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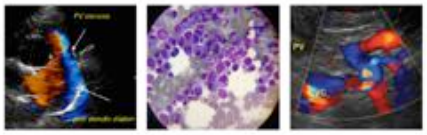

SonoPath
Clinical Sonography & Telecytology
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PATIENT

Roxie Gulli

SPECIES

Canine

BREED

Pomeranian

SEX

Spayed Female

AGE

10 years

WEIGHT

10 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew LVT

HOSPITAL NAME

SVS Imaging Michigan

REFERRING VET

Union Lake VH

INVOICE

30419

DATE

5/17/22

PRESENTING CLINICAL SIGNS

History: Concern for Cushing's disease severely elevated pLi but no v/d
Abnormal PE/Chem/CBC/UA Results: Concern for Cushing's disease severely elevated pLi but no v/d elevated liver values Please see attached labs.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. 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 4.69 cm. The capsule is very mildly irregular. The cortex appears thicker than normal and is moderately hyperechoic. Pinpoint hyperechoic foci are visualized throughout the cortex. A moderate loss of the normal definition of the cortico-medullary junction is also present. Subtle mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths. Very mild pyelectasia is present; longitudinal view = 1.6 mm. The surrounding mesentery is mildly to moderately hyperechoic.

The **right** kidney measures approximately 3.30 cm. The capsule is smooth, however, the kidney is decreased in size and it has lost its normal shape. The cortex appears thicker than normal and is moderately hyperechoic. Pinpoint hyperechoic foci are visualized throughout the cortex. A moderate loss of the normal definition of the cortico-medullary junction is also present. Subtle mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths. Mild pyelectasia is present; longitudinal view = 2.98 mm (3 mm). The surrounding mesentery is very mildly hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.77 cm at the cranial pole, and 0.53 cm at the caudal pole. The cranial pole is enlarged and “plump”, however, a mass or nodule is not observed. No abnormalities are noted with the gland’s overall echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.61 cm (high normal) at the cranial pole, 0.59 cm at the caudal pole. The gland is “plump”. No abnormalities are noted with the gland’s overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable

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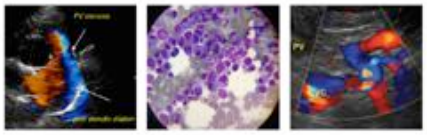

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Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. Pinpoint hyperechoic foci are visualized throughout the spleen and a haphazard distribution. The foci are attributed to mineralization. A hyperechoic nodule measuring 2.6 mm in diameter by 2.7 mm in length is noted mid body the ladder is attributed to mineralization and or nodular hyperplasia. There are no signs or neoplasia. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

Mild hepatomegaly is suspected, however, size is better characterized at the time of the ultrasound or with radiographs. The liver's borders are smooth, but mildly rounded. The liver's echotexture is homogeneous and diffusely hyperechoic. A hyperechoic region measuring 2.61 cm in diameter x 2.10 cm in length is noted in one of the liver. Two anechoic, round structures, consistent with cysts, are located in the center of the hyperechoic areas.

The gallbladder (GB) is moderately distended with a large amount of free floating, gravity dependent and inspissated echogenic material (sludge). The GB wall is within normal limits in thickness and echogenicity. The cystic duct is dilated and filled with sludge a few millimeters distal to the neck of the GB (7.4 mm) and tapers to 3.6 mm along its path toward the common bile duct. There are no signs of an obstruction, i.e. intrahepatic bile ducts are not dilated. The parenchyma surrounding the GB and cystic duct is hyperechoic.

Gastrointestinal

Gas is present in 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 duodenum is within normal limits in thickness. The definition of wall layers is preserved, however, subjectively, the mucosa is mildly thickened and fogging is present.

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. Stippling of the mucosa of the duodenum and the small intestines is observed. Abnormally dilated loops of bowel are not observed.

The colonic wall is not thickened and mural detail is considered normal.

There are no obvious signs of a mass, foreign body, infiltrative disease or an obstruction in the gastrointestinal tract.

Pancreas

The **right limb** is diffusely hypoechoic, yet its contours remain smooth. The surrounding omentum is moderately to markedly hyperechoic, suggestive of saponification. These findings are suggestive of active pancreatitis. Overt signs of neoplasia are not noted.

No overt abnormalities are observed with the echogenicity or echotexture of the **left limb**. The surrounding mesentery is not overtly hyperechoic.

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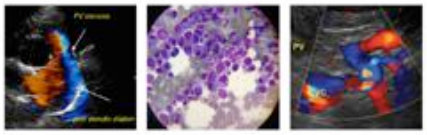

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Other

Lymph nodes

No abnormalities are observed

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Bilateral adrenomegaly**; the right gland is very mildly enlarged, while the cranial pole of the left gland is significantly enlarged. The ultrasound findings are suggestive of adrenal hyperplasia secondary to pituitary dependent hyperadrenocorticism, however, chronic illness/stress, cannot be excluded. There are no signs of neoplasia. Pituitary dependent hyperadrenocorticism is suspected based on Roxie's elevated liver enzyme activities thrombocytosis and hypercholesterolemia.
- The **mildly enlarged liver** and **diffuse hyperechogenicity of the liver** is highly suggestive of a vacuolar hepatopathy, which may occur due to stress (chronic illness), as well as hyperadrenocorticism. The two cystic structures in the liver are considered incidental findings and are considered benign.
- The appearance of Roxie's **gallbladder** (GB) is not consistent with a classical mucocoele. Although the presence of GB sludge is often clinically insignificant, dogs with hyperadrenocorticism are more predisposed to GB sludge and developing mucocoeles. Also, some dogs may show clinical signs of gastroesophageal reflux disease as a result of the sludge, therefore, obtaining a history regarding signs of GERD from the client is suggested. Treatment with ursodeoxycholic acid may be required depending on the patient's history.
- **Active pancreatitis** is suspected based on the abnormalities observed with the **right limb** and the surrounding mesentery. There are no signs of neoplasia.
- Moderate to marked **renal changes**; likely multifactorial. They are most likely a combination of age related degeneration, fibrosis and mineralization. The hyperechoic cortices may be due to glomerulonephritis associated with hyperadrenocorticism as well as age related changes however, pyelonephritis cannot be excluded. Pyelectasia may be due to polydipsia and polyuria, if present, or it can be associated with pyelonephritis.
- The splenic changes are considered clinically insignificant.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A **urinalysis** and **urine culture and sensitivity** are recommended to exclude a urinary tract infection and possible pyelonephritis as a result of immunosuppression caused by hyperadrenocorticism.

If negative, a **urine protein: creatinine ratio** is suggested. Proteinuria is present in Roxie's urine sample.

An **arterial blood pressure** is recommended to rule out hypertension.

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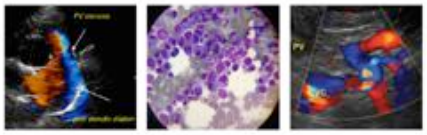

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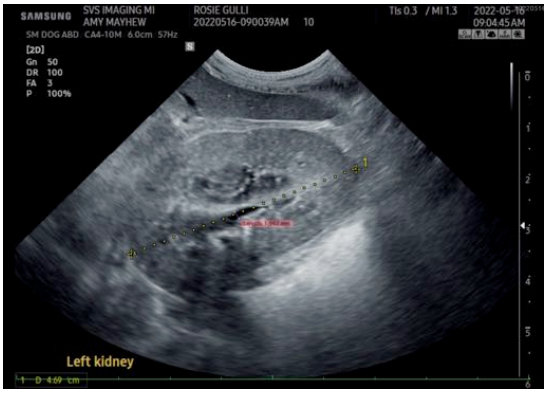
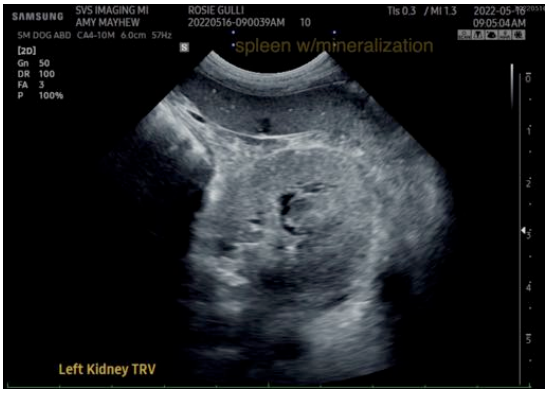
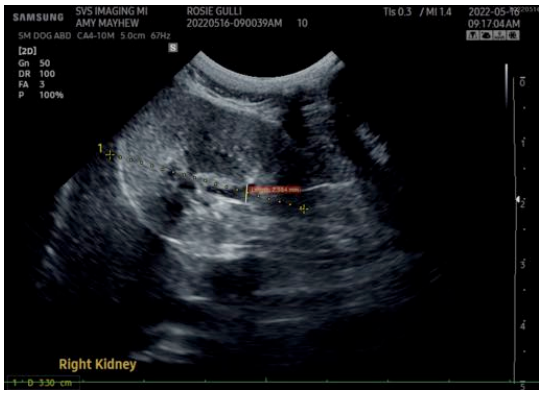
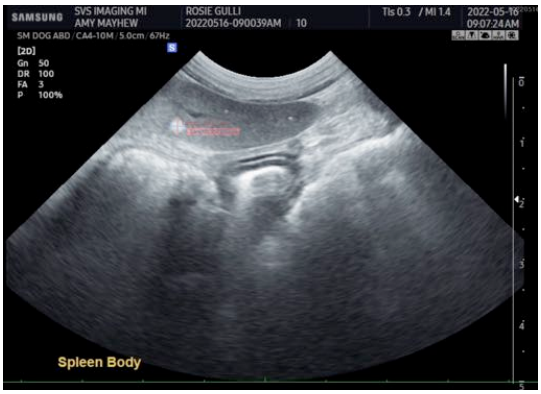
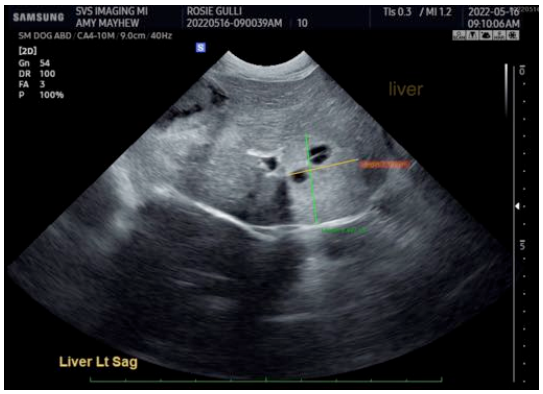
Analgesia for the treatment of visceral pain, such as buprenorphine or methadone, and gabapentin, are suggested due to the presence of pancreatitis.











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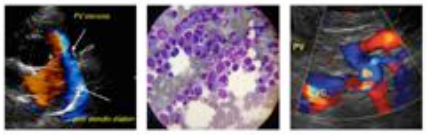

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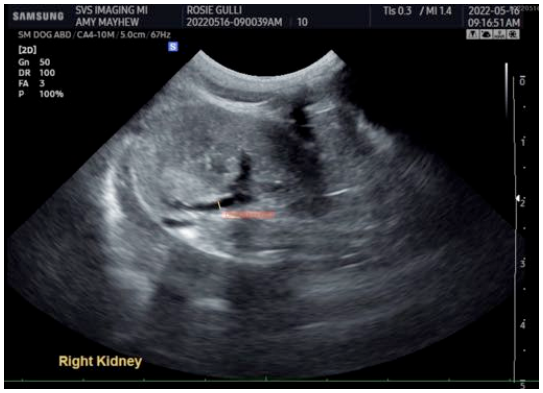

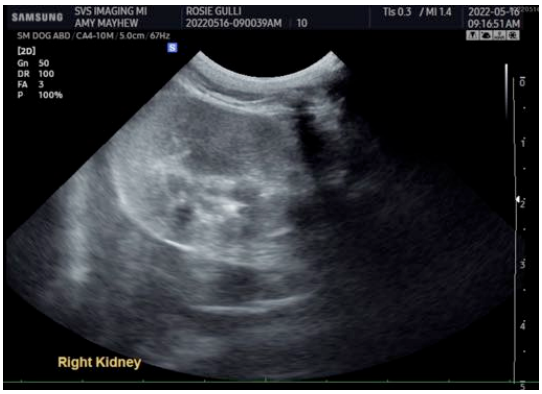

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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