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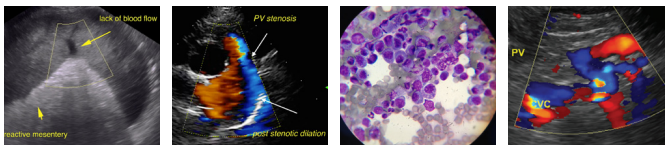
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT
Sammi Collette

SPECIES
Canine

BREED
Min Schnauzer

SEX
Spayed Female

AGE
12 Years

WEIGHT
19 Pounds

INTERPRETED BY
Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY
Amanda Crook – SDEP Certified Clinical Sonographer

HOSPITAL NAME
Rivers Edge PMC

REFERRING VET
Dr. Travis Gibson

INVOICE
35380

DATE
2/2/22

PRESENTING CLINICAL SIGNS

Pet has not been to another vet besides us. History of increased liver enzymes. Over the past 2 weeks pet has had a slow increase of abdominal size with discomfort. Explained digital radiography findings and suggested full bloodwork and abdominal/echocardiogram. Suspect hepatobiliary as well as pericardial congestion. Abdominal ultrasound elected for more information. BP today: 180,178,186 ECG: No arrythmias, R wave amplitude increased, otherwise WNL.
Abnormal PE/Chem/CBC/UA Results: CBC- Decreased RBC (5.21 M/UL), HCT (33.3%)/ Elevated PLT (691 K/uL) Chem- Some values lower than last visit. Elevated ALT (463 U/L), ALKP (>2000 U/L), GGT (42 U/L), Chol (422 mg/dL) Radiographs: Digital radiography- Increased left atria with organomegaly offsetting gastrointestinal tract. Distinct organ differentiation unable to accomplish. Suspect cranial abdominal fluid congestion. Feces in colon.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.9	2.8	1.6	1.47	40.9	73.3	0.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LA** 2D short axis Base view (cm)	**LVIDd** Avg; 2D and m-mode short axis (cm)	**LVIDs** Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	133	1.5	1.0		3.5	3.0	

Cardiac Presentation

The echocardiogram for this patient presented mildly excessive **left atrial size** expressed both in the LA/AO and LA max measurements Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable eccentric mitral valve insufficiency. The **left ventricle** presented normal thicknesses with linear contour with subjective minor increased left ventricular volume. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated mild thickening with mild TV insufficiency on color doppler assessment. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). No visible **pericardial** or free pleura fluid was noted. No echographically detectable evidence of infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

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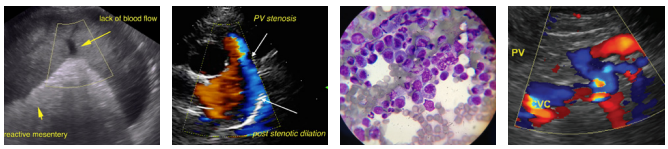

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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of – cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and mil dloss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 5.0 cm. The right kidney measured 5.2 cm.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 1.8 cm length x 0.46 cm at the caudal pole. The right adrenal gland measured 2.1 cm x 0.69 cm.

Spleen

The spleen exhibited primarily finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Multifocal, well-defined, symmetrical, echogenic nodules were present throughout the cranial to caudal parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory or neoplastic changes were not noted. The echogenic nodules tend to trend benign and are most consistent with benign hyperplasia or myelolipomas.

Liver

The liver exhibited generalized enlargement, primarily owing to a large, expansive, non-homogeneous to focally cystic mass occupying the majority of the left, mid and right caudal liver. The mass measured approximately 12 cm in diameter, but potentially larger, as the entire mass would not fit into a single viewing window. The mass was essentially isoechoic compared to adjacent hepatic parenchyma. The hepatic parenchyma not involved with the mass exhibited generalized hepatic parenchymal remodeling. The gallbladder was mildly distended in size, containing primarily anechoic content with mild echogenic to hyperechoic, potentially mineralized debris. The common bile duct was normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction or foreign material.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. Segmental mildly retained duodenojejunal ingesta/chyme present.

Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas

The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

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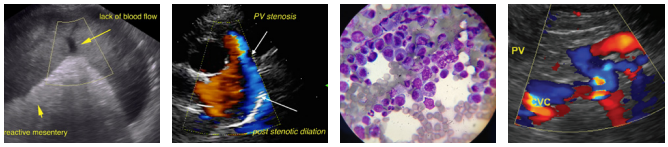

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Free Abdomen

Moderate volume peritoneal free fluid noted. No overt lymphadenopathy. Mild generalized reactive mesentery noted.

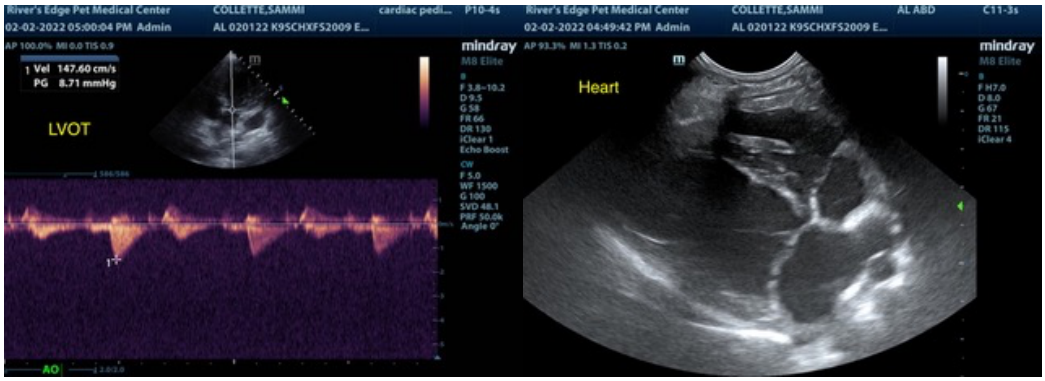
ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B2)
- Mild TR – estimated pulmonary pressure gradient suggestive of mild elevated pulmonary pressures, yet not overtly consistent with clinical pulmonary hypertension.
- Large, non-homogeneous to cystic liver mass
- Benign splenic nodules – consistent with probable benign myelolipomas
- Mild chronic renal changes
- Moderate volume peritoneal free fluid

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The mild LA enlargement secondary to mitral valve insufficiency indicates that the risk for complication going forward is mildly elevated. Overall, the heart appears to be compensated at this stage. However, prognosis is variable. Pimobendan at 0.3 mg/kg PO BID recommended, as this medication may help prolong cardiac changes associated with mitral valve insufficiency. Recheck echocardiogram suggested in 6 months if clinically indicated for further assessment and prognosis, sooner if clinical signs associated with cardiac disease arise. The lack of right heart enlargement or clinical pulmonary hypertension indicate that the peritoneal effusion is non-cardiogenic in origin.

Given the patient's previous history of liver mass, the mass at this time appears to be progressive compared to previous ultrasound report with similar appearance, echogenicity and cystic changes. Benign versus neoplastic etiologies are possible, although on-specific neoplasia is favored. The effusion in this case is suspected to be owing to generalized hepatic parenchymal disease and potential portal hypertension. Further assessment may include recheck FNA of the liver mass +/- core biopsy as well as effusion analysis. However, the mass does not appear to be amenable to surgical resection given its size, likely involvement of more than one liver lobe, and likely location adjacent to the porta hepatis.



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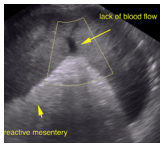

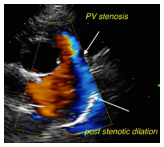

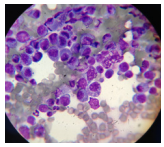
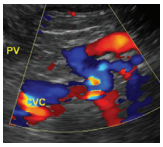

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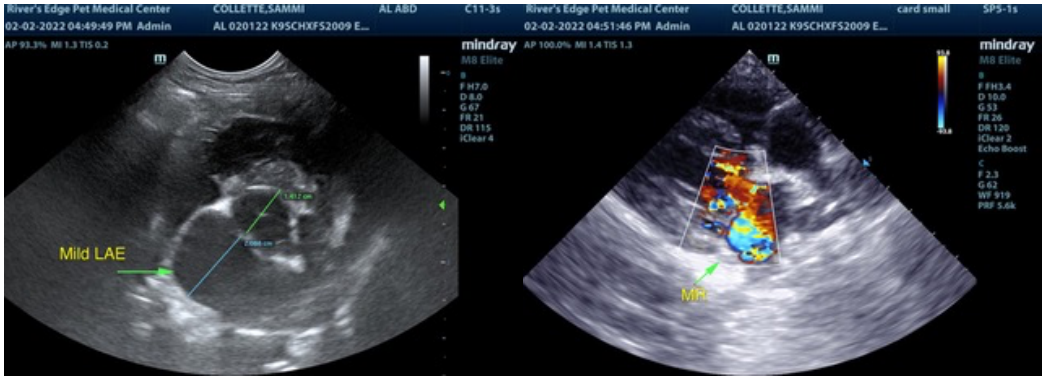

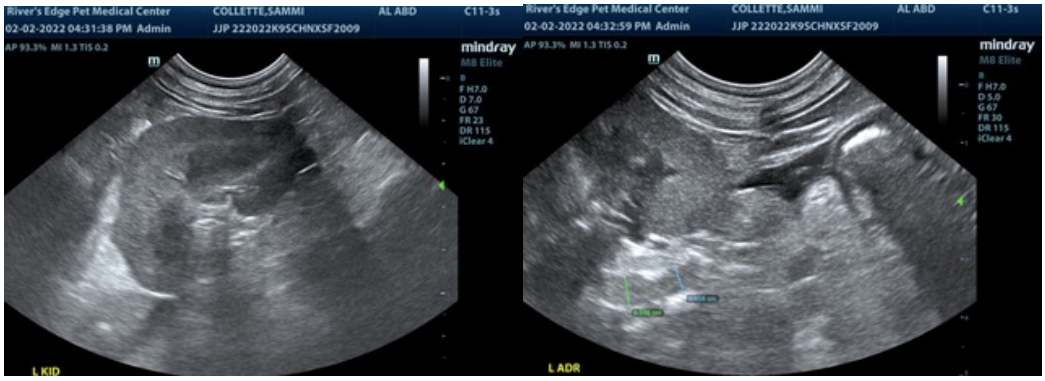

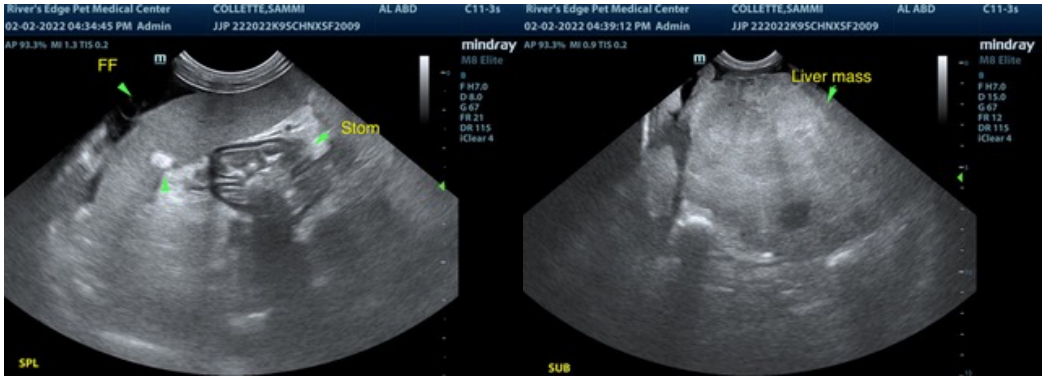

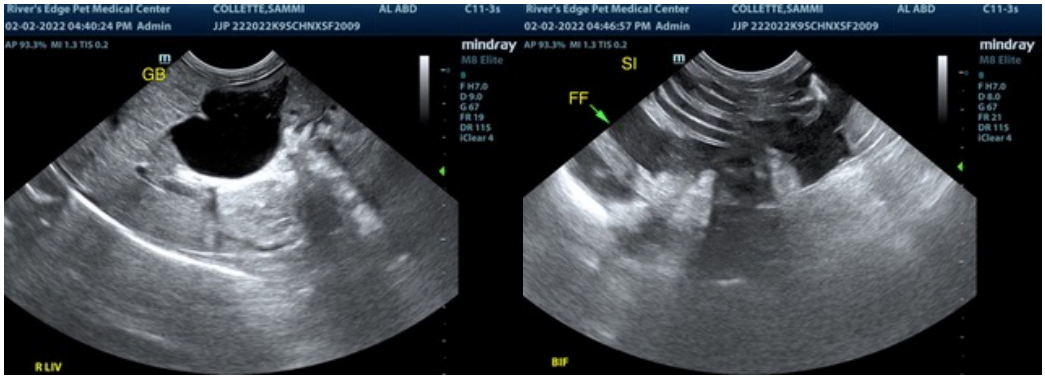

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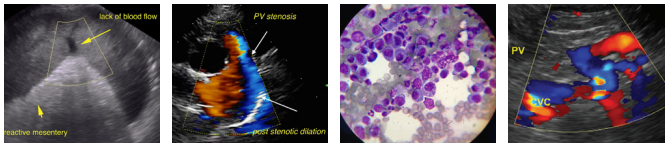

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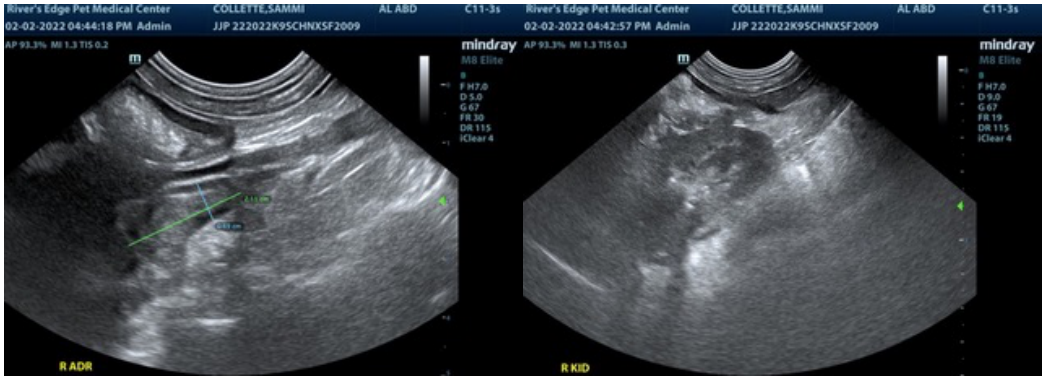

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)

info@SonoPath.com