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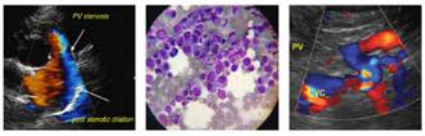

SonoPath
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PATIENT

Taylor Withey

SPECIES

Canine

BREED

Doodle

SEX

Neutered Male

AGE

11.5 Years

WEIGHT

77 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

North Oakland Visiting Vet

INVOICE

38627

DATE

6/10/22

PRESENTING CLINICAL SIGNS

Limping on left side, both legs. Very lethargic and not able to get up from laying without assistance. Trembling. Not very alert.
Abnormal PE/Chem/CBC/UA Results: A different vet did bloodwork (results pending) and X-rays of neck/chest and abdomen. She said she thinks he may be anemic. X-ray of neck/chest was good. Abdomen X-ray showed the spleen was not visible. Vet said this could indicate a mass or some sort of obstruction on or around the spleen. **Please see attached labs

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is inadequately filled, thereby affecting the ability to accurately measure wall thickness. The wall is mildly irregular in certain regions, which may be 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, polyps, or a mass.

Prostate

The prostate is homogenous and measures 1.25 cm, which is within normal limits for a neutered male.

Kidneys

The **left** kidney measures 7.81 cm. The capsule is smooth. A thick hyperechoic ill-defined band is observed along the medulla, traversing parallel to the corticomedullary junction, which accentuates the definition of the cortico-medullary junction. There are no signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 7.79 cm. Findings are similar to the left kidney.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.63 cm at the cranial pole, 0.71 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 0.51 cm at the cranial pole, 0.60 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

Although the spleen is within normal limits in size, architecture, and echogenicity, and the capsule is smooth, it has a very subtle, diffuse, miliary echotexture. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

Hepatomegaly is suspected, particularly the right liver, which has very rounded, but smooth, borders. The liver also appears "swollen".

Left liver

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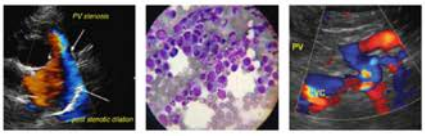

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Transverse view: A well-defined, heterogeneous mass, 6.37 cm in diameter x 8.48 cm in length. . It is comprised of anechoic and hypoechoic nodules, in addition to ill-defined hyperechoic "patches". The mass disrupts the integrity of the hepatic capsule. The parenchyma adjacent to the mass is diffusely coarse and heterogeneous, created by multiple hypoechoic nodules of variable size.

Right liver
Intracostal view: The parenchyma is diffusely heterogeneous. Multiple hypoechoic nodules of variable size are observed dispersed haphazardly throughout the parenchyma.

Sagittal view: A mass effect, which is very similar in echotexture and echogenicity to the remainder of the parenchyma is noted. The mass effect is created by a hyperechoic capsule.

The **gallbladder** (GB) is moderately distended with a small to moderate amount of free floating and gravity dependent echogenic material. The GB wall is within normal limits in thickness and echogenicity. Sludge is present at the neck of the cystic duct. There are no signs of an obstruction.

Gastrointestinal

A large amount of 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 small intestinal wall thickness, including the duodenum (0.40 cm), is within normal limits and the definition of the wall layers is preserved. Very mild stippling of the mucosa of a few segments of 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 pancreas has a very mildly coarse echotexture, and is heterogeneous, which are attributed to age related changes. Additional changes are noted with the right limb, which is mildly hypoechoic. Hyperechoic regions, some of which are well defined, are also observed. Differential diagnoses include ischemia and fibrosis, as well as infarcts. Signs of neoplasia are not appreciated.

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. There is no evidence of a mass in any of the cardiac chambers, including the right auricle, however, a mass may be overlooked in the absence of pericardial effusion. No overt abnormalities are observed with contractility or chamber size (measurements not performed).

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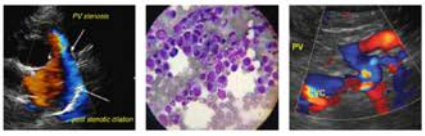

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ULTRASONOGRAPHIC FINDINGS

- **Liver**: Well circumscribed, severely heterogenous mass located in the **left** lobe. The appearance of this mass is suggestive of a *carcinoma* or *adenocarcinoma*. The heterogeneous parenchyma adjacent to the mass may be due to *nodular hyperplasia*, as well as a combination of the former and *emerging neoplasia*. The mass effect observed in the right lobe (sagittal view) is very similar in appearance to the remainder of the surrounding parenchyma, which is mildly to moderately and diffusely heterogeneous. A *well-differentiated carcinoma* must be considered, although a *hepatoma (benign adenoma) with nodular hyperplasia* remains a possible differential diagnosis.
- **Pancreas**: *Mild, smoldering active pancreatitis* cannot be excluded, in addition to *fibrosis and infarcts* due to previous episodes, as well as *age-related changes*.
- **Kidneys**: *Age-related degenerative changes* are suspected. Glomerulonephritis may be contributing to some of the changes observed. Normally, an evaluation for proteinuria would be recommended, however, this test is not a priority at this point (and would likely be falsely elevated due to systemic inflammation caused by the hepatic mass). Pyelonephritis cannot be excluded despite the absence of classical sonographic signs.
- **Spleen**: Extramedullary hematopoiesis may be the cause of the miliary echotexture, secondary to Taylor's anemia. Reactive hyperplasia may also be present. Neoplasia, such as lymphoma or other round cell tumour, cannot be excluded given the very mild eosinophilia. A fine needle aspirate is required to obtain a definitive diagnosis.
- **Gastrointestinal tract**: Stippling of the mucosa of the small intestines is somewhat subjective. Although it may not be clinically significant, it may be associated with (subclinical) GI inflammation, including, a chronic enteropathy, such as inflammatory bowel disease.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following are suggested/recommended

Urine culture

Coagulation profile

Fine needle aspirates of the hepatic mass and the heterogeneous regions of the liver, pending platelet count and coagulation profile.

Administration of vitamin K (0.5 mg/kg SQ q8-12h for 1-3 doses) prior to performing the FNA, even if coagulation profile is WNL.

Hospitalization for treatment with intravenous fluids, analgesia, and other supportive care.

If further diagnostics are not pursued and renal function is adequate, one could treat empirically with meloxicam or deracoxib, both of which have been shown to have anti-neoplastic activity against carcinomas.

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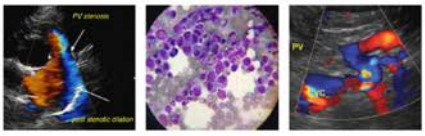

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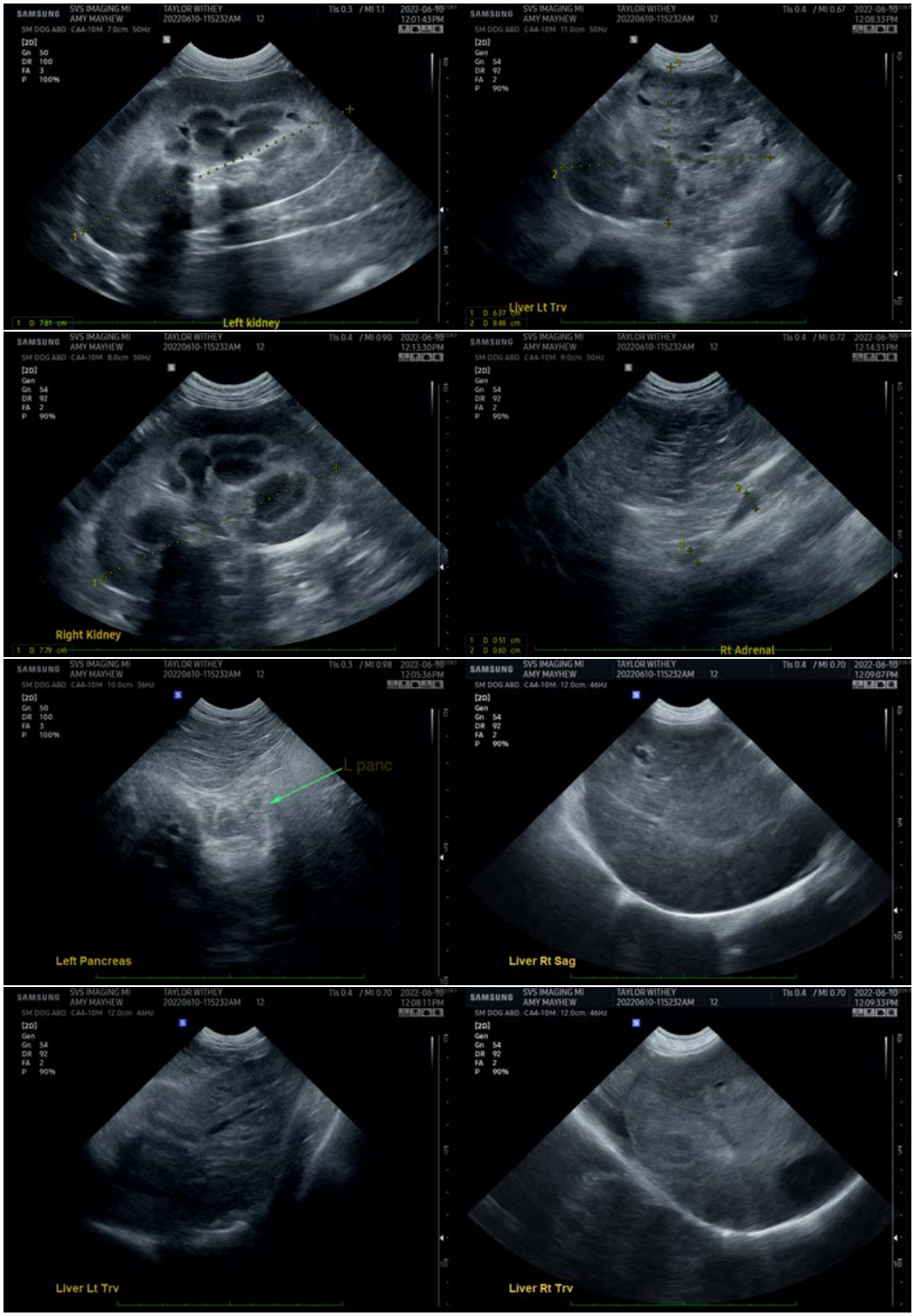

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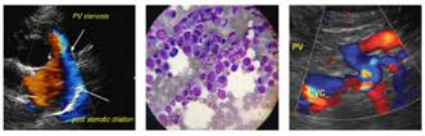

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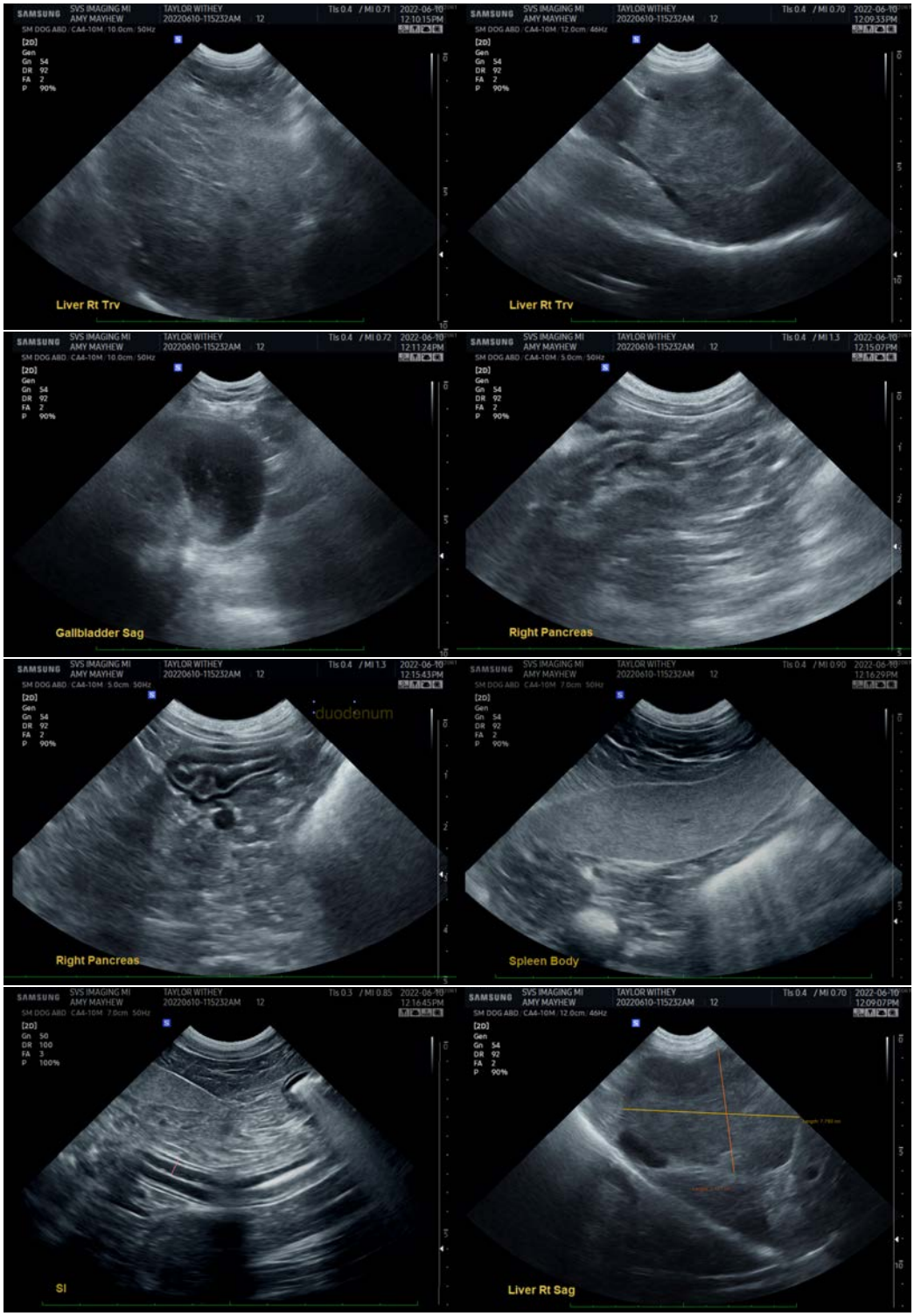

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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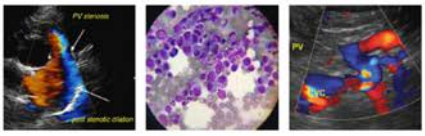

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