

PATIENT

Chip McHenry

SPECIES

Canine

BREED

Lab

SEX

NM

AGE

11 years

WEIGHT

84 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Sarah Pender, CVT

HOSPITAL NAME

SVS Imaging QC

REFERRING VET

Dr. Grace Zhang

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DATE

7/7/22

PRESENTING CLINICAL SIGNS

intermittent diarrhea for past ~3 months. no vomiting. have tried adding psyllium husk/fiber, changing diet, and treated with metronidazole progressively worsening heart murmur. no clinical signs of heart failure (e.g. exercise intolerance, cough).

Abnormal PE/Chem/CBC/UA Results: grade 4/6 heart murmur Chemistry (6/20/22): ALP 1042 U/L (increased from 1005U/L in 4/1/22); creatinine 1.7 mg/dL; globulin 2.2 g/dL

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	<1.3	28-40	40-100	<0.6
PATIENT	5.2	<2.0	2.6	2.6	23.6	45.7	1.5
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	100	1.6	0.85		7.6	7.55	

Cardiac Presentation

Severe left ventricular dilation with diminished systolic function, as evidenced by the fractional shortening measurement above, was noted. Increased EPSS and increased LV sphericity were present. Decreased LV wall thickness was present. Severe left atrium enlargement was noted. The Mitral valve appears to be mildly thickened with abnormal coaptation, yet no obvious prolapse. Moderate primarily eccentric mitral regurgitation was present. The tricuspid valve appears mildly thickened. Overtly normal right atrial and ventricular volume was evident. Mild tricuspid regurgitation was noted. The LVOT and aortic valve were overtly normal with normal outflow velocity and systolic laminar flow. No evidence of AI was noted. The pulmonic valve was normal with normal RVOT velocity. No PI was evident. No pericardial or pleural effusion was noted. No obvious cardiac tumors were noted.

Urinary System

The urinary bladder, trigone, and cystourethral junction 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 was noted.

The residual prostate was free of pathology.

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The area of the aortic trifurcation was free of pathology.

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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 mild to moderate loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. Intermittent small cortical cysts were present in both kidneys. Probable focal cortical infarctions were also present in the kidneys. The left kidney measured 7.8 cm in length. The right kidney measured 7.4 cm in length.

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Adrenal Glands

The left adrenal gland was normal in size. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia criteria. No evidence of adrenomegaly was noted. The left adrenal gland measured 3.1 cm length x 0.76 cm width in the caudal pole.

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The right adrenal gland was indistinctly visualized yet without overt pathology subjectively measuring 0.64 cm width at the caudal pole.

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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.

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Liver/ Gallbladder

The liver presented enlarged in size. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of hepatic congestion. The gallbladder was non-distended in size with primarily anechoic luminal content. The cystic and common bile ducts were normal.

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Gastrointestinal**HOSPITAL NAME**

SVS Imaging QC

The stomach presented mild wall thickening secondary to mild echogenic mucosa hypertrophy. Intact wall layering was maintained and distinct. Mild gastric distension with minor retained anechoic gastric fluid was present.

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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.

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

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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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Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

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ULTRASONOGRAPHIC FINDINGS

- Severe LA / LV enlargement with LV systolic dysfunction
- Moderate eccentric MR
- Mild TR - estimated pulmonary pressure gradient not overt consistent with clinical pulmonary hypertension
- Bilateral chronic renal changes with focal cortical infarcts and small cortical cysts
- Vacuolar hepatopathy pattern - subjectively benign
- Overtly normal gastrointestinal tract, potential mild gastritis
- Mild pancreatic remodeling

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Primary considerations for the heart may include advanced chronic mitral valve disease or dilated cardiomyopathy, which may potentially be primary in nature or secondary to conditions such as taurine deficiency, hypothyroidism, myocarditis, or potential infiltrative disease such as lymphoma.

Regardless of classification, significant cardiomyopathy is present and medical therapy is indicated. If clinically applicable, diet history to assess for evidence of potential previous or current grain-free or exotic diet, T4 level, troponin level, and/or taurine level could be considered. No overt evidence of concurrent right-sided heart failure or arrhythmogenic disease was noted. However, going forward, this patient is at high risk for CHF, and the development of malignant arrhythmias with some potential for sudden death.

Exercise restriction is advised. Pimobendan 0.3 mg/kg PO BID and Spironolactone / Lasix combination 1.0-2.0 mg/kg PO BID is suggested. ACE inhibitor medication may be considered if evidence of hypertension (BP >130, not advised if BP <130). Monitoring of renal panel, ECG, and blood pressure going forward is suggested. Recheck echocardiogram is suggested in 3-4 months, sooner if clinical signs arise. A very guarded long-term prognosis is warranted.

In patients with chronic diarrhea without evidence of significant gastroenterocolic pathology, considerations may include dietary intolerance / food allergy, dysbiosis, occult parasitism, structurally insignificant inflammatory bowel, and low-grade to mild pancreatitis which may present as sonographically normal could be present.

Empirically, a limited antigen or hydrolyzed diet trial with potential long term dietary therapy, prophylactic deworming (Panacur 50 mg/kg SID x 5 consecutive days with repeat protocol in 3 weeks even if fecal testing is negative), high colony count probiotic (Provable or Visbiome), antibiotic trial and as needed gastrointestinal support with assessment of clinical response may prove beneficial. A GI panel to include PLI/TLI/Cobalamin/Folate is recommended. If not elected, empirical cobalamin supplementation could also be considered.



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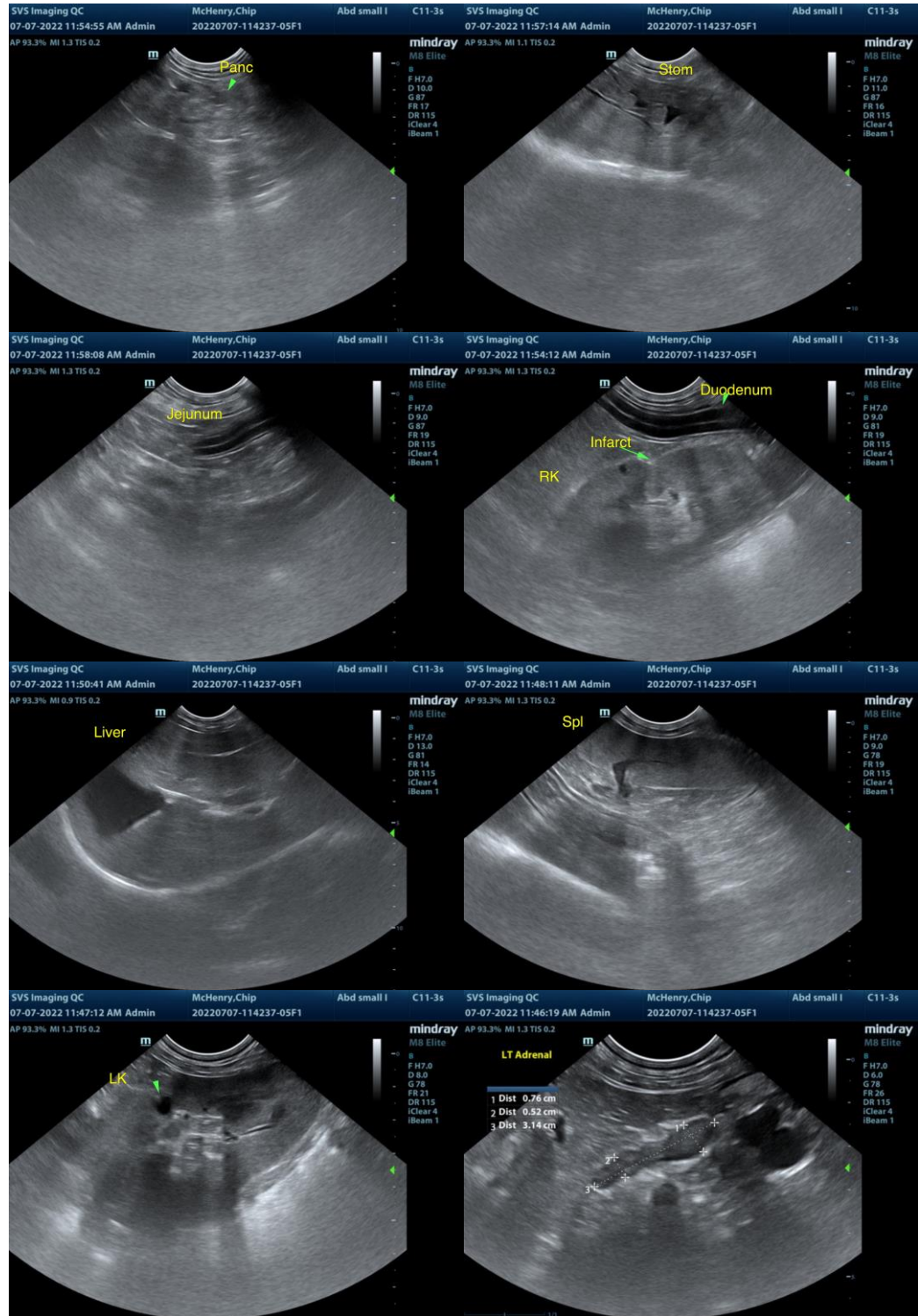
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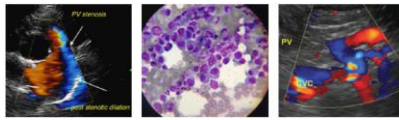
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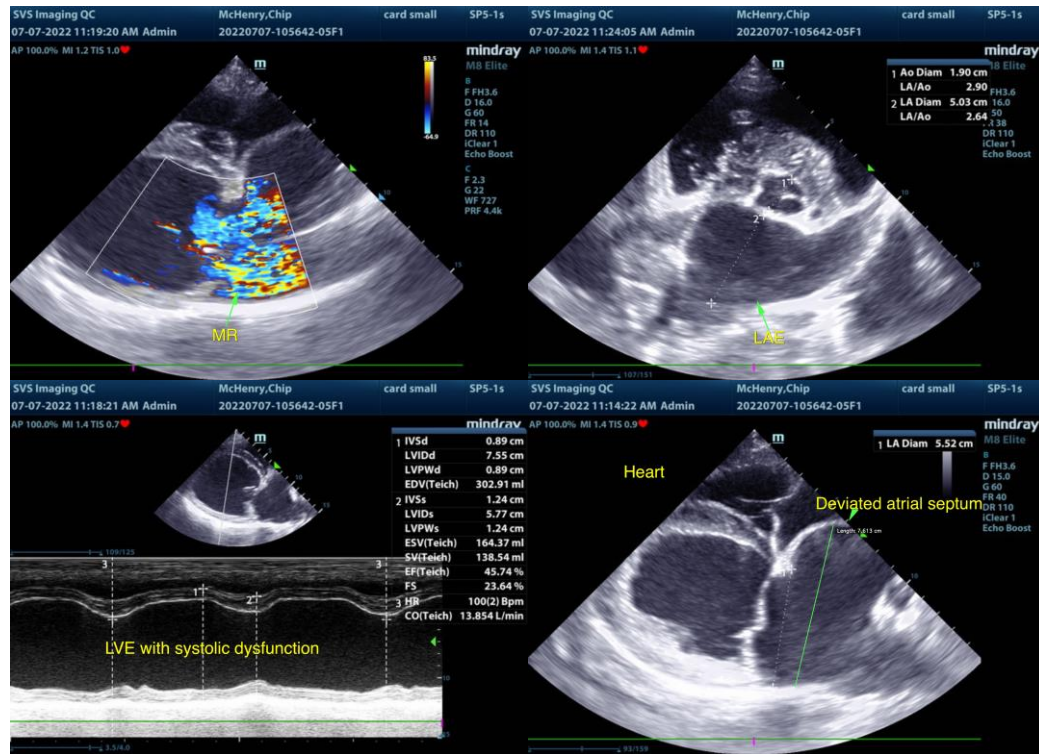
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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