



PATIENT PRESENTING CLINICAL SIGNS

Oliver Rahaghi

Hx of CHF and tracheal collapse, pet doing well at home. Current meds: Pimobendan, Furosemide, Enalapril, Spironolactone, Theophylline, Clopidogrel, Hycodan, Gabapentin, Buprenorphine. Echo-11/2021 LAE, LV severe dilation normal function, RAE mild to mod, MR, severe prolapse, TR mild to mod. pulmonary pressure normal.

SPECIES

Canine

BREED

Cavalier King Charles

Abnormal PE/Chem/CBC/UA Results: sdma 16 (14 H); Bun 41 (31 H); Chl 103 (108 L); Lipase 438 (250 H); USG 1.022, prot 2+, rare cocci, PH 6, 1+ CaOx dih.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

SEX

Neutered Male

AGE

12 Years

WEIGHT

23 Pounds

INTERPRETED BY

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

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	5.4	2.9	NM	1.5	49.3	81.4	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	BELOW	BELOW	BELOW	BELOW
PATIENT	112	1.7	0.75		4.4	3.8	

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Marsh AH

REFERRING VET

Dr. Milwicki

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Cardiac Presentation

The echocardiogram for this patient presented mild to moderately excessive **left atrial size** expressed both in the LA/AO and LA max measurements. Mild deviation of the intraatrial septum towards the right atrium noted, suggestive of increased left atrial pressure. The cranial and caudal **mitral valve** leaflets presented moderate thickening consistent with endocardiosis. Mild prolapse of primarily the anterior and mild posterior mitral valve leaflets. Doppler indicated measurable moderate eccentric insufficiency. The **left ventricle** presented normal thicknesses with maintained linear contour and mild increased LV 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. Mild aortic insufficiency present on doppler. Normal measured LVOT velocity. 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 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). Mild pulmonic insufficiency present on doppler. 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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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3.0 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.

The residual prostate was free of pathology.

The area of the aortic trifurcation was free of pathology.

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 loss of corticomedullary symmetry and definition expected for the age of the patient. Mild pyelectasia noted in the left kidney. Cortical cyst and minor medullary mineral noted in both kidneys. The left kidney measured 5.3 cm. The right kidney measured 5.4 cm.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 2.2 cm length x 0.62 cm at the caudal pole. The right adrenal gland measured 1.8 cm length x 0.69 cm at the caudal pole.

Spleen

No evidence of pathology in the area of the previous spleen.

Liver

The liver was subjectively normal in size, structure, and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the falciform fat with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non distended in size with primarily anechoic content with minor echogenic debris. No evidence of gallbladder or peripheral gallbladder inflammation. The cystic duct and common bile ducts were normal without evidence of dilation.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained mild nonshadowing ingesta/chyme most consistent with post prandial presentation without signs of ileus, obstruction or foreign material.

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.

Pancreas

The pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum, consistent with minor pancreatic remodeling or age related changes and considered incidental. No signs of active inflammation or neoplasia.



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ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B2) with previously noted static mitral valve prolapse
- TR – estimated pulmonary pressure suggestive of mild increased pulmonary pressure, yet not consistent with clinical pulmonary hypertension.
- Aortic/pulmonic insufficiency
- Chronic renal changes with cortical cyst and minor left kidney pyelectasia
- Minor gallbladder debris (non-mucocele)
- Minor hepatic remodeling – benign.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overall, the heart appears to be compensated, given degree of left atrium/left ventricle enlargement. Normal LV systolic function. Continued Pimobendan at current dose with lowest effective dose of diuretic therapy with monitoring of resting respiration rate or for evidence of radiographic pulmonary edema going forward advised. Concurrent monitoring of renal parameters, given potential for mild chronic renal disease, is recommended. Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered.

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Largely geriatric abdomen without sonographic evidence of significant visceral pathology.

Recheck echocardiogram recommended in 6 months, sooner if clinical signs consistent with left-sided heart disease or clinical pulmonary hypertension arise.

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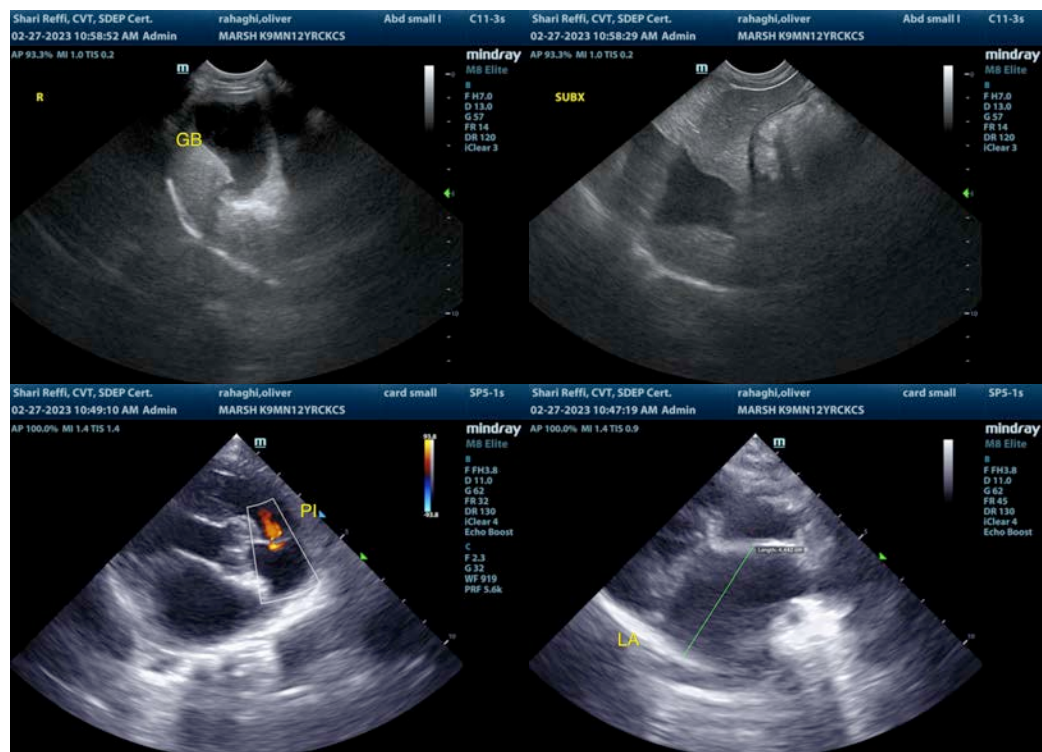
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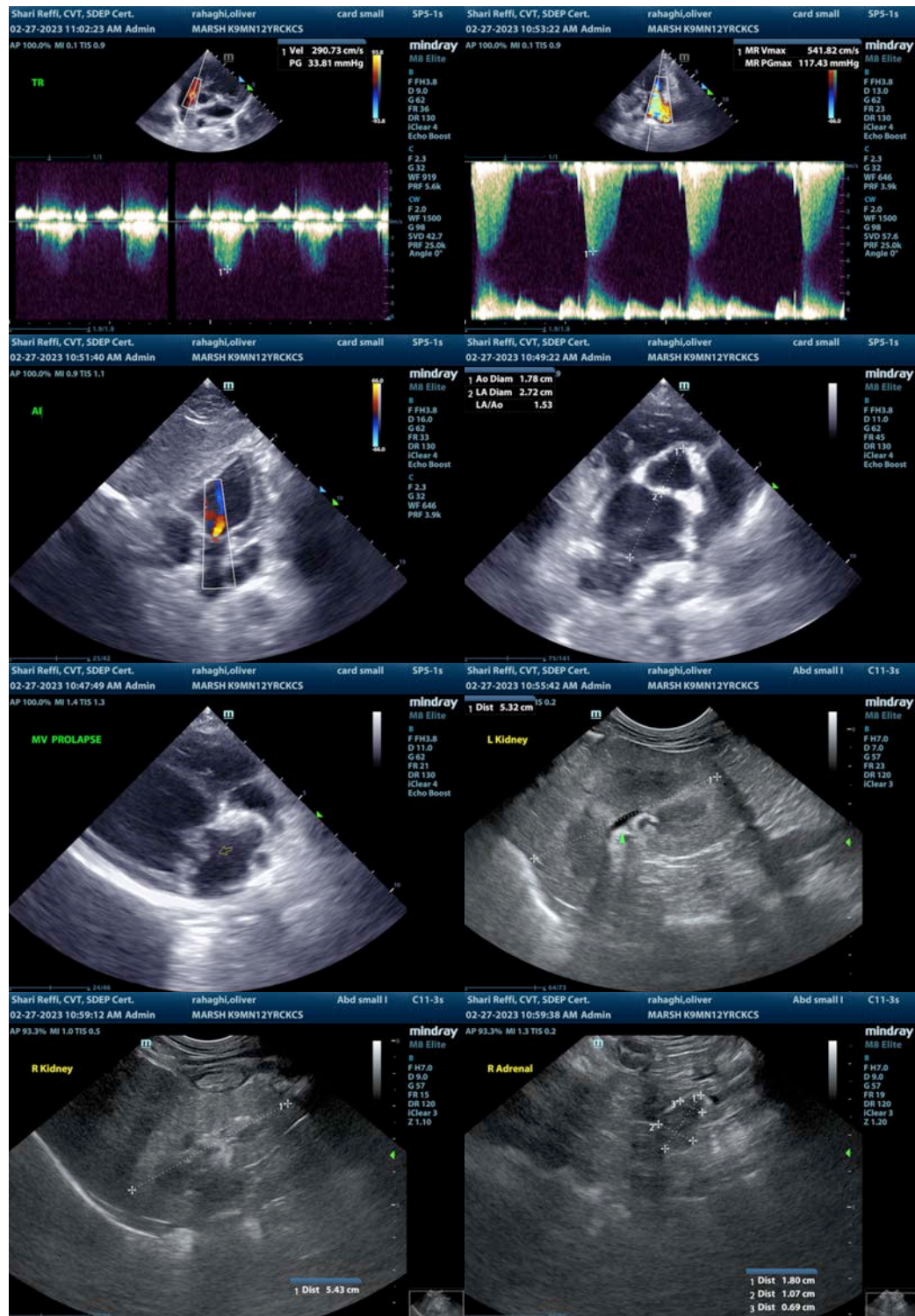
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

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