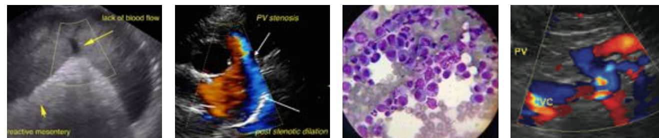
SonoPath
Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT

Gabriela Matos Roman

SPECIES

Canine

BREED

Mix Terrier

SEX

Spayed Female

AGE

15 years

WEIGHT

30.9 lbs

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Dr. Ferrer

HOSPITAL NAME

Paseos VC

REFERRING VET

Dr. Davila

INVOICE

30780

DATE

5/29/22

PRESENTING CLINICAL SIGNS

History: The patient presented as a referral for evaluation of increased liver enzymes. PT has a history of chronic neurologic episodes. Pt has been on physical therapy since May 2021 (for elbow arthritis). On March 2022 presented for vomiting, anorexia and when came for recheck no improvement was seen and pt had diarrhea and nystagmus and head tilt to the left. Pt was started on Denamarin on March 2022. On 5-16-22 Total Bili is higher.
Abnormal PE/Chem/CBC/UA Results: PE: no provided BW: May 16-2022 CBC: LYM 0.97 (1.05-5.1), MVP 13.8 (8.7-13.2) CHEM: TP: 11.9 (5.2-8.2), ALB: >6 (22.-3.9), ALT 213 (10-125), ALP 223 (23-23-212), Tbili 6.8 (0-0.9) Chem on 3-4-22: ALP: 467, ALT 273, ALB: 4.2, TP: 8.5

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended. 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.

Kidneys

The **left** kidney measures 4.79 cm. The capsule is smooth. The cortex is hyperechoic, i.e., it is isoechoic to the spleen. A mild loss of the normal definition of the cortico-medullary junction is present. The cortex appears mildly thicker than usual or "swollen". Mild mineralizations of the diverticulae and pelvis are present, without signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 5.31 cm. Findings are similar to the left kidney.

Aortic bifurcation/trifurcation

No abnormalities observed.

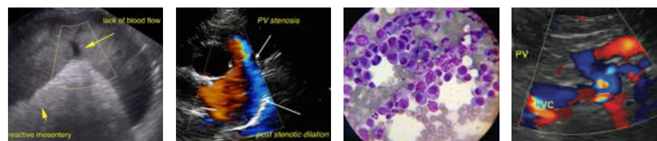
Adrenal Glands

The **left** adrenal gland measures 0.53 cm at the cranial pole, 0.52 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.

The **right** adrenal gland measures 0.52 cm at the cranial pole, 0.51 cm at the caudal pole. The contour of the cranial pole appears as a nodule in a mildly oblique view, and may be expansile in another. The echotexture is very mildly heterogeneous with a thick hyperechoic band, which may be a combination of the normal cortico-medullary junction, fat, ischemia and/or fibrosis. 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 (0.37 cm in diameter x 0.68 cm in length) is observed at the tail. A hyperechoic nodule (0.20 cm in diameter x 0.32 cm in length) is noted dorsal to the former. Mild



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perivascular cuffing, consistent with myelolipomas is observed; these are not considered clinically significant. Ill-defined, hyperechoic "nodules" are noted in regions surrounding blood vessels. These are attributed to fat, mineralization, fibrosis, or a combination of them. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

Mild hepatomegaly is suspected, however, this is better characterized at the time of the ultrasound or with radiographs. The liver's borders are smooth and vary between sharp to very mildly rounded. The liver is diffusely hyperechoic, i.e., it is hyperechoic to the spleen. A mildly coarse or granular echotexture is observed, in addition to small, hypoechoic nodules of variable size. Perivascular cuffing, consistent with myelolipomas is observed (not clinically significant).

The gallbladder (GB) is moderately distended with a moderate amount of echogenic material. The sludge is free floating, gravity-dependent, and inspissated, forming nodules, which are adhered to the wall. Thick strings of mucus are noted arising from the luminal wall and attaching to the inspissated debris. There is no evidence of choleliths. The GB wall is within normal limits in thickness and echogenicity. The portions of the cystic and 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. No obvious abnormalities are observed with its peristalsis.

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. However, moderate stippling and mild fogging of the mucosa of both the duodenum and jejunum are noted. No abnormalities are noted with the ileo-cecal-colic junction. Abnormally dilated loops of bowel are not observed.

The colonic wall is at the high end of the normal reference range (0.2 cm). Very mild, and focal loss of mural detail is noted along the descending colon.

Pancreas

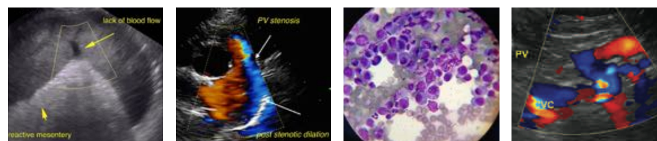
The pancreas has a very mildly coarse echotexture, which is considered secondary to age related changes, however, previous episodes of pancreatitis cannot be excluded. There is no evidence of hyperechogenicity of the surrounding mesentery, i.e., active pancreatitis is not suspected. Signs of neoplasia are not appreciated.

Other

Lymph nodes

No abnormalities are observed

Abdominal effusion is not visualized.



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ULTRASONOGRAPHIC FINDINGS

Liver: Vacuolar and reactive hepatopathies are suspected, in addition to age-related nodular hyperplasia. A vacuolar hepatopathy may occur due to stress, such as chronic illness. Hyperadrenocorticism is considered less likely in the absence of clinical signs. Cholestasis may also be present. Differential diagnoses, such as hepatitis, cholangitis/cholangiohepatitis, are unlikely. There are no obvious signs of neoplasia.

Gallbladder: The appearance of Gabriela's gall bladder is not consistent with a classical mucocoele. A mucocoele in its early development cannot be excluded. There are no obvious signs of cholecystitis. 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, proton pump inhibitor or ursodeoxycholic acid may be required.

Gastrointestinal: Focal loss of mucosal detail of the colon and mucosal fogging and stippling of the small intestines may be associated with GI inflammation, therefore, enterocolitis may be present. Differential diagnoses include inflammatory bowel disease, food intolerance, etc. Obvious signs of neoplasia are not observed, however, biopsies are required to exclude neoplasia with certainty.

Adrenal glands: A nodule is noted at the cranial pole of the **right** adrenal gland, but may have an expansile appearance in another view. A benign adenoma is suspected, however, it would be prudent to re-evaluate the right adrenal in 4-6 weeks to ensure it remains stable (i.e. no change in size or appearance). Differential diagnoses for an expansile lesion include an emerging pheochromocytoma or carcinoma. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen: Differential diagnoses for the hypoechoic nodule include nodular or lymphoid hyperplasia, as well as extramedullary hematopoiesis. The hyperechoic nodules are likely a combination of lipogranulomas, mineralization, and/or fibrosis. Calcification is also present based on the two nodules that cast shadows. The myelolipomas observed are considered clinically significant.

Pancreas: Age related changes are noted. Signs of neoplasia and active pancreatitis are not appreciated.

Kidneys: Changes associated with age related degeneration are noted, however, mild cortical swelling or thickening may be associated with glomerulonephritis. Pyelonephritis cannot be excluded based on the absence of sonographic abnormalities.

Subclinical dehydration is possible based on blood work results (albumin concentration). The latter may be increased due to laboratory error. An evaluation of water consumption is suggested.

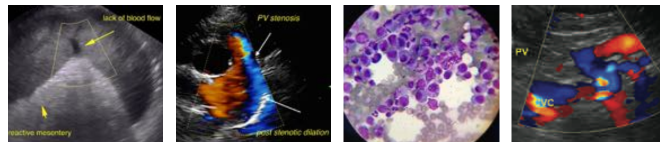
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Urinalysis and urine culture and sensitivity to exclude pyelonephritis

If negative, consider a urine protein: creatinine ratio to exclude glomerulonephritis.

An arterial blood pressure to exclude hypertension as a cause of neurological signs.

Gabriela's current clinical signs are suggestive of idiopathic vestibular disease, however, hypertriglyceridemia can cause neurological signs in some patients. Fasting triglycerides are strongly recommended.



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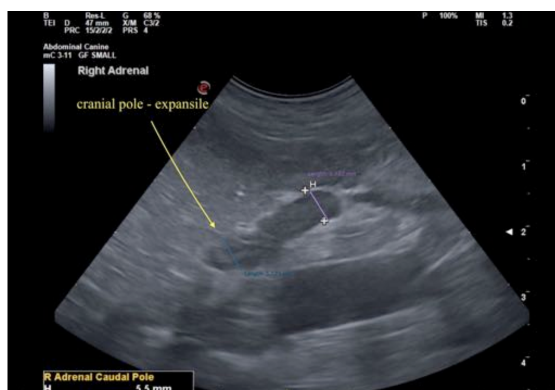
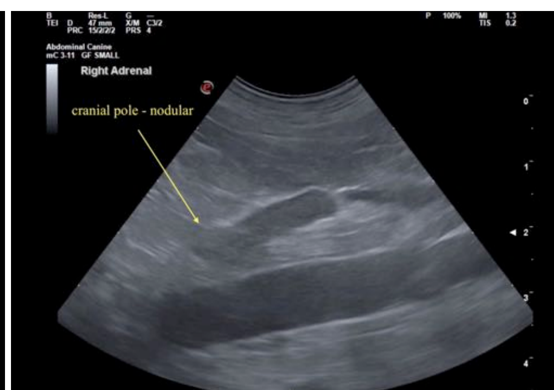
Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor may be required, in addition to ursodeoxycholic acid (Ursodiol).

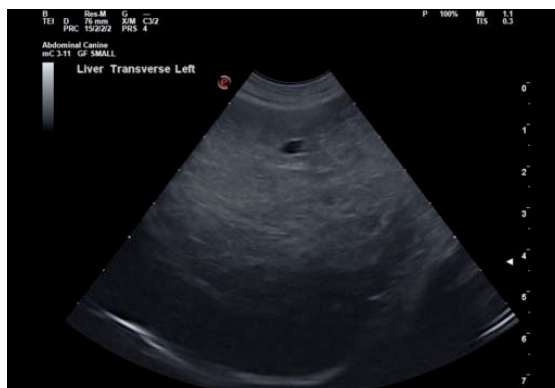
Ursodeoxycholic acid should not be started concurrently with the other medications. The dose should be slowly up-titrated to decrease the risk of GI side effects (nausea, cramps, vomiting and diarrhea).

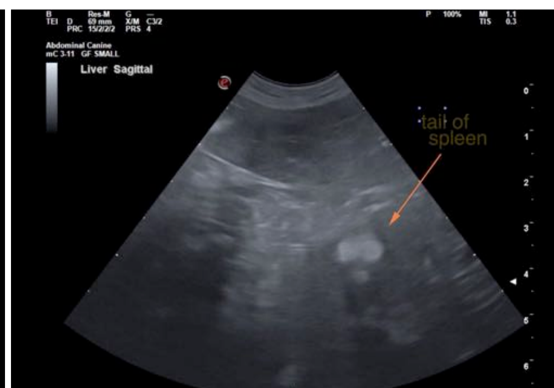
An evaluation of water consumption is suggested to rule out subclinical dehydration.

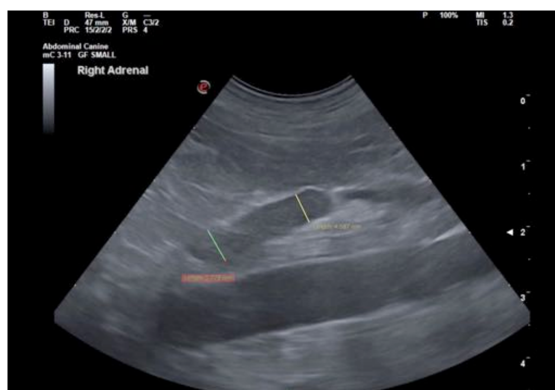
A sonographic re-evaluation of the adrenal glands is recommended in 4-6 weeks.

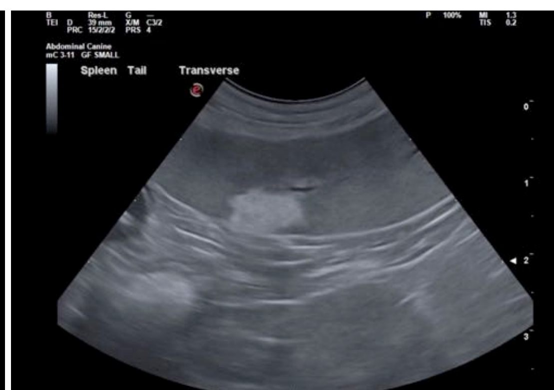


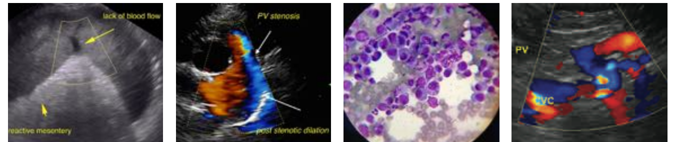












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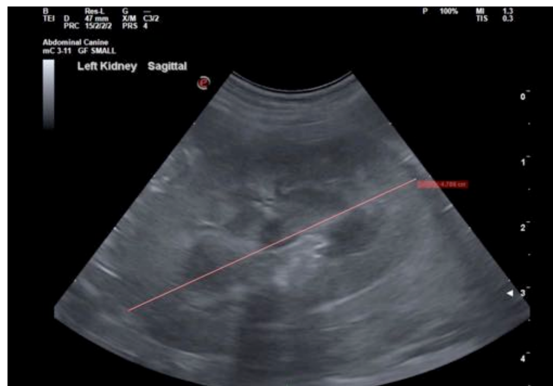

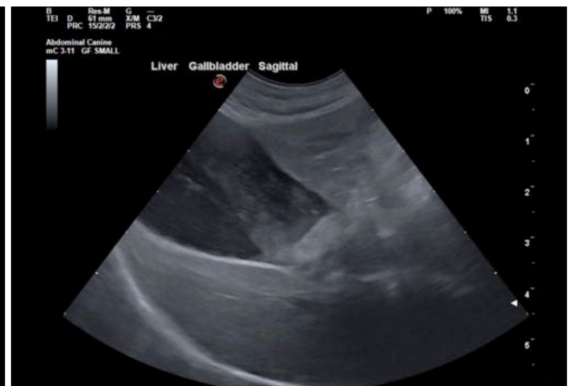

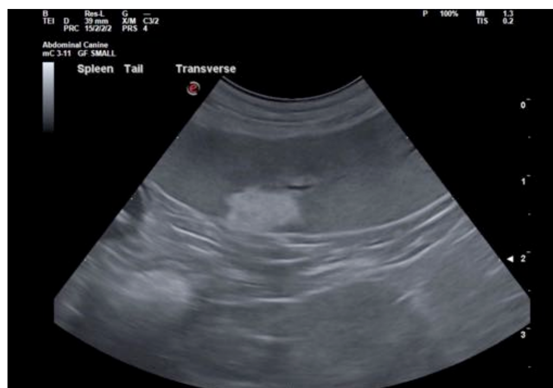

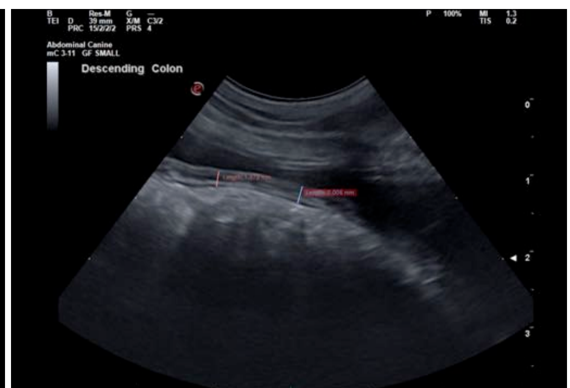

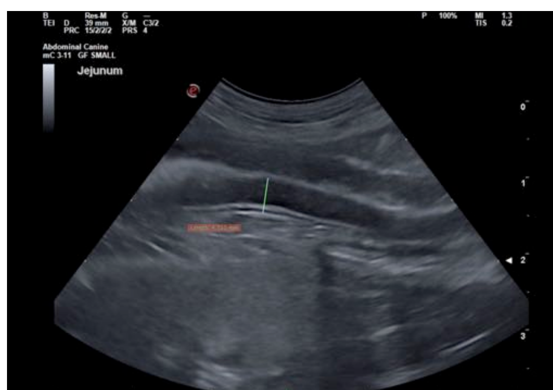

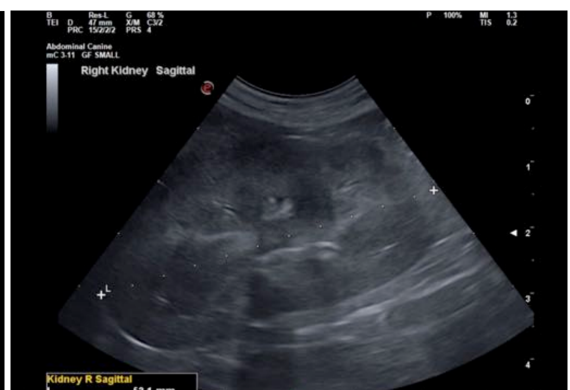

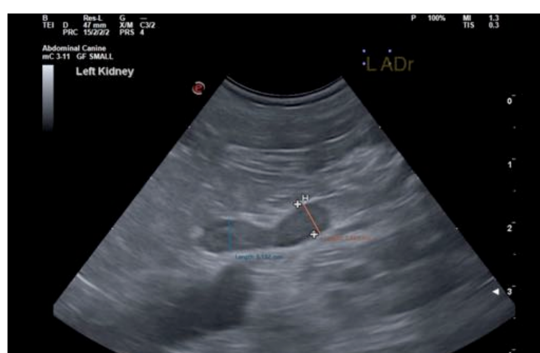

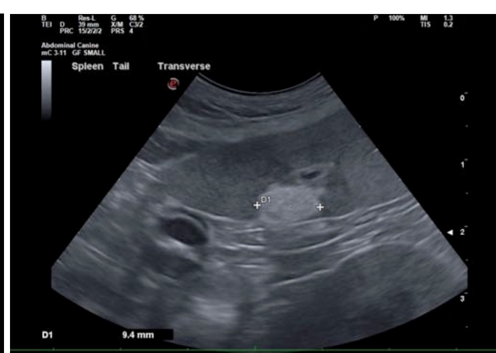

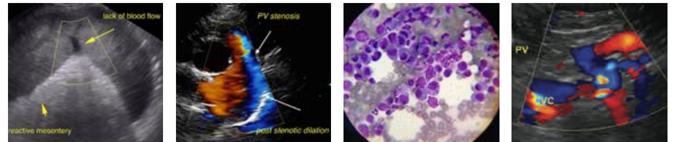

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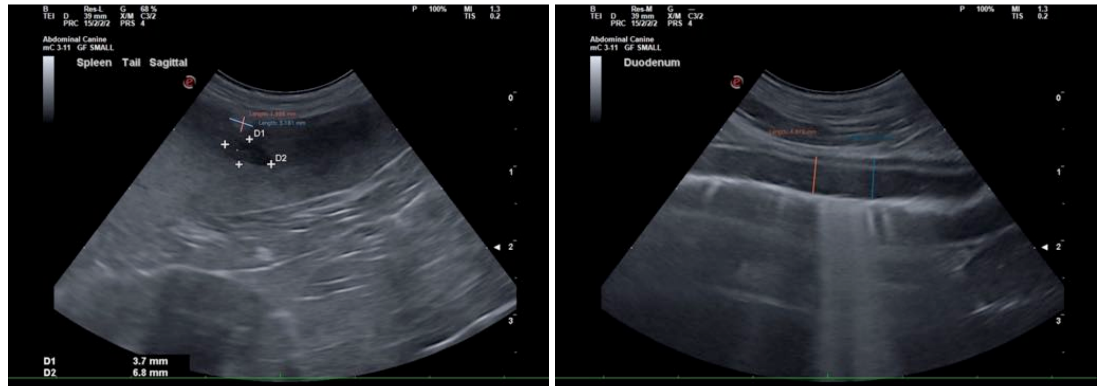

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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