



**PATIENT**

Aiden Williams

**SPECIES**

Canine

**BREED**

Jack Russell Terrier

**SEX**

Male Neutered

**AGE**

11.11 years

**WEIGHT**

24.2lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Kim Liedberg

**HOSPITAL NAME**

SVS Imaging WI

**REFERRING VET**

Dr. McCoy

**INVOICE**

28686

**DATE**

1/31/23

**PRESENTING CLINICAL SIGNS**

History: Presented for routine exam. BW showed elevated liver enzymes. No heart murmur or cough noted. Baseline echo to evaluate heart. No clinical symptoms. On no medications at this time. Patient presented on 10/3/22 to assess growth on left front foot. Discussed sedated mass removal with bx. Has history of elevated ALP. Patient also has frequent acupuncture for back/rear end pain. Rec AUS due to continued increase of ALP. Exam findings and abnormal lab values: Lab work on 7/1/22: CBC: WNL, ALP: 382, ProBNP: 250, T4: 1.4, negative 4dx and fecal. Recommend AUS, but further workup prior to scan. Started with LDDST on 12/8/22, showed appropriate suppression, Cushing's ruled out. UA done on 1/11/23, rare WBC/RBC, USG: 1.026, trace protein. On 1/18/23 BP via Doppler and recheck BW performed. BP Systolic numbers: 140, 160, 158, 150, 150, 140. Mean=149. ALP on BW now at 1168. CBC: Lymph 972, Mono 68. Remaining BW normal. O also requested full Cardio workup as patient has been on higher protein diet long term. Patient has hx of becoming hyperthermic on even mild sedation.

-Abnormal PE/Chem/CBC/UA Results: ALP 1,168 ProBNP 250.

**RADIOGRAPHIC FINDINGS** \*NOTE: Images submitted for supplemental cardiac information only. Normal cardiac silhouette. No obvious evidence of CHF.

**ELECTROCARDIOGRAPHIC FINDINGS** \*Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

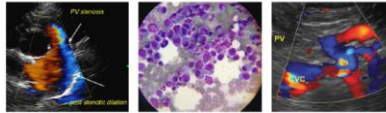
A single lead ECG is available; 25mm/s, 10mm/mV. The average heart rate is 100bpm (range 75-120bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus rhythm with respiratory variation.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no prolapse into the left atrial lumen. Trace anterior-directed mitral regurgitation with a normal left atrial dimension. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

**CARDIAC CHART**

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	NA	NA	1.1	1.2	30	58	0.27
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	100	1.4	0.8	11.0	2.0	3.0	2.1



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*Normal chamber parameters expressed as a mean value (SD)	3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
<b>BODY WEIGHT DEPENDENT PARAMETERS</b>	5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>	10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
	15	1.83 (2.0)	3.71 (2.4)	2.43 (2.1)
	20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
Adapted from June Boon, Veterinary Echocardiography, 1998	25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435	30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002	35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

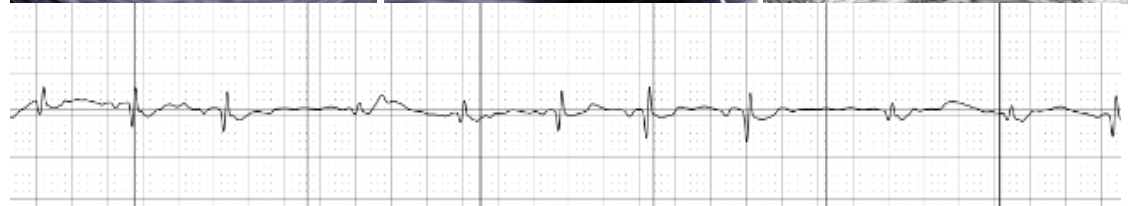
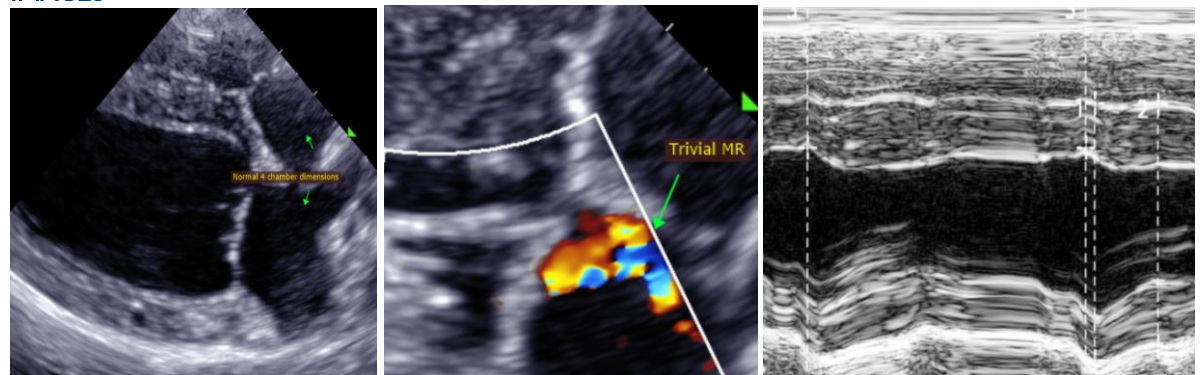
**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Overtly normal cardiac dimensions and function, with no obvious dysfunction or dilation of the left heart. Trace MR is identified, which may suggest early valve disease. Follow up should a murmur be ausculted in the future. No significant valvular leaks are visualized, and no evidence of pulmonary hypertension. The ECG unremarkable with a normal sinus rhythm.

Monitor for development of a heart murmur, cough, labored breathing, exercise intolerance or collapse episodes.

A recheck echocardiogram is recommended should a significant murmur develop, or signs of cardiac compromise be noted in the future.

**IMAGES**



The information and recommendations provided are based on the images presented by the referring veterinarian. 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.

**IMAGING PERFORMED BY**

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Maggie Machen Lamy, DVM

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