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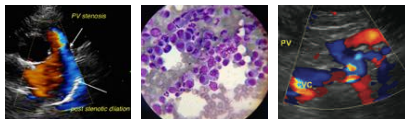

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE
6/20/22

PATIENT
Coco Santopietro

SPECIES
Canine

BREED
Dachshund

SEX
Spayed Female

AGE
4/1/06

WEIGHT
14.1 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME
Warm and Fuzzy Vet

REFERRING VET
Dr. Hepner

INVOICE
31104

PRESENTING CLINICAL SIGNS

P seen 25-Apr 2022 for decreased appetite and weight loss. O mentioned PUPD but is not sure of this. Senior panel submitted. Pyuria, marked rods and USG 1.016 noted on UA. Bloodwork showed ALKP H 165, plt H 658, Neutr H 16.2, Mono H 1.9, WBC H 22.5. P treated w amoxicillin while culture was pending. Cultured e coli resistant to amoxi and P changed to clavamox. Presented today (6/17) for recheck UA w first morning USG after finishing 10d of clavamox. O noted intermittent hematuria. See diagnostics findings submitted today below.
Current Medications: None.
Lab Results: CBC shows incr HCT 62%, RBC H 10.69, HGB H 19.9, MCV L 58, Neut H 17.19, WBC H 19. Chem shows ALKP H 221, Glob H 4.8
UA and urine culture, clotting times sent to Idexx. BP: patient placed in lateral recumbency, right side down; size 1cuff on left hind foot. 151/48 map 71; 180/141 map 147; 83/49 map 59. Doppler size 2 cuff, L caudal limb, P in R lateral recumbency and calm. Systolic 148, 150mmHg
Radiographs: Two view abdominal radiographs show right renomegaly. No obvious stones or masses noted. Mild decreased serosal detail in cranial abdomen.
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 well distended. The wall is very mildly irregular and thickened. No abnormalities are present with the trigone or proximal urethra. A large amount of free floating echogenic sediment is present, however, there is no evidence of cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 5.74 cm. The capsule is smooth. A mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the pelvis are present, without evidence of nephroliths, as well as an accumulation of intrapelvic fat. Pyelectasia (longitudinal view 0.72 cm) is noted with anechoic fluid within the pelvis. Blood flow is within normal limits and possibly mildly increased. The surrounding mesentery is very mildly hyperechoic.

The **right** kidney measures 5.09 cm in diameter x 6.26 cm in length. It measures 5.35 cm in diameter x 7.41 cm in length in a different view. There is a complete obliteration of the normal architecture, with severe hydronephrosis and a small amount of hyperechoic cortex (approximately 0.32 cm) circumferentially. The urine is severely echogenic and suggestive of pyuria. The anechoic centre is avascular when evaluated with colour Doppler. The cortex is vascularized. Renal blood flow (artery, vein) is considered within normal limits. In what appears to be the *longitudinal view*, there is a resemblance of renal architecture, with the kidney measuring 7.88 cm. A severe loss of the normal definition of the cortico-medullary junction, pyelectasia (approximately 1.44 cm), and smooth, but irregular (scalloped) hyperechoic areas are noted. The latter are highly suggestive of fibrosis.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.75 cm at the cranial pole, 0.81 cm at the caudal pole and 2.41 cm in length. The overall architecture is maintained, however, both poles are slightly “plump”. The caudal pole is mildly

rounder and more “plump” compared to the cranial pole. Very mild hyperechoic foci are present within the caudal pole. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Right adrenal gland: A hyperechoic, well-circumscribed nodule, measuring 0.77 cm in diameter x 0.82 cm in length, is noted. It appears to be involving the caudal aspect of the cranial pole. The cranial pole measures 0.52 cm in diameter. The caudal pole measures 0.73 cm in diameter, and a total length of 2.65 cm. 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. A hypoechoic nodule, measuring 0.49 cm in diameter, is observed mid-body. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly. The liver’s borders are smooth, but mildly rounded. It is very mildly hyperechoic, but remains hypoechoic to the spleen. A diffuse, mildly coarse or granular echotexture is observed. Perivascular cuffing is noted surrounding a few of the larger hepatic vessels, which may be due to fat, inflammation, fibrosis and/or ischemia. There are no signs of congestion. The mesentery surrounding the liver is hyperechoic.

The gallbladder (GB) wall is within normal limits in thickness and echogenicity. A moderate amount of free floating, gravity-dependent and inspissated 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

Ingesta and gas are present within the lumen. The gastric wall is within normal limits in thickness and the wall layers are well defined. However, the submucosa is more prominent to thicker than normal. No obvious abnormalities are observed with its peristalsis.

Ingesta is present within the duodenum. Mild stippling of the duodenum is present, in addition to a mild decrease in peristalsis.

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. 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 mildly coarse echotexture, which is considered secondary to age related changes, however, previous episodes of pancreatitis cannot be excluded.

The **right** limb has a similar appearance, however, it is mildly to moderately hyperechoic, with hypoechoic foci, likely due to its proximity to the right kidney. Smoldering pancreatitis cannot be excluded. There are no signs of neoplasia.

Other
Lymph nodes
No abnormalities are observed

Abdominal effusion is not visualized.

Heart
A brief video clip of the heart was submitted. Pericardial and pleural effusion are not identified. A mass is not observed on evaluation of the cardiac chambers. No obvious abnormalities with chamber size or contractility (measurements not performed). Note, a mass may be overlooked in the absence of pericardial effusion.

ULTRASONOGRAPHIC FINDINGS

- **Kidneys**: *Right kidney*: Renomegaly with a high index of suspicion of pyelonephrosis, a renal abscess with very severe hydronephrosis. Renal blood flow appears maintained. Neoplasia, such as carcinoma or adenocarcinoma, is considered less likely, however, a biopsy would be required to exclude it with certainty. *Left kidney*: Changes are most likely age-related, as well as compensatory. Pyelonephritis is suspected.

- **Adrenal glands**: *Right gland*: The hyperechoic nodule may be a benign adenoma or lipoma. It does not possess criteria of malignancy. *Left gland*: Signs of nodular hyperplasia are present. Bilateral adrenomegaly may be due to adrenal hyperplasia secondary to chronic illness, which is a form of stress. Pituitary dependent hyperadrenocorticism is also possible.

- **Spleen**: A benign process, such as nodular or lymphoid hyperplasia and extramedullary hematopoiesis, is suspected. Neoplasia is considered unlikely.

- **Pancreas**: Smoldering pancreatitis of the right limb may be present. Age related changes are evident, however, previous episodes of pancreatitis cannot be excluded.

- **Liver**: Vacuolar and reactive hepatopathies are suspected. A vacuolar hepatopathy may occur due to stress, such as chronic illness. Hyperadrenocorticism (HAC) is possible, but not the cause of Coco's current clinical signs. Further work up for HAC is not recommended due to the risk of false positive results. Cholestasis and cholangitis/cholangiohepatitis may be present due to the changes noted with the gallbladder. Hepatitis is considered unlikely. There are no obvious signs of neoplasia.

- **Gallbladder**: Gallbladder sludge is often clinically insignificant, however, gastroesophageal reflux disease (GERD), can occur in some patients. Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid or proton pump inhibitor may be required. Ursodeoxycholic acid is not indicated at the moment due to the right kidney.

- **Gastrointestinal**: very subtle and subjective changes observed with the duodenum, which may be suggestive of inflammation, possibly due to underlying pancreatitis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Referral to an internist who performs interventional procedures is strongly recommended, as soon as possible, to place a stent and flush the kidney as renal function appears present.

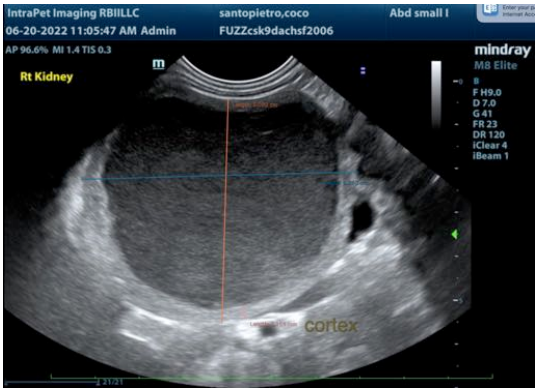
A nephrectomy is a second therapeutic option, however, removal of a functional organ would be unfortunate. If the two above options cannot be pursued, very careful *complete* drainage, followed by direct administration of enrofloxacin into the pelvis may be considered.

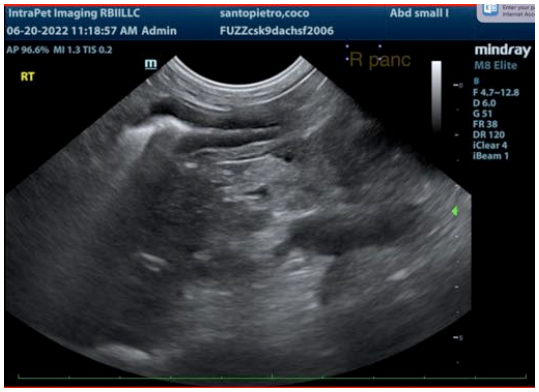
Supportive care is recommended, intravenous fluids at a low rate to decrease the risk of further renomegaly and discomfort. Ensure hydration is maintained.

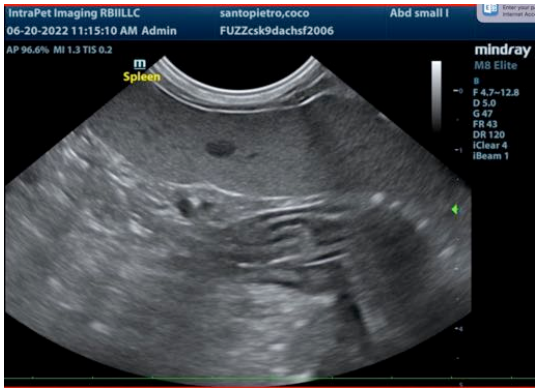
Analgesia, opioid and gabapentin. Avoid NSAIDs.

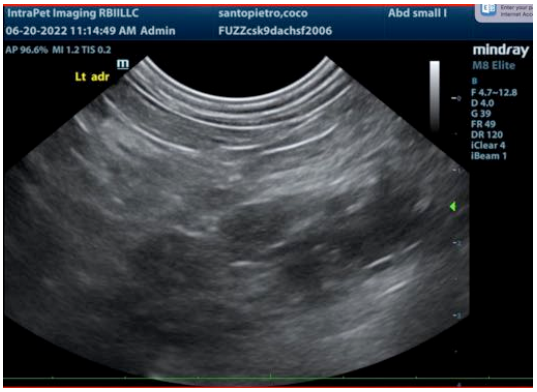
Anti-emetics

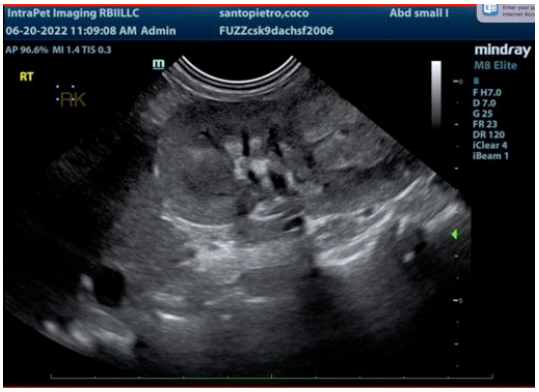
Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid or proton pump inhibitor may be required.







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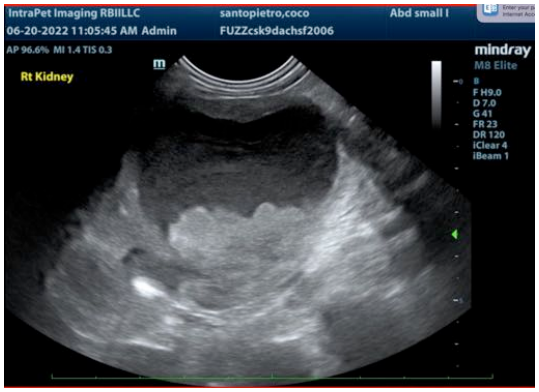
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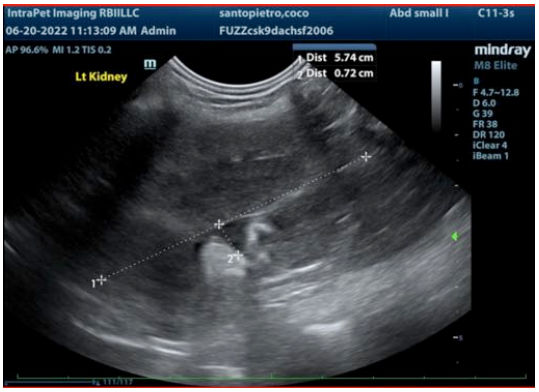
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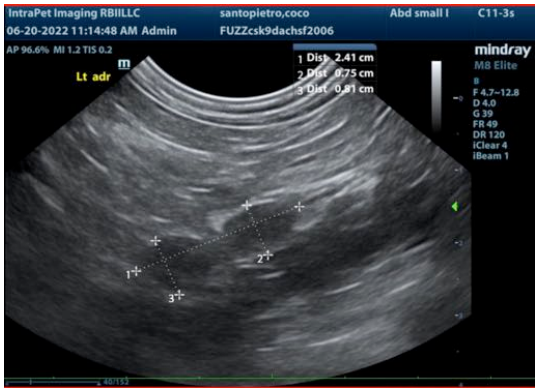
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3 Dist 0.81 cm
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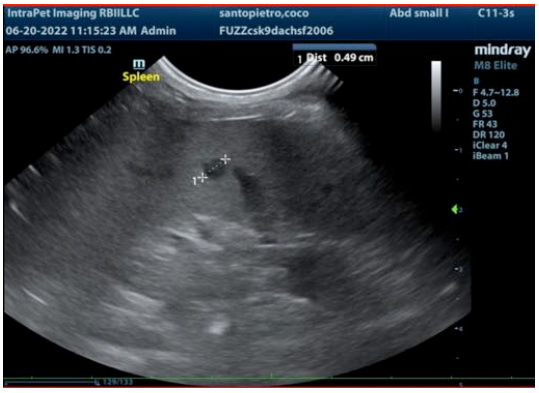
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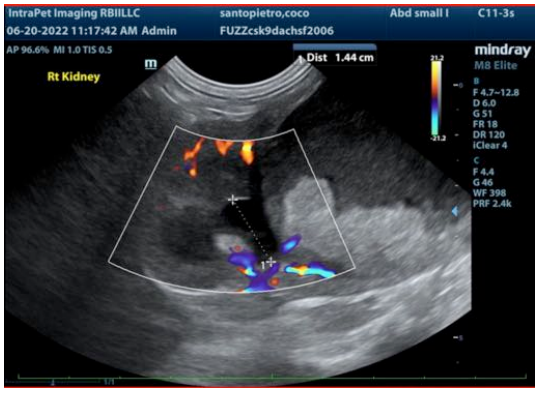
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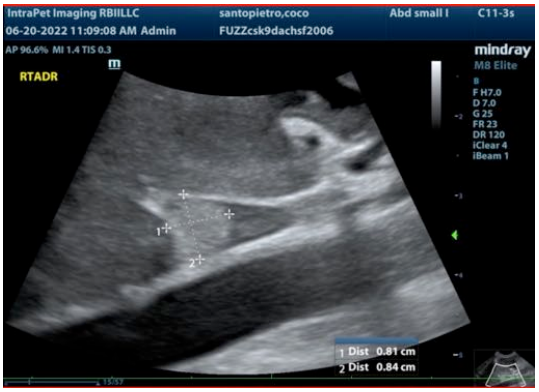
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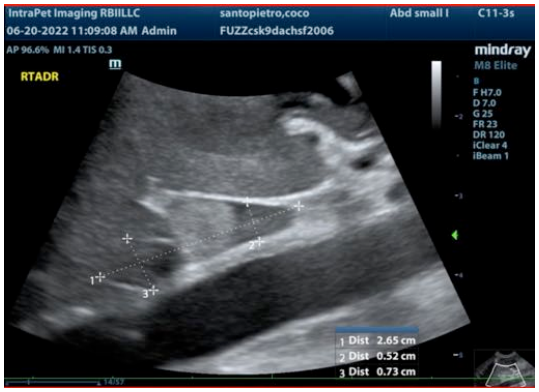
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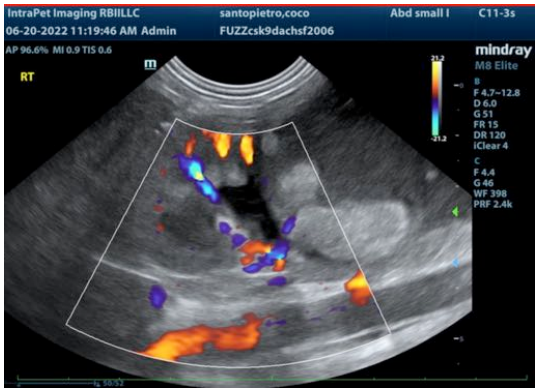
2 Dist 0.52 cm
3 Dist 0.73 cm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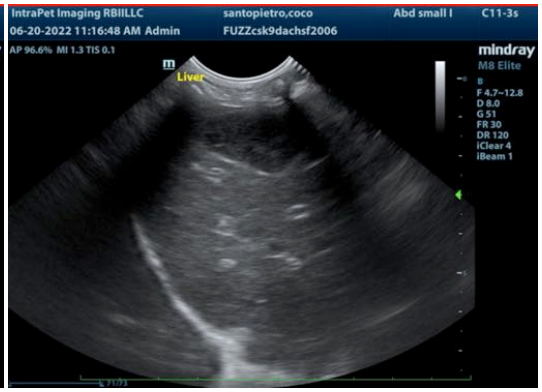
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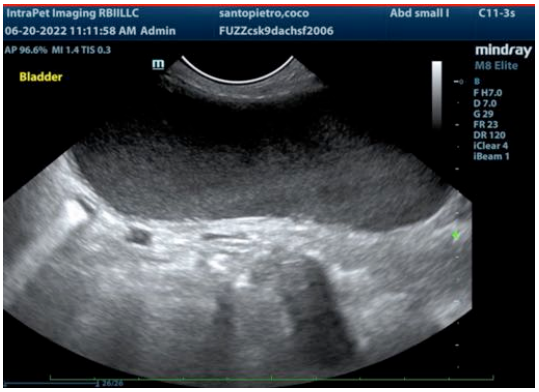
Liver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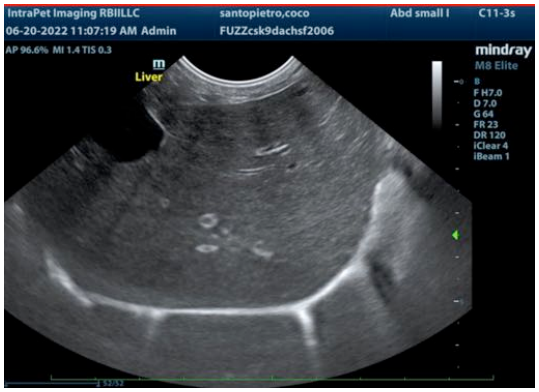
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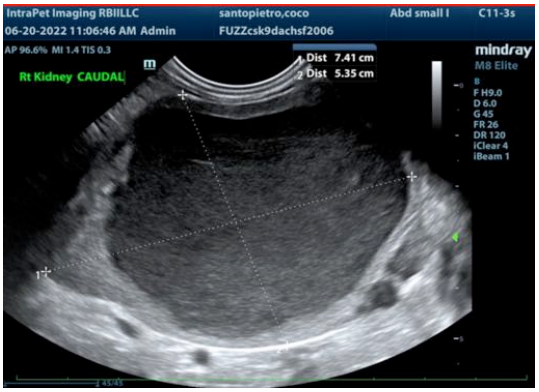

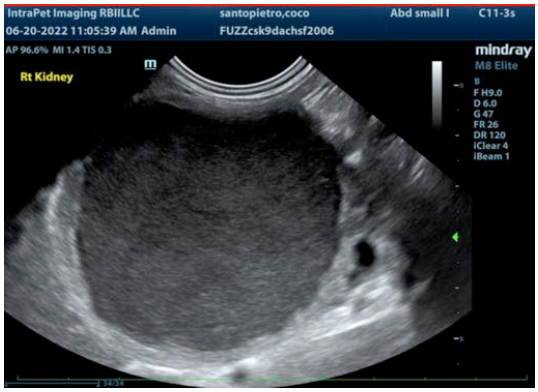

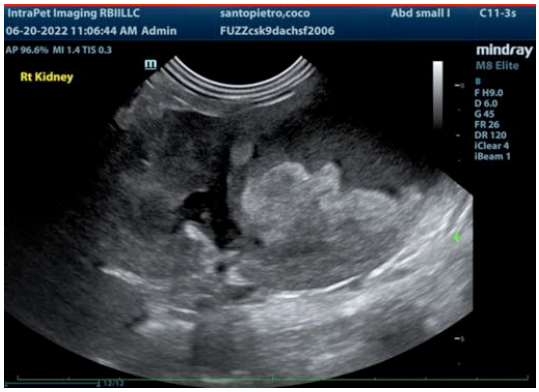

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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