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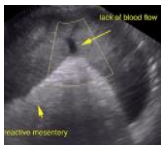
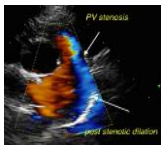
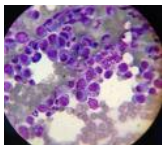
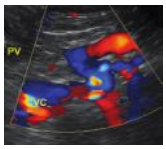

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1-800-838-4268 info@sonopath.com

PATIENT

Lexi Warren

SPECIES

Canine

BREED

Mized

SEX

FS

AGE

17 yr

WEIGHT

30 lb

INTERPRETED BY

R. McKenzie Daniel, DVM, DABVP (Canine and Feline)

IMAGING PERFORMED BY

Amanda Lacey-Crook

HOSPITAL NAME

Rivers Edge Pet Medical Center

REFERRING VET

Dr. David Gray

INVOICE

10634ag

DATE

05/16/2022

PRESENTING CLINICAL SIGNS

History: P presented yesterday (5/15) for coughing, bloody serosanguinous nasal discharge, respiratory distress. Previously diagnosed with cardiac disease. Current therapy includes pimobendan, enalapril, furosemide. Heart murmur 5/6 left systolic with dyspnea, tachypnea upon presentation. Abnormal heart rate. Vomited dark vomitus 2x overnight/this a.m. with more bloody nasal discharge. BP today on Doppler: 220, 210, 218

Abnormal PE/Chem/CBC/UA Results: See attached radiograph reports - films show pulmonary edema and cardiac enlargement. See attached labwork - leukocytosis with mild neutrophilia and monocytosis, moderate thrombocytosis, mildly increased ALT and AlkPhos See attached ECG report.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART AND 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	<1.3	28-40	40-100	<0.6
PATIENT	5.4	2.3		1.3	43.8	78.4	0.31
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	NM	1.6	1.0		3.4	3.2	

Cardiac Presentation

The echocardiogram for this patient presented excessive left atrial size expressed both in the LA/AO and LA max measurements Chamber volumes and echogenicity were essentially normal. The cranial and caudal mitral valve leaflets presented vegetative thickening consistent with endocardiosis without evidence of chordae tendineae rupture or valvular prolapse. Doppler indicated measurable eccentric insufficiency. The left ventricle presented thicknesses with linear contour and was not dilated nor restricted. 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 systolic laminar flow and overall subjective structural integrity for age. Mild to moderate AI present on Doppler measuring 4.6 m/s max. The right atrium and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. Tricuspid valvular assessment demonstrated concurrent vegetative thickening with TR on Doppler. 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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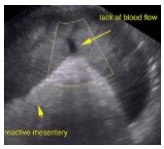

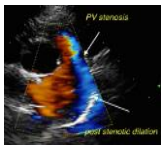

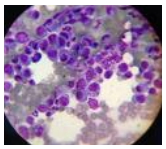
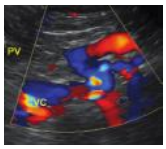

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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3 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 margination was 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 moderate loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 5.8 cm in length. The right kidney was mildly subnormal in size compared to the left, measuring 4.8 cm in length with asymmetrical renal margination.

The area of the aortic trifurcation was free of pathology.

Adrenal Glands

The left adrenal gland was mildly prominent in size. The left adrenal gland measured 2.66 cm length and 1.0 cm width in the caudal pole. A moderately sized nonhomogeneous to nodular mass was present in the area of the right adrenal gland measuring 4.4 cm length x 1.2 cm cranial pole x 2.0 cm caudal pole.

Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. 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. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age-related remodeling with minor potential for inflammatory or neoplastic disease.

Liver

The liver presented mildly enlarged. The hepatic parenchyma revealed diffuse mildly reduced echogenicity compared to the spleen and renal cortical parenchyma with a mild coarse echotexture. A solitary nonhomogeneous to mixed echogenic macronodule exhibiting mild cystic component was present in the caudal aspect of the right lateral to caudate liver lobe measuring approximately 3 cm in diameter. Mild increased prominence of portal vascular borders was evident. The capsule of the liver was normal in margination. The gallbladder was non-distended in size with primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach exhibited regional thickening with intact yet indistinct wall layering as well as subtle decreased mural echogenicity subjectively in the area of the ventral body. The ventral gastric body wall measured 1.0 cm in width. The stomach was primarily empty with minor retained nonshadowing chyme.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material. The duodenum wall measured 0.48 cm in width.

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

Pancreas

The pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia

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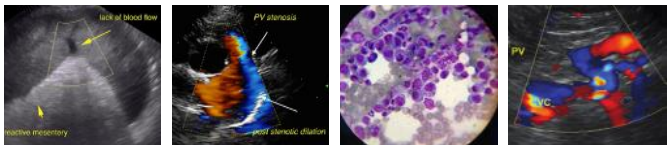

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Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

Cardiac

- Chronic mitral valve disease (ACVIM B1-mild B2)
- TR-estimated pulmonary pressure gradient approximately 20 mmHg, not consistent with overt clinical pulmonary hypertension
- Aortic insufficiency

Abdomen

- Chronic renal changes-more prominent in the right kidney with suspect right kidney cortical infarct
- Mildly prominent to nonhomogeneous left adrenal gland
- Nodular right adrenal mass
- Hepatopathy exhibiting nonspecific yet highly suspicious caudal right lateral to caudate lobe nodule
- Regionally thickened stomach – gastritis vs emerging infiltrative disease

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The lack of significant LA enlargement associated with mitral valve insufficiency as well as lack of increased LV volume were not overtly consistent with cardiogenic cause of pulmonary edema. Additional issues such as LV systolic dysfunction or evidence of clinical pulmonary hypertension were not present. Given this cardiac presentation, consideration for noncardiogenic causes of pulmonary edema i.e. noncardiogenic pulmonary edema, thromboembolic disease or other primary pulmonary pathologies should be considered. Continued empirical triple therapy would be reasonable to cover possible cardiogenic edema. Monitoring of BP for evidence of persistent hypertension which may strongly allude to a right pheochromocytoma and in light of the AI is recommended. Urine catecholamine levels can be considered for further assessment.

Although not definitive, the nonhomogeneous to focally cystic macronodular to small mass in the area of the right liver is highly suspicious of metastatic disease given the right adrenal mass. Potential for non-metastatic etiologies such as hyperplasia or lipogranuloma are possible.

A full coag panel is recommended if possible, to assess for evidence of a hypercoagulable state or potential DIC. Gastroprotectants and as needed antiemetics are suggested.

A very guarded to unfavorable prognosis is unfortunately indicated.

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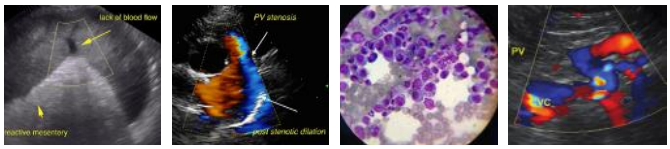

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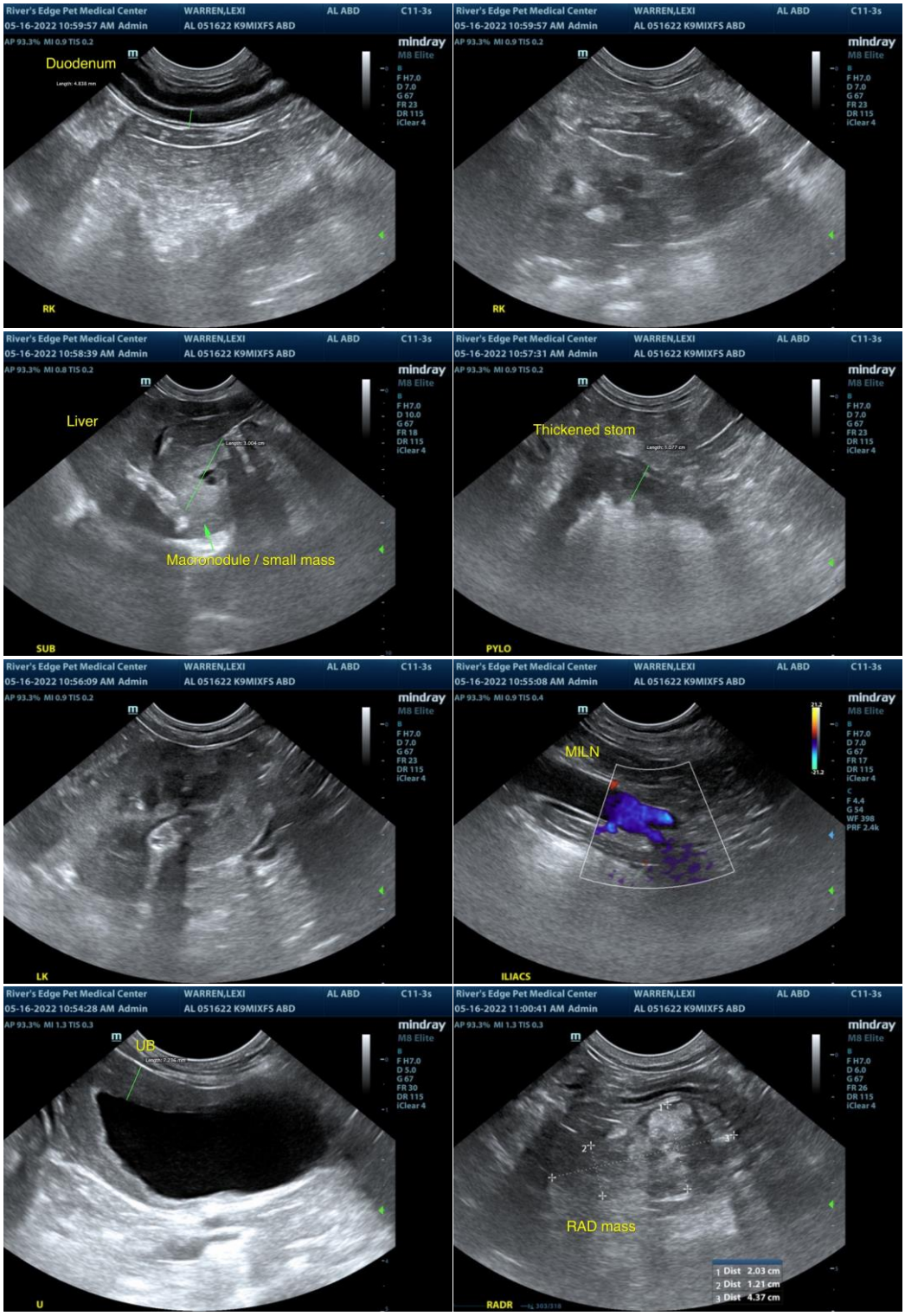

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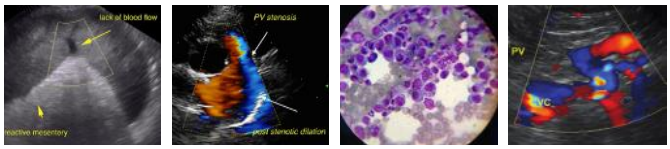

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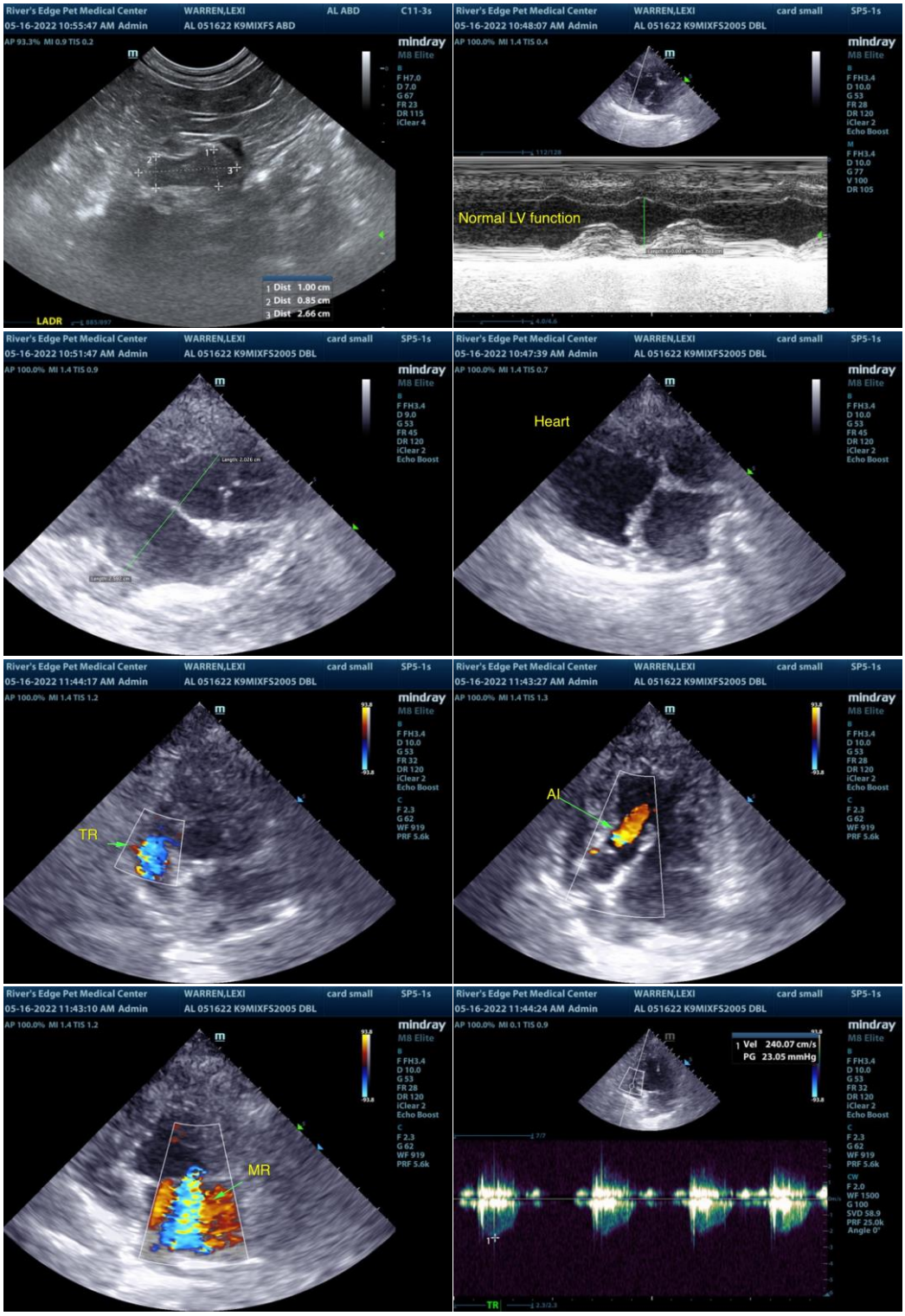

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I

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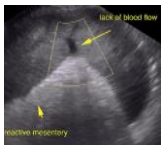

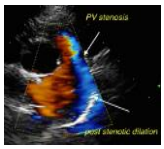

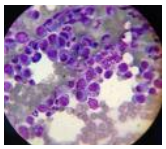
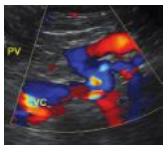

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can be of any further assistance please contact me.

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