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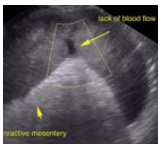

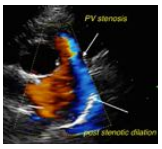

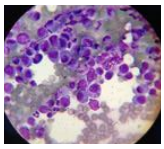
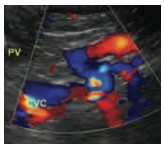

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1-800-838-4268 info@sonopath.com

PATIENT
Slinky Sherman

SPECIES
Canine

BREED
Dachshund

SEX
Spayed Female

AGE
10 years

WEIGHT
21 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Dr. Petrone

HOSPITAL NAME
Long Branch AH

REFERRING VET
Dr. Petrone

INVOICE
31469

DATE
7/5/22

PRESENTING CLINICAL SIGNS

History: Lethargic, decreased appetite, azotemia, proteinuria
BUN: 100 Creatinine: 5.3 USG: 1.013 3+ protein, UPC 2.3

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** is adequately distended. Its contents are primarily anechoic. The wall is not thickened, but at the high end of normal (1.04 mm). It is smooth and regular. No abnormalities are noted with the trigone or proximal urethra. A small amount of free floating sediment is present, and there are no obvious signs of polyps or a mass. A cystolith, at least 8 mm in length, has settled by gravity.

Kidneys

The **left** kidney measures 5.36 cm. The capsule is smooth. The cortex is hyperechoic; it is hyperechoic to the spleen. The cortex also appears thicker than usual. Nephroliths are present along the diverticulae, as well as within the pelvis, causing acoustic shadowing of the parenchyma. An in-depth evaluation of the pelvis is not possible as a result, however, there are no obvious signs of pyelectasia or hydroureter. Nephrolith size varies between 4.1 mm, 4.5 mm and up to 1.3 cm. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 5.15 cm. Findings are similar to the left kidney. One diverticular nephrolith measures 1.1 cm.

Aortic bifurcation/trifurcation

No abnormalities observed.

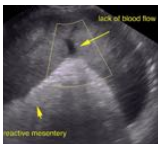
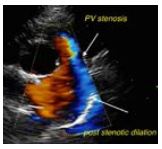
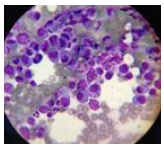
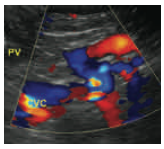
Adrenal Glands

The **left** adrenal gland measures 0.69 cm at the cranial pole, 0.60 cm at the caudal pole. The gland is at the high end of the normal reference range to mildly increased for a dog of Slinky's stature. 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 0.58 cm at the cranial pole, 0.57 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, echotexture, and echogenicity. The capsule is smooth. Pinpoint hyperechoic foci are scattered haphazardly throughout the parenchyma, which are most likely due to mineralizations. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

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Liver

There are no obvious signs of hepatomegaly and its borders are smooth and sharp. The liver's echotexture is homogeneous, but it is moderately hyperechoic, i.e. it is hyperechoic to the spleen. A hypoechoic nodule is observed measuring 0.87 cm in diameter x 1.05 cm in length. Its appearance is suggestive of nodular hyperplasia. No abnormalities are observed with the hepatic vessels.

The gallbladder (GB) is markedly distended with a very large amount of free floating, gravity-dependent, and inspissated echogenic material (sludge). The GB wall is within normal limits in thickness and echogenicity. A crescent shaped outpouching is observed at the greater curvature of the GB. It does not appear to be consistent with edema or free fluid; a diverticulum cannot be excluded. The sludge varies in degrees of echogenicity and enters the cystic duct. The cystic duct is dilated (7.33 mm) and filled with sludge and choleliths of variable size. At least two choleliths casting shadows are noted; 9.7 mm in length and 1 mm in length. Neither the cystic or the common bile duct is dilated or tortuous. An obstruction is not visualized. The parenchyma surrounding the GB is hyperechoic.

Gastrointestinal

The gastric wall is within normal limits in thickness. The muscularis and submucosa are more prominent than normal in certain regions, however, the individual wall layers remain well defined. No obvious abnormalities are observed with its peristalsis.

Ingesta fluid and gas are present within the lumen of the duodenum and remaining small intestines. Peristalsis appears to be within normal limits.

Duodenum: Mild to moderate stippling of the mucosa is noted.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved. Mild to moderate stippling of the mucosa of the jejunum is observed. No abnormalities are visualized 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.

Pancreas

The pancreas has a coarse echotexture, which is considered secondary to age related changes, however, previous episodes of pancreatitis cannot be excluded. There are no signs of active pancreatitis or neoplasia.

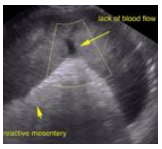
Other

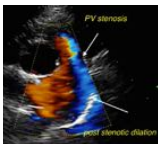
Lymph nodes No abnormalities are observed

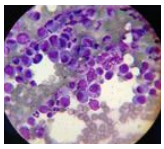
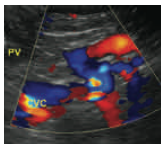
Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Kidneys**: *Bilateral nephrolithiasis* with possible pyelonephritis. Glomerulonephritis cannot be excluded. Although an obvious obstruction is not appreciated, a partial may be present, yet not





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visualized due to the acoustic shadowing. Elevated renal parameters may be due to a partial obstruction, renal and pre-renal disease, as well as pyelonephritis.

- **Urinary bladder**: Single cystolith with a small amount of sediment, without signs of an obstruction.

- **Gallbladder (GB)**: The appearance of Slinky's GB is not consistent with a "classical" mucocele. However, a mucocele in its early development cannot be excluded. Multiple choleliths are present. An obvious rupture is not visualized, however, a diverticulum cannot be ruled out. A suppurative cholecystitis is most likely present. Although the cystic duct is dilated, there is no evidence of obstructive disease.

  The presence of GB sludge and choleliths are not necessarily clinically significant, yet some dogs may show clinical signs of gastroesophageal reflux disease (GERD), therefore, obtaining a history regarding signs of GERD from the client is suggested.

- **Liver**: Cholestasis, cholangitis/cholangiohepatitis with a secondary bacterial infection are differential diagnoses, in addition to a vacuolar hepatopathy. The latter is a non-specific sign and may be due to chronic illness, a form of stress. Occult hyperadrenocorticism may be present. The hypoechoic nodule is most likely due to nodular regeneration, which is a benign, age-related change. There are no obvious signs of neoplasia.

- **Gastrointestinal tract**: Subjectively, the findings are subtle and somewhat subjective, however, they may be suggestive of inflammation in some patients, for example, inflammatory bowel disease. Uremic gastritis may also be playing a role. Findings should be correlated with clinical signs (e.g. history of vomiting and/or diarrhea).

- **Adrenal glands**: The left gland is at the high end of the normal reference range to mildly increased for a dog of Slinky's stature. The right is also on the high end of normal. Adrenal hyperplasia due to chronic illness, a form of stress may be the cause. As mentioned above, occult hyperadrenocorticism may be present, but is not clinically relevant at this time.

- **Spleen**: Benign, clinically insignificant, mineralizations are observed throughout the spleen.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Arterial blood pressure - pending

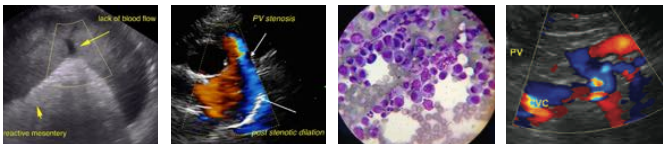
Intravenous fluids for 48 -72 hours and re-assess the renal parameters, including a SDMA, to determine degree of pre-renal azotemia

Analgesia, in hospital and then gabapentin when discharged from hospital

Consider ionized calcium, PTH due to dystrophic calcification and mineralizations (kidneys, urinary bladder, GB, spleen).

Urine culture results - pending

If culture negative, it may be a false negative (pyelonephritis), and consider further work up for glomerulonephritis (proteinuria), such as, SNAP 4Dx, +/- PCR *Leptospira* spp., other vector borne



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diseases.

If truly proteinuric, an ACEI or telmisartan may be considered at ¼ of the recommended dose ***if*** Slinky is eating and well hydrated. Blood pressure and renal parameters should be re-evaluated 5-7 days after initiation of medication.

Enrofloxacin (IV for 1 to 2 doses, if possible, then PO) is suggested pending the results.

The cystolith and nephroliths are likely acting as niduses for infection. The cystolith cannot be addressed surgically for the moment; one could assume it is struvite and attempt to dissolve it with diet, however, a diet that is palatable, renal friendly, and addresses dissolution of cystoliths may require a homemade diet (balanceit.com).

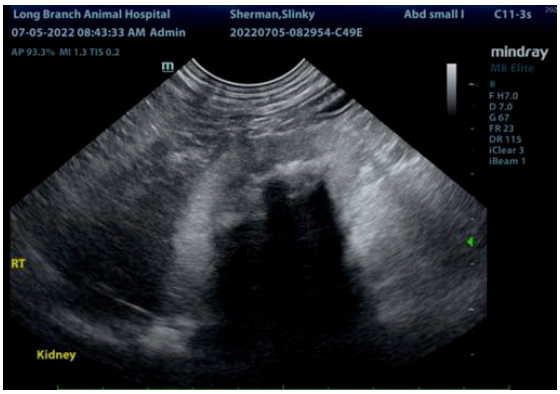
Obtaining a history regarding signs of GERD from the client is suggested

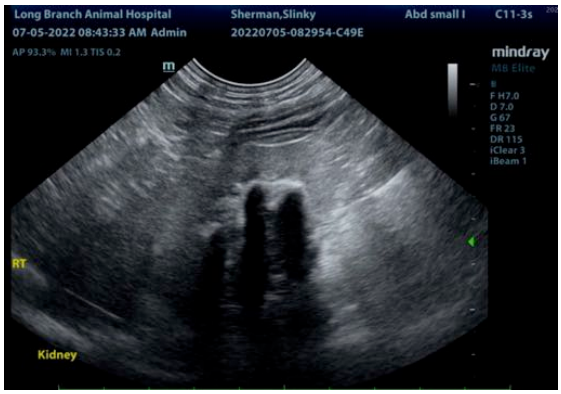
If GERD present, treatment with an anti-acid or proton pump inhibitor may be required; 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO **q12h**)

Supportive care: anti-emetics, appetite stimulant, +/- phosphate binder, stimulation of water consumption, SQ fluids, etc.

Administration of ursodeoxycholic acid (Ursodiol) is not recommended for the moment, due to risk of side effects, particularly while already hyporexic and nauseated.

Referral to an internist who performs interventional procedures may be considered to perform fluoroscopy or a CT to assess for presence of an obstruction and whether Slinky would be a candidate for a SUB (not a standard procedure in dogs, but possible).





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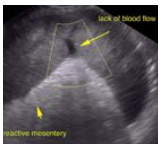
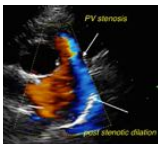
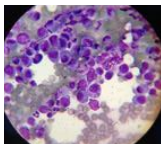
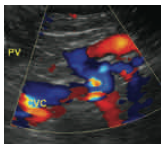

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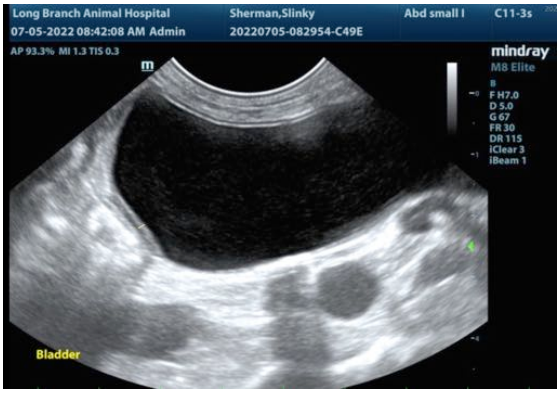

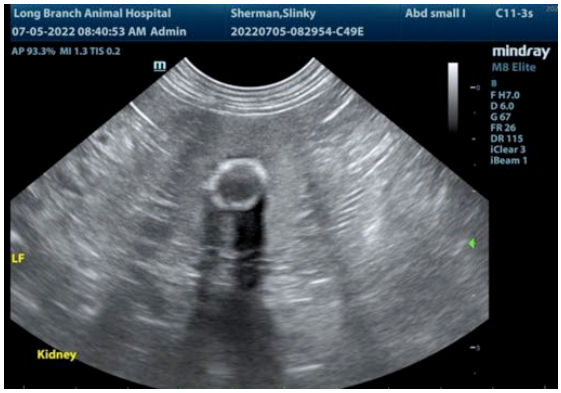

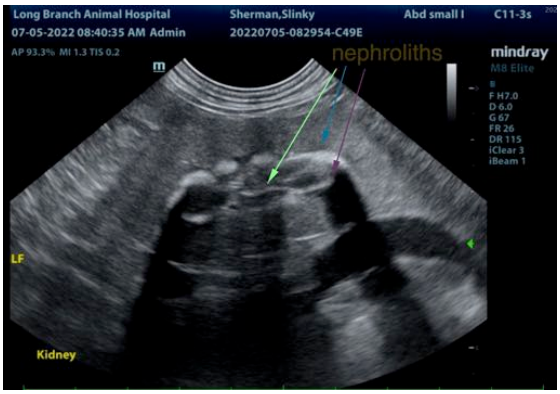

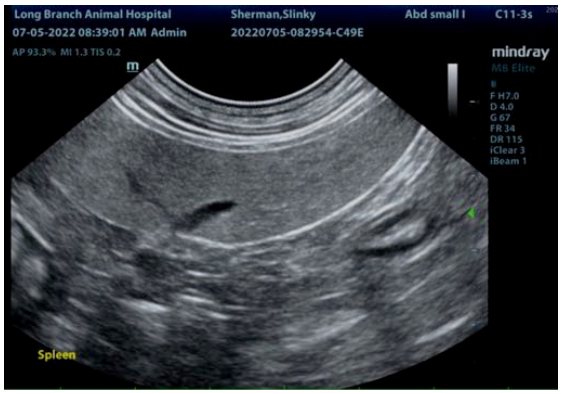

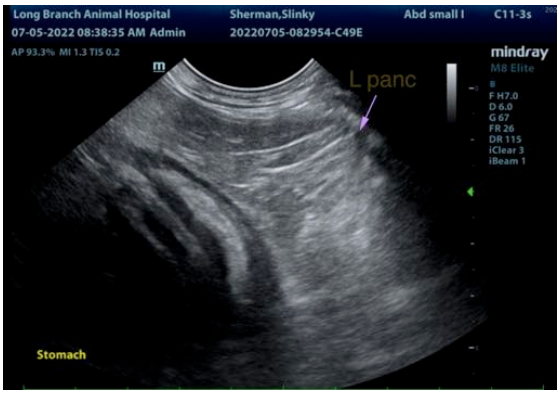

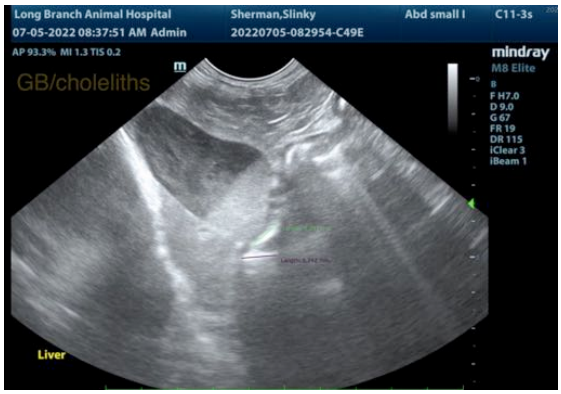

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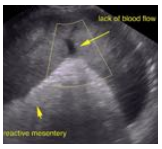
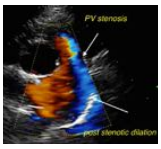
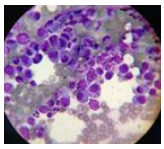
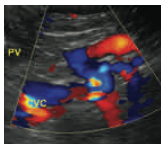

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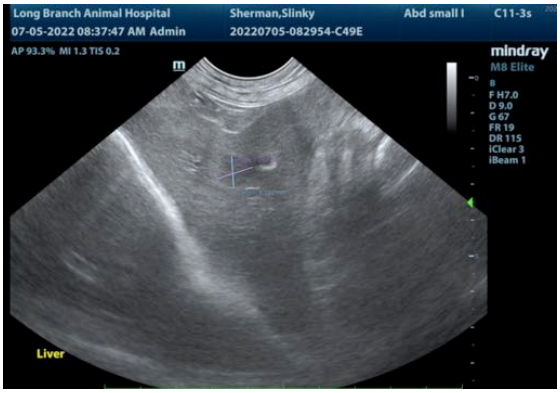

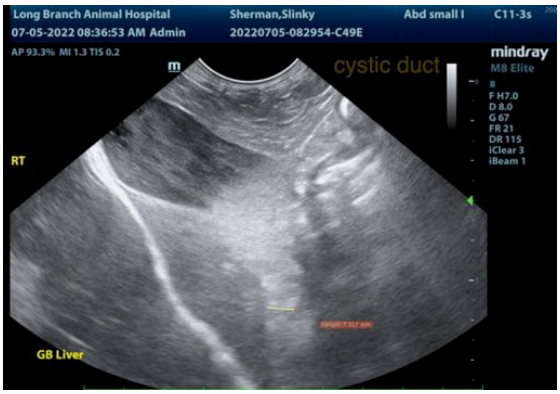

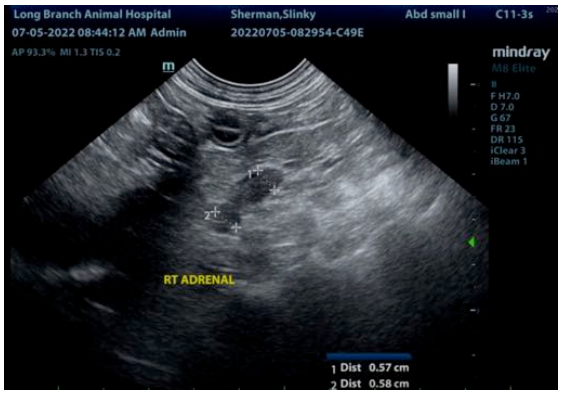

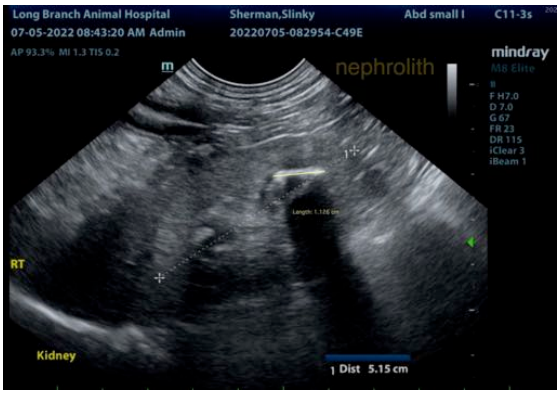

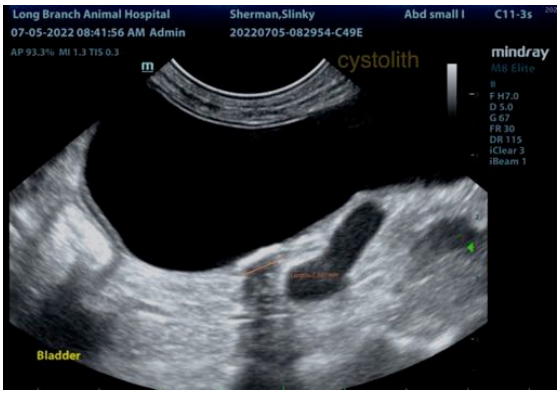

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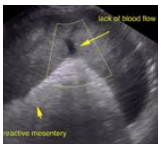
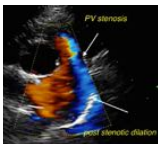
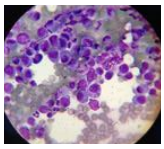
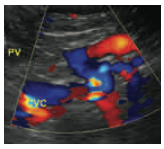





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Slinky Sherman

SPECIES

Canine

BREED

Dachshund

SEX

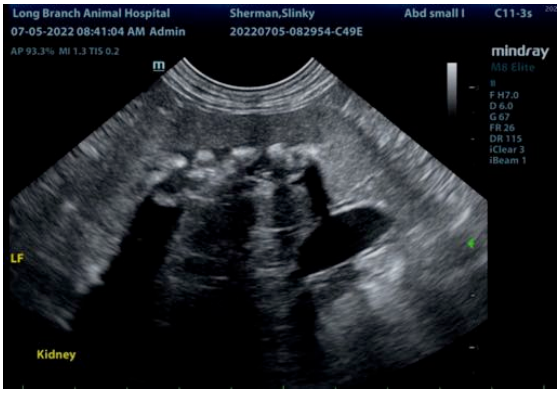
Spayed Female

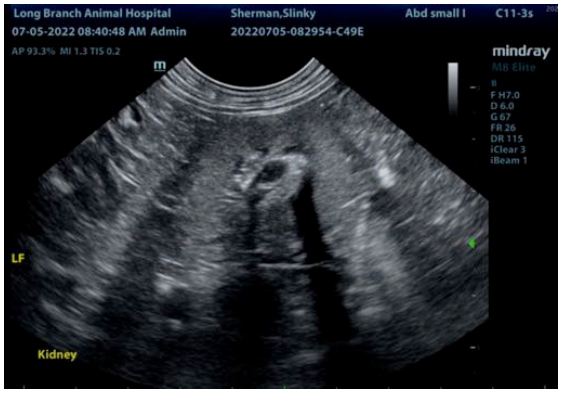
AGE

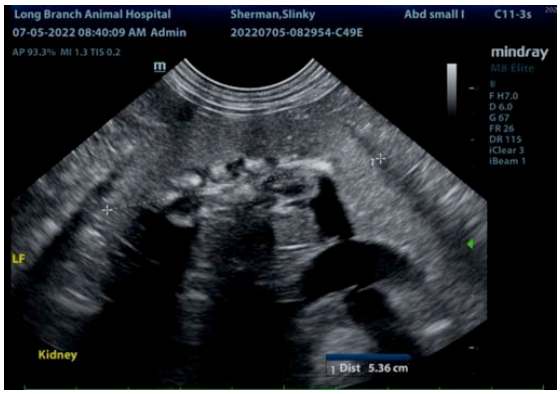
10 years

WEIGHT

21 lbs







INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Dr. Petrone

HOSPITAL NAME

Long Branch AH

REFERRING VET

Dr. Petrone

INVOICE

31469

DATE

7/5/22

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 ACVIM

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