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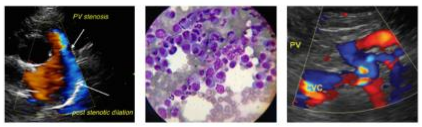

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Maggie Vonachen

SPECIES

Canine

BREED

Mini Schnauzer

SEX

Spayed Female

AGE

12 Years

WEIGHT

20 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Sarah Pender, CVT

HOSPITAL NAME

SVS Imaging QC

REFERRING VET

Dr. Springman

INVOICE

37503

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5/6/22

PRESENTING CLINICAL SIGNS

ADR, PU/PD, Lost 2#, urinating large volumes
Abnormal PE/Chem/CBC/UA Results: Cataracts OU, Glucose 399, Fructosamine 576, ALT 181, Alk Phos 2313

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

A mild amount of echogenic debris is present within the bladder lumen. The wall is mildly to moderately thickened circumferentially, yet, it is smooth and regular. No abnormalities are present with the trigone or the proximal urethra, and there is no evidence of cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 6.31 cm (enlarged for a dog of Maggie's stature). The capsule is smooth. The cortex is mildly hyperechoic. Hyperechoic regions are also evident throughout the cortex. A mild loss of the normal definition of the cortico-medullary junction is present. An accumulation of intrapelvic fat is noted. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths. Pyelectasia is evident; longitudinal: 3.0 mm and transverse: 5.1 mm. Echogenic material is present within the medulla. The surrounding mesentery is mildly hyperechoic.

The **right** kidney measures 5.74 cm (mildly enlarged for a dog of Maggie's stature). The capsule is smooth. The cortex is mildly hyperechoic. Hyperechoic regions are also evident throughout the cortex. A mild loss of the normal definition of the cortico-medullary junction is present. An accumulation of intrapelvic fat is noted. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths. Pyelectasia is evident; transverse: 4.4 mm. The surrounding mesentery is hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.51 cm at the cranial pole, 0.34 cm at the caudal pole and 1.86 cm in length. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

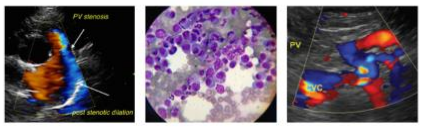
The **right** adrenal gland measures 0.54 cm at the cranial pole, 0.39 cm at the caudal pole and 1.83 cm in length. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

Mild splenomegaly is suspected. The spleen is within normal limits in architecture, echotexture, and echogenicity. Pinpoint hyperechoic foci are observed throughout the parenchyma, which are attributed to mineralization. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. Surrounding mesentery is moderately hyperechoic.

Liver

High index of suspicion of hepatomegaly, however, size is better characterized at the time of the ultrasound or with radiographs. The liver's borders are smooth and mildly rounded. It is homogeneous



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and severely hyperechoic. Focal lesions are not observed. No obvious abnormalities are observed with the hepatic vessels.

The gallbladder is moderately to severely distended with a moderate to marked amount of echogenic material (sludge) within the lumen. The sludge is free floating, gravity-dependent, and adhered to the wall. The gallbladder wall is within normal limits in thickness and echogenicity. There is no evidence of acoustic shadowing to suggest cholelithiasis. The cystic duct measures 3.3 mm as it exits the GB, There are no signs of dilation or tortuosity of the cystic or common bile ducts, 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.

Mild fogging of the duodenum is noted; which may be secondary to inflammation from the liver and gall bladder.

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.

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

Pancreas

The left limb has a mildly coarse echotexture, consisting of very small hypoechoic nodules of variable size and punctate, hyperechoic foci, scattered throughout the parenchyma. These changes are suggestive of nodular hyperplasia and fibrosis, respectively, and likely due to age-related changes, and possibly to previous episodes of pancreatitis. Signs of active pancreatitis or neoplasia are not appreciated.

No overt abnormalities are observed with the echogenicity or echotexture of the right limb and body. The mesentery surrounding the pancreas is mildly hyperechoic, similarly to the remainder of the abdomen.

Other

Lymph nodes

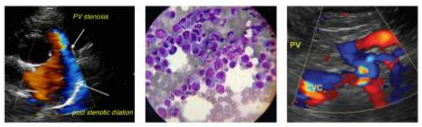
No abnormalities are observed

Abdominal effusion

A scant amount of anechoic free fluid may be present between the gallbladder and the liver lobes, however, it is not a repeatable finding.

ULTRASONOGRAPHIC FINDINGS

- Diabetes mellitus based on Maggie's history and blood work.
- The hepatomegaly and diffuse hyperechogenicity of the liver, in conjunction with the Maggie's history, are suggestive of a vacuolar hepatopathy associated with diabetes mellitus. However, cholestasis, cholangitis/cholangiohepatitis and cholecystitis cannot be excluded.



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- The appearance of Maggie's gall bladder is not consistent with a classical mucocoele. A mucocoele in its early development cannot be excluded, however. Although the presence of gall bladder sludge is not necessarily clinically significant, dogs with diabetes mellitus are more predisposed to gallbladder 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 an anti-acid, proton pump inhibitor or ursodeoxycholic acid may be required depending on the patient's history. Note, cholecystitis cannot be excluded.

- The changes observed with the pancreas are suggestive of nodular hyperplasia and fibrosis, and possibly to previous episodes of pancreatitis. Signs of active pancreatitis or neoplasia are not appreciated.

- The renal changes are multifactorial. They are most likely a combination of age related degeneration, mineralization as well as previous episodes of ischemia and fibrosis. Glomerulonephritis may also be playing a role in the hyperechogenicity of the renal cortices. Pyelonephritis cannot be excluded based on the echogenic material in the medulla, and the pyelectasia, as well as the hyperechogenicity of the mesentery surrounding the kidneys. A certain degree of the pyelectasia is likely due to pu/pd.

- Based on the appearance of the urinary bladder, a bacterial cystitis cannot be excluded.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Treatment for diabetes mellitus with detemir or long acting glargine (Tujeo) is suggested.

A urinalysis and urine culture and sensitivity are recommended to exclude a urinary tract infection and pyelonephritis.

An evaluation of fasting triglycerides is suggested.

If a urinary tract infection is excluded, a urine protein: creatinine ratio is suggested. That is, proteinuria due to GN will need to be excluded and treated accordingly.

A fundic exam is also recommended, as is an evaluation of the blood pressure, ideally in the presence of the client to minimize the effects of stress.

Intravenous fluids may be required depending on Maggie's clinical status.

Analgesia is also suggested due to stretching of the liver capsule secondary to hepatomegaly, and possible GERD.

A low fat, easily digestible diet that is moderately restricted in fibre is recommended to help decrease gas and bloating. Psyllium may be added to his diet after a few weeks to help regulate his diabetes (avoid formulations with sugar AND ensure they are not sweetened with xylitol).

Medication to decrease nausea is suggested.

A TLI, serum cobalamin, and folate, may be required in the future to assess for underlying maldigestion and malabsorption disease, as some dogs may also suffer from exocrine pancreatic insufficiency and dysbiosis.

If there is little improvement in Maggie's clinical status with the above recommendations, one should consider cholestasis, cholangitis/cholangiohepatitis and cholecystitis, as well as a secondary ascending

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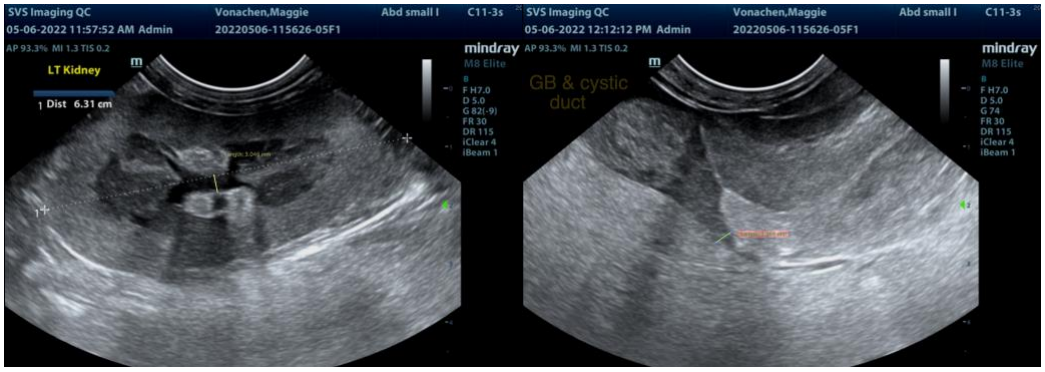
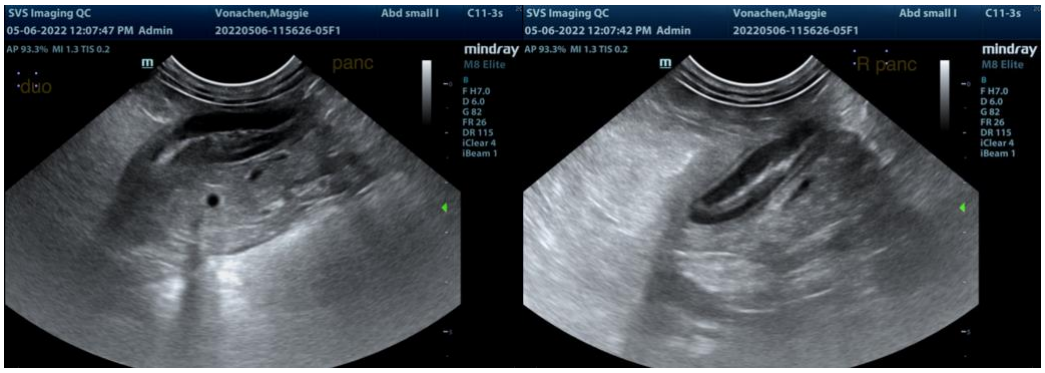
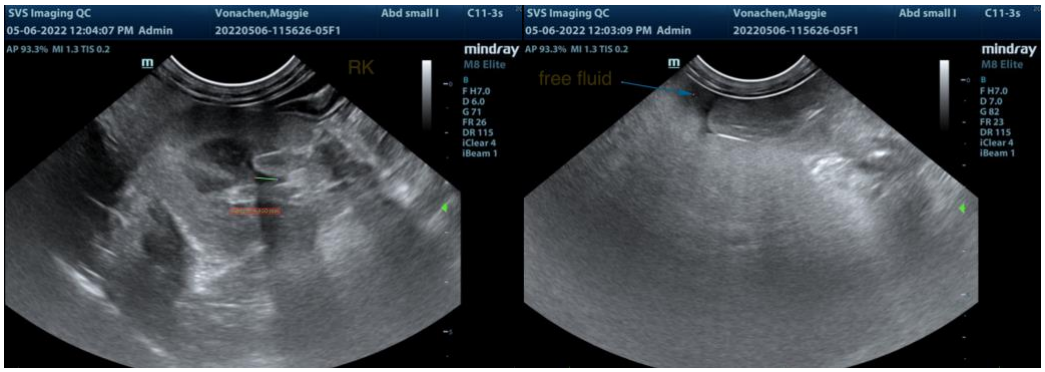
bacterial infection. Although indiscriminate use of antibiotics is not normally recommended, one could begin treatment with a broad-spectrum antibiotic and assess Maggie's clinical response.

To avoid oral antibiotics due to Maggie's hyporexia, an injection of cefovecin (Convenia) may be tried (not ideal, but 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.







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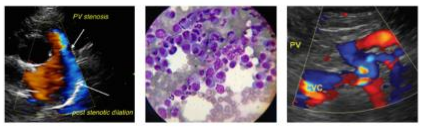

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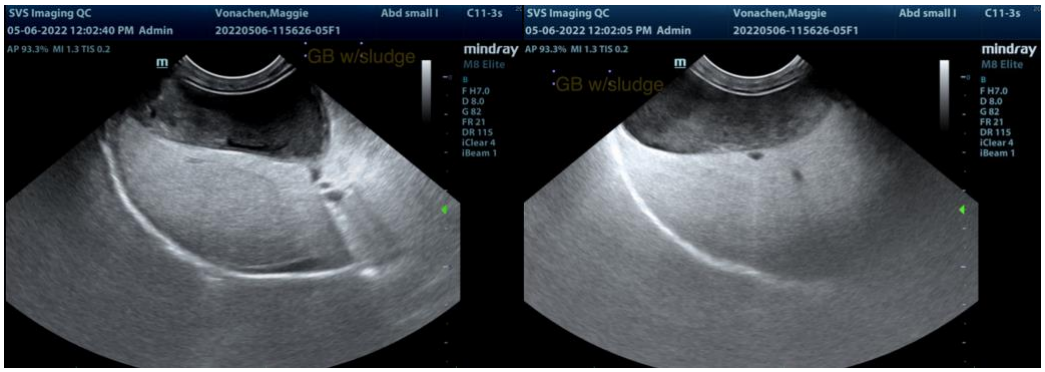

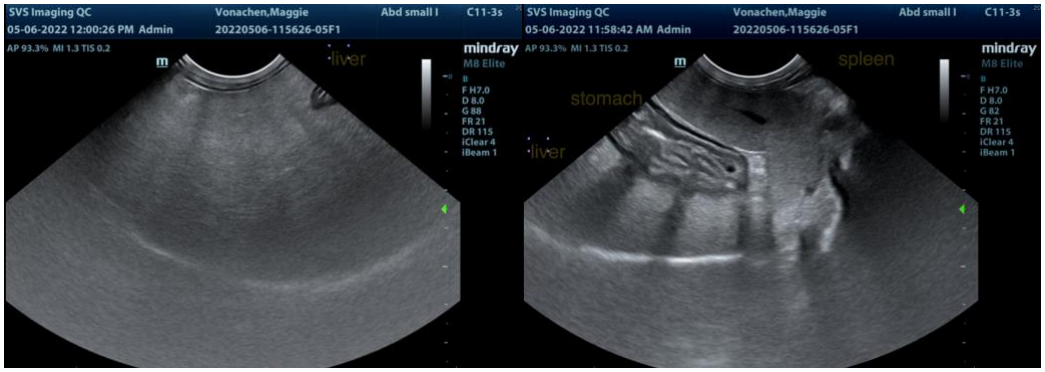

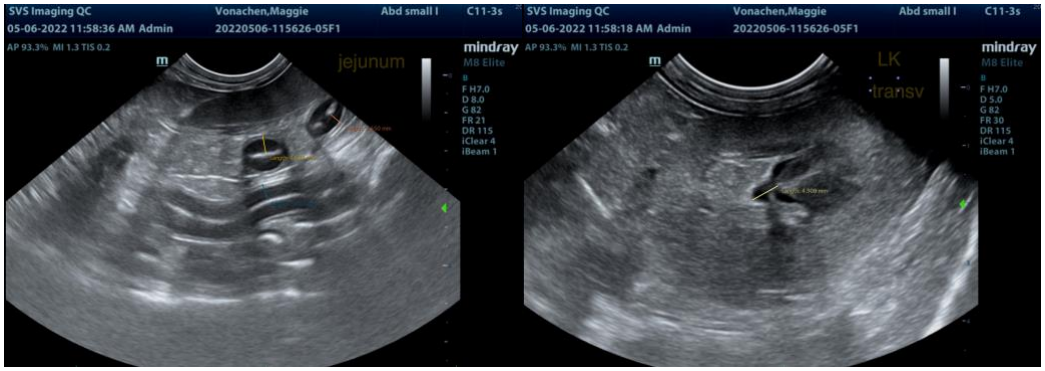

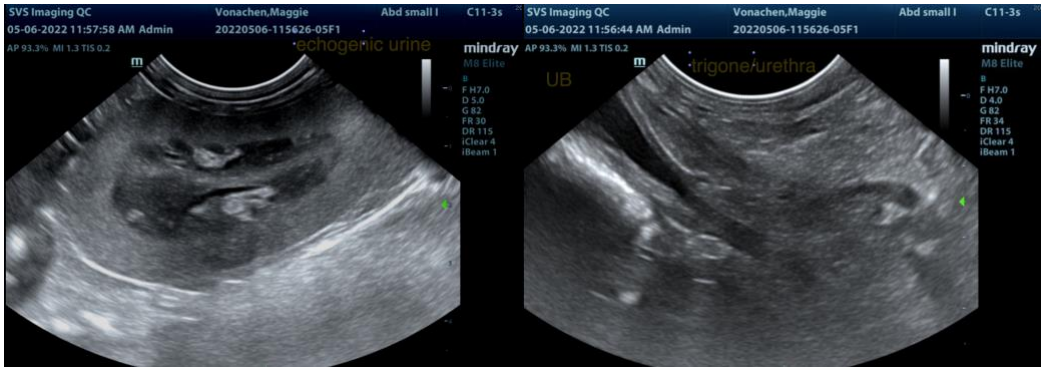

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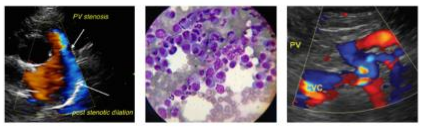

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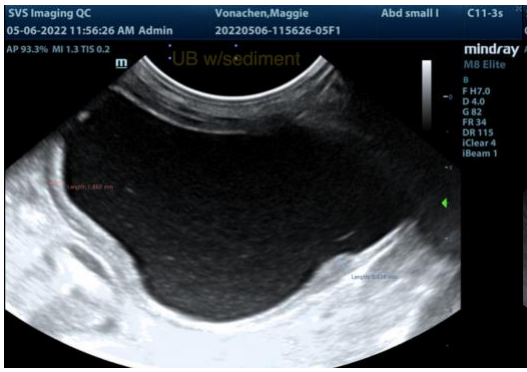

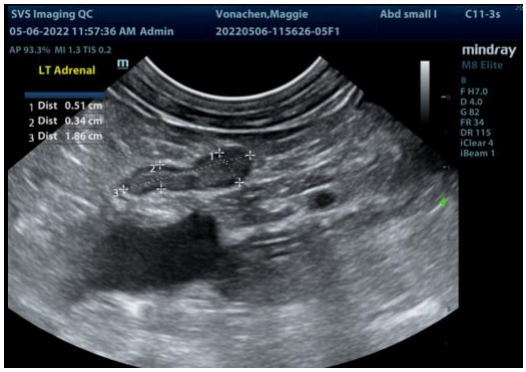

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

Lisa.Carioto@sonopath.com