

If there is no response to the above, endoscopy and biopsies of the upper and lower GI tract are suggested.

If further diagnostics are not pursued, although not ideal, empirical treatment is suggested. For example, prednisolone may be administered (1 mg/kg/day), in addition to a hypoallergenic diet, that is easily digestible, but appetizing to prevent further catabolism and sarcopenia. A tapering dose is pursued after two weeks of administration at the above dose.

Although not imperative due to the low index of suspicions, a fine needle aspirate of the spleen may be performed to exclude neoplasia.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Cranial rt
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Bladder
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AP 96.6% MI 1.4 TIS 0.3
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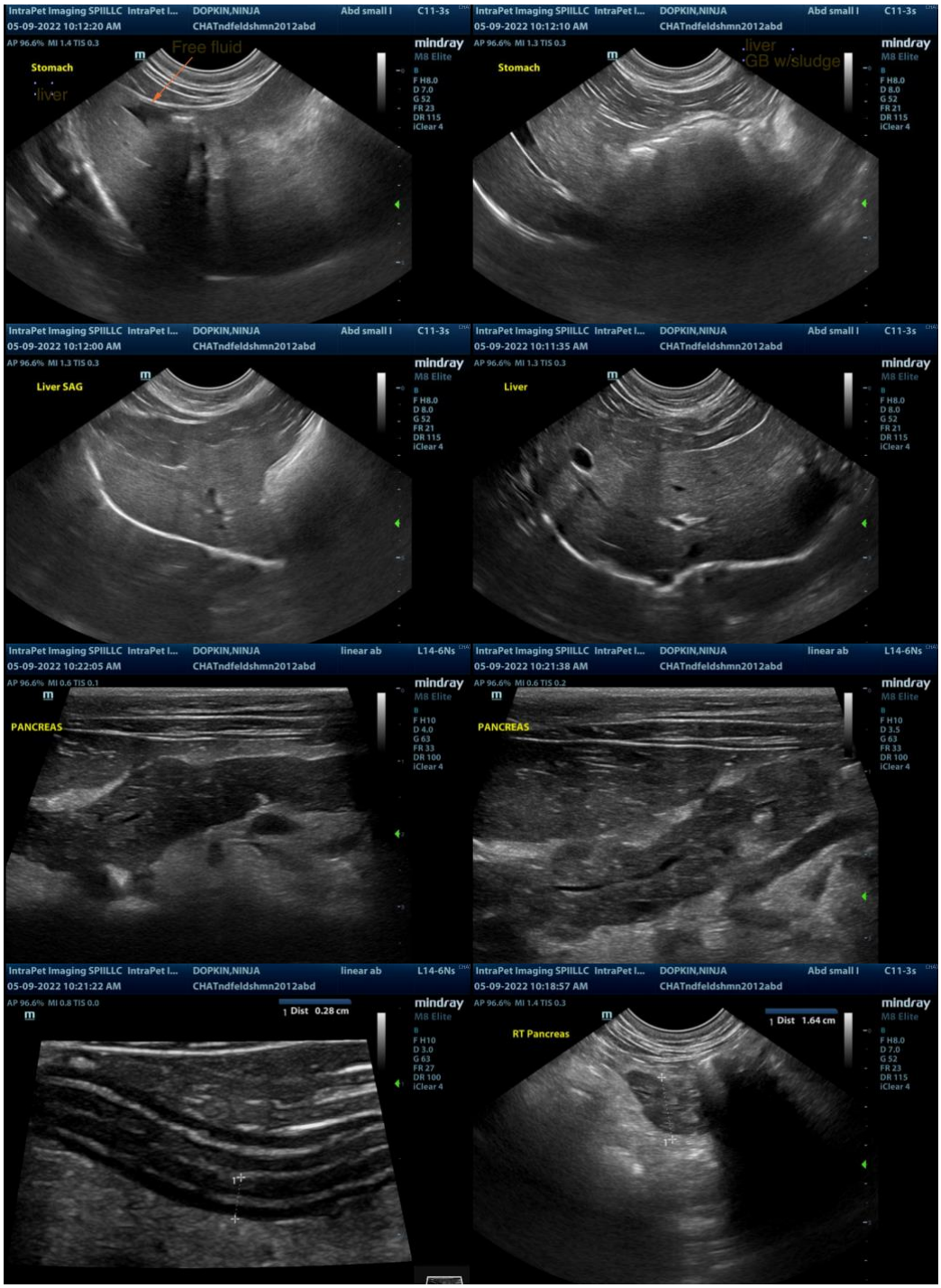
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AP 96.6% MI 1.4 TIS 0.3
Free fluid
Stomach
liver
mindray
M8 Elite
IntraPet Imaging SPIILLC IntraPet I... DOPKIN,NINJA Abd small I C11-3s
05-09-2022 10:12:10 AM CHATndfeldshmn2012abd
AP 96.6% MI 1.3 TIS 0.3
liver
GB w/sludge
Stomach
mindray
M8 Elite
IntraPet Imaging SPIILLC IntraPet I... DOPKIN,NINJA Abd small I C11-3s
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AP 96.6% MI 1.3 TIS 0.3
Liver SAG
mindray
M8 Elite
IntraPet Imaging SPIILLC IntraPet I... DOPKIN,NINJA Abd small I C11-3s
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AP 96.6% MI 1.3 TIS 0.3
Liver
mindray
M8 Elite
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05-09-2022 10:22:05 AM CHATndfeldshmn2012abd
AP 96.6% MI 0.6 TIS 0.1
PANCREAS
mindray
M8 Elite
IntraPet Imaging SPIILLC IntraPet I... DOPKIN,NINJA linear ab L14-6Ns
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AP 96.6% MI 0.6 TIS 0.2
PANCREAS
mindray
M8 Elite
IntraPet Imaging SPIILLC IntraPet I... DOPKIN,NINJA linear ab L14-6Ns
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AP 96.6% MI 1.4 TIS 0.3
RT Pancreas
1 Dist 1.64 cm
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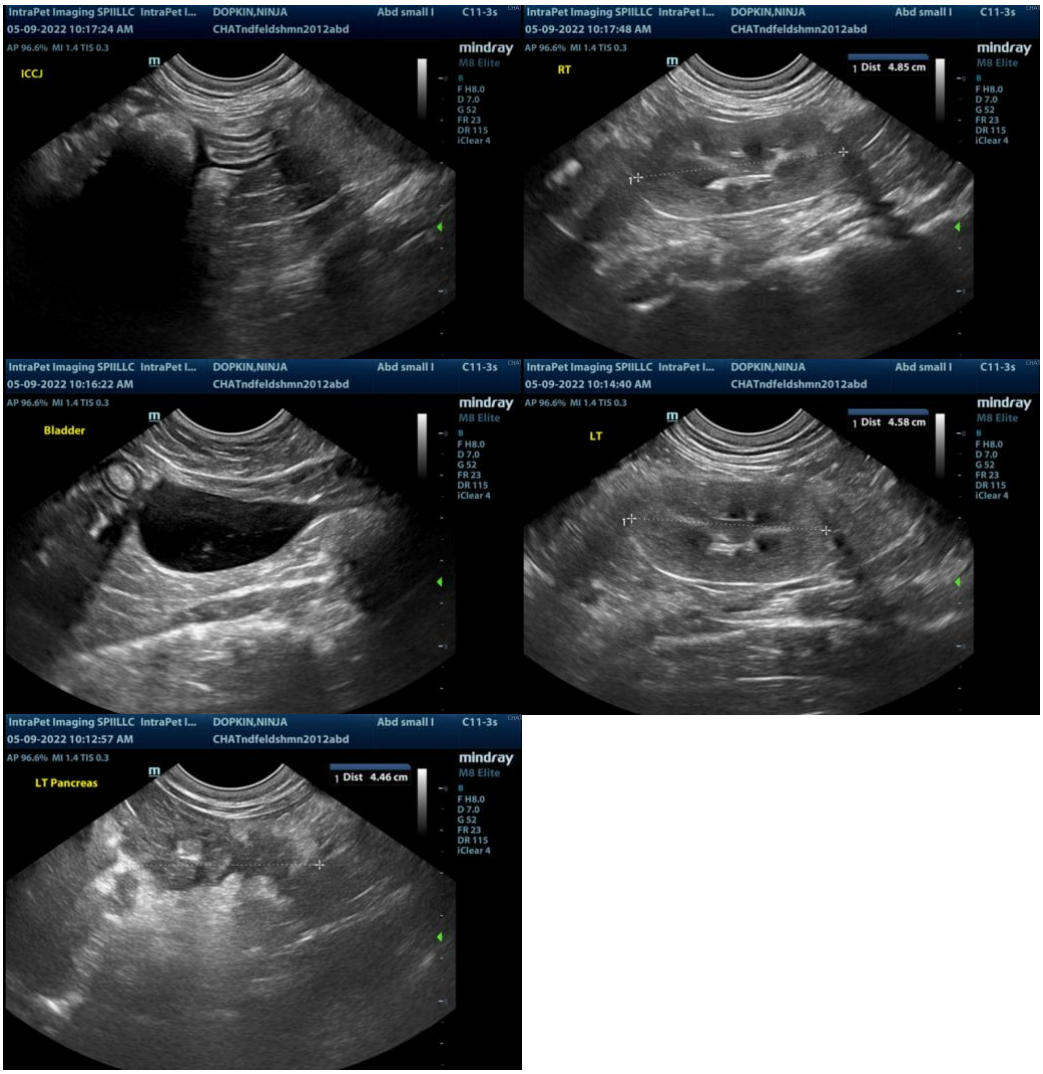
M8 Elite



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.

Lisa Carioto, DVM, DVSc, Diplomate AVIM

Lisa.Carioto@sonopath.com