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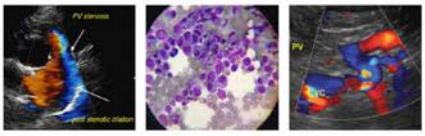

SonoPath
Clinical Sonography & Telecytology
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1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Lady Sink

SPECIES
Canine

BREED
Mini Aussie

SEX
Spayed Female

AGE
11 Years

WEIGHT
15 Pounds

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Amy Mayhew, LVT

HOSPITAL NAME
SVS Imaging MI

REFERRING VET
Family Pet Practice

INVOICE
39435

DATE
7/12/22

PRESENTING CLINICAL SIGNS

5 mos history of bilious vomiting. Saturday vomited kibble morning and evening, Sunday vomited kibble in morning. Monday vomited bile. Eating and drinking normally with normal stools.
Abnormal PE/Chem/CBC/UA Results: PE WNL, please see attached BW from today.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** is not fully distended, but its contents are anechoic. The wall is mildly irregular circumferentially. The latter is likely due to the bladder not being well distended. No abnormalities are noted with the trigone or proximal urethra. There is no evidence of sediment, cystoliths or a mass, however, the bladder wall is slightly more irregular and thickened along the caudal border of the dorsal wall. This may be artifact, and/or due to the bladder not being well distended.

Kidneys

The **left** kidney measures 3.94 cm. The capsule is smooth. Its overall architecture, including the definition of the cortico-medullary junction, is well preserved for a dog of Lady's age. Very mild mineralization of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 4.21 cm. Findings are similar to the left kidney.

Aortic bifurcation/trifurcation No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.55 cm at the cranial pole, 0.38 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 0.53 cm at its widest diameter. It is 0.47 cm at the cranial pole, 0.48 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. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly and its borders are smooth and sharp. The liver's echotexture is homogeneous and it is within normal limits in echogenicity. Focal lesions are not observed and no abnormalities are observed with the hepatic vessels.

The gallbladder (GB) is moderately distended with a moderate to large amount of echogenic material (sludge) within the lumen. The majority of the sludge is inspissated and remains immobile in its centre, with a small amount of free floating and gravity dependent sludge. Nodules of sludge are also noted, some of which are adhered to the intraluminal wall. Thick strings of mucus are observed arising from the luminal wall and attaching to the inspissated debris circumferentially, yielding a "stellate effect". The GB wall is within normal limits in thickness and echogenicity and there is no evidence of edema or hyperechoic parenchyma surrounding it. The cystic and common bile ducts cannot be followed due to

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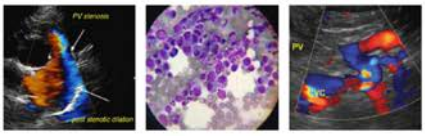

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the large amount of gas in the stomach however there are no obvious signs of a rent in the GB wall or signs of an obstruction.

Gastrointestinal

A very large amount of gas is present within the lumen of the stomach. The gastric wall is within normal limits in thickness and the wall layers are well defined, however, subjectively fogging of the muscularis is present. No abnormalities are observed at the pyloric-duodenal junction. Peristalsis is difficult to assess due to panting artifact.

The duodenum is at the high end of normal reference range to mildly thickened at 0.55 cm. Mild stippling of the mucosa is present. A large amount of gas and liquid are present within the lumen.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved. No abnormalities are observed 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. Gas and solid stool are present within the colon.

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

Pancreas

No abnormalities are observed with the architecture, contours, echogenicity or echotexture of the pancreas. There is no evidence of hyperechogenicity of the surrounding mesentery, i.e., signs of active pancreatitis are not present.

Other

Lymph nodes No abnormalities are observed

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Gallbladder**: Gallbladder (GB) sludge. An emerging mucocoele is suspected without signs of a rupture.

  Although the presence of gallbladder (GB) sludge may not be clinically significant, the sludge in Lady's GB is inspissated and immobile and strings of mucus are noted, thereby increasing the suspicion of a mucocoele and its clinical significance. That is, she has experienced an acute onset of vomiting and an elevation of the GGT is present on her blood work. Note, the ALT may be due to acute vomiting.

  Some dogs may show clinical signs of gastroesophageal reflux disease (GERD) as a result of the sludge, therefore, an evaluation for signs of GERD is suggested. Treatment with ursodeoxycholic acid is suggested, with or without an anti-acid or proton pump inhibitor, depending on the history of GERD. Cholecystitis cannot be excluded despite the absence of classical sonographic signs.

- **Gastrointestinal tract**: Mild inflammatory changes are observed (gastro-duodenitis), that are likely due to acute vomiting, rather than an underlying gastroenteropathy. There is no evidence of neoplasia.

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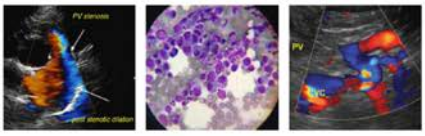

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- **Kidneys**: Very mild age-related changes, however, overall the architecture of Lady's kidneys looks excellent.
- **Urinary bladder**: The bladder wall is mildly irregular circumferentially. It is slightly more irregular and thickened, yielding a "polyp-effect" along the caudal border of the dorsal wall. This is most likely artifact, i.e., due to the bladder not being well distended, however, a urinalysis and culture and sensitivity are suggested to exclude subclinical bacteriuria, and/or a re-evaluation of the urinary bladder may be performed in the future. Lady should not void for approximately 2 hours prior to the ultrasound.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A urinalysis and culture and sensitivity are suggested to exclude subclinical bacteriuria.

Another option is to re-evaluate the urinary bladder sonographically in the future. Lady should not void for approximately 2 hours prior to the ultrasound.

Mild hemoconcentration noted on Lady's blood work, which is likely due to her vomiting episodes. Her water consumption may be monitored and canned food may also be offered.

The use of ursodeoxycholic acid (Ursodiol) is suggested, however, it should not be started concurrently with other medications. Furthermore, it should be administered judiciously, at a very low dose, and slowly up-titrate to decrease the risk of side effects. For example, 3 mg/kg PO once a day for 5-7 days, then 5 mg/kg PO once a day for 5-7 days, then 7.5 mg/kg PO once a day for 5-7 days, then 10 mg/kg PO once a day for 5-7 days. She may not be able to tolerate the 15 mg/kg/day dose. Also, the dose should be divided BID and given with a meal to decrease the risk of nausea, cramps, vomiting and diarrhea.

Consider signs of GERD. Treatment with an anti-acid or proton pump inhibitor may be required depending on Lady's history; 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO **q12h**)

Small, frequent meals, with one before bedtime

Recheck ultrasound 3-4 months following initiation of Ursodiol to assess response to therapy.

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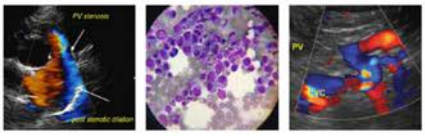

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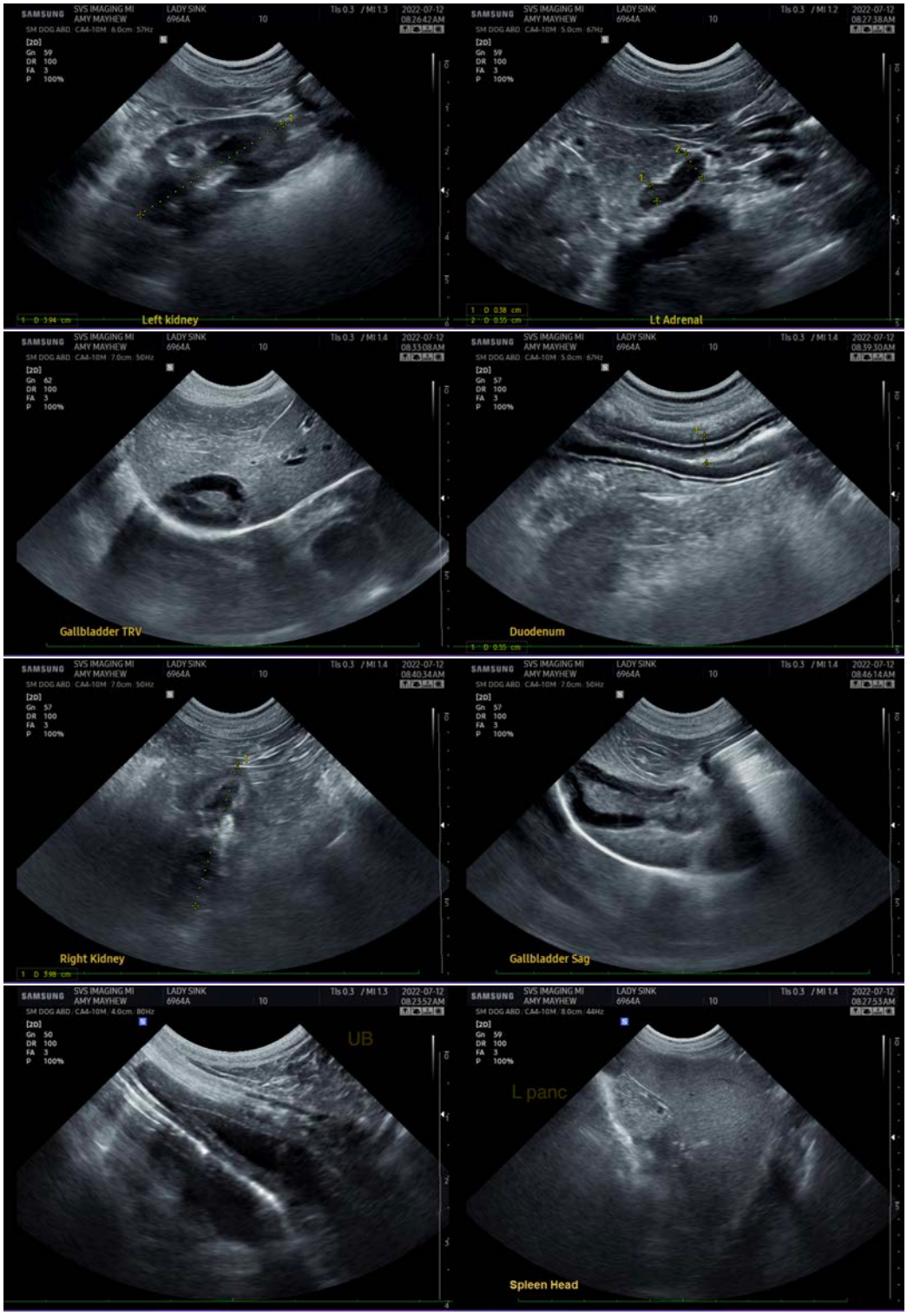

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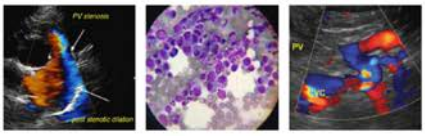

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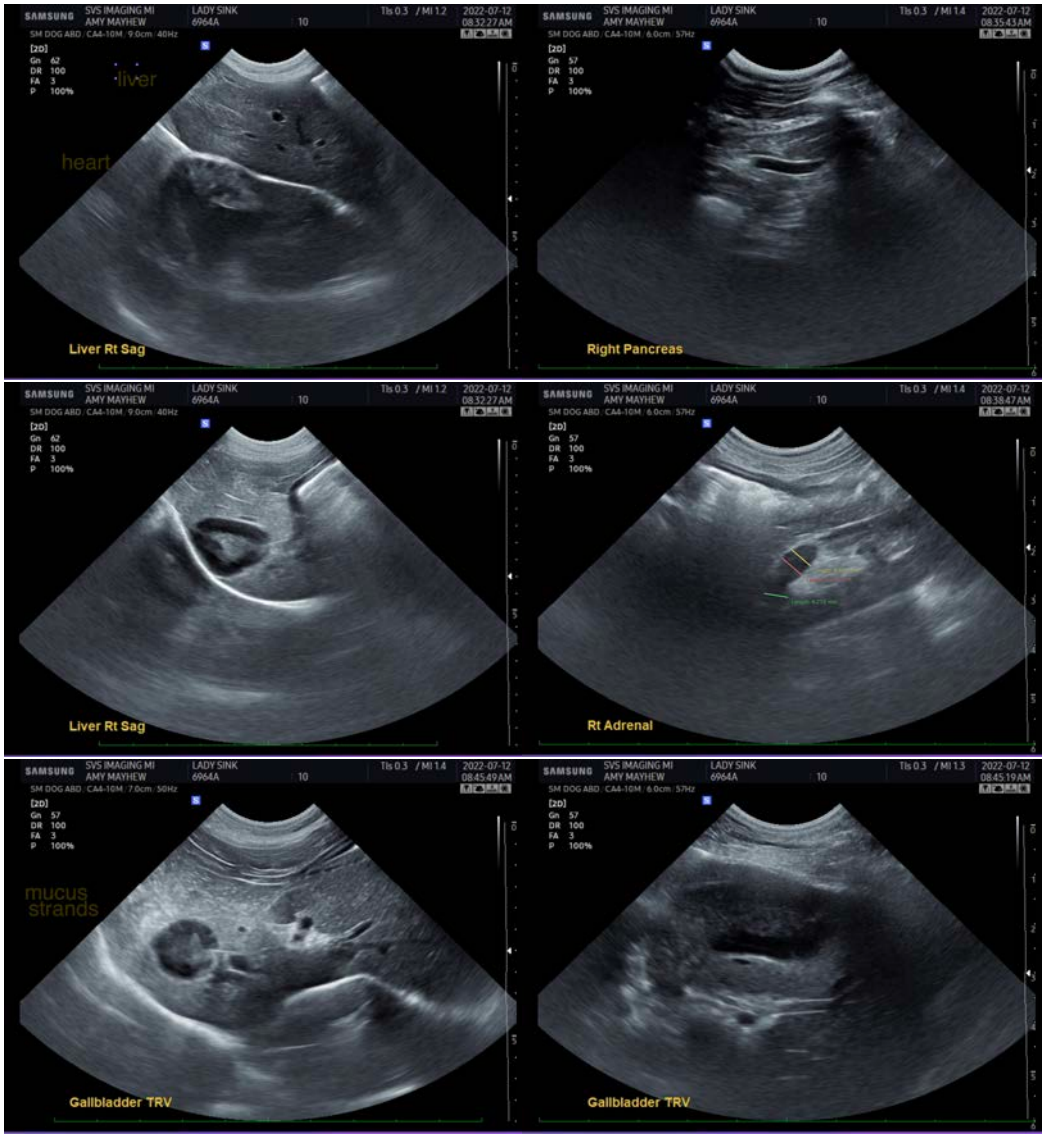

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

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