



**PATIENT**

Zaylee Russell

**SPECIES**

Canine

**BREED**

Chihuahua Mix

**SEX**

Female Intact

**AGE**

11 years

**WEIGHT**

12.44lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Amanda Lacey-Crook, SDEP

**HOSPITAL NAME**

Rivers Edge Pet Medical Center

**REFERRING VET**

Dr. Gray

**INVOICE**

24498

**DATE**

5/31/22

**PRESENTING CLINICAL SIGNS**

History: Presented to ER last night, diagnosed with a pyometra. On antibiotics. New heart murmur noted.

-Current medications: Clavamox.

-Abnormal PE/Chem/CBC/UA Results: CBC = RBC 5.17, HCT 31.4, HGB 12.8, MCV 60.7, MCHC 40.8, Retic HGB 19.5, WBC 4.75, Neu 0.14 w/susp. bands, Lym 0.79, Mono 3.72, PLT 111, MPV 15.1  
CHEM = Gluc 148, Alkp 329, K 3.3, CL 106.

**RADIOGRAPHIC FINDINGS** \*NOTE: Images submitted for supplemental cardiac information only.

A single lateral radiograph is included: Showing mild cardiomegaly.

**ELECTROCARDIOGRAPHIC FINDINGS**

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 120bpm (range 55-150bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The R waves is tall. MEA is normal. No ectopic beats, pauses or dysrhythmias observed.

ECG diagnosis: Respiratory sinus arrhythmia with tall R waves.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with mild prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Borderline LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Normal velocity. 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 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	5.8	2.7	NM	1.8	41	73	NM
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	NM	1.5	1.5	5.6	2.2	3.2	1.9
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
*Note: All measurements based upon multi-modal images and methods. An average value is reported.				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)
				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Adapted from June Boon, Veterinary Echocardiography, 1998							



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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)

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## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral and mild tricuspid regurgitation. Moderate left atrial enlargement indicates the risk for spontaneous congestive heart failure may be elevated going forward. No additional issues are noted, such as pulmonary hypertension or systolic dysfunction. The ECG is unremarkable with a respiratory sinus arrhythmia.

Given the degree of left heart dilation/risk for progression, recommend institute Pimobendan as below. This is for long term cardiac support and is based upon the recent EPIC trial. Assessment of progression in the future will help predict long term prognosis, which is guarded at this stage (B2).

Ideally this patient would be on the medication for 3-5 days prior to anesthetic procedure. If this is necessary imminently, give at least one dose prior. Anesthetic risk is mildly elevated, with risk for fluid overload, arrhythmias, hypotension, etc. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, iso/sevoflurane gas) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

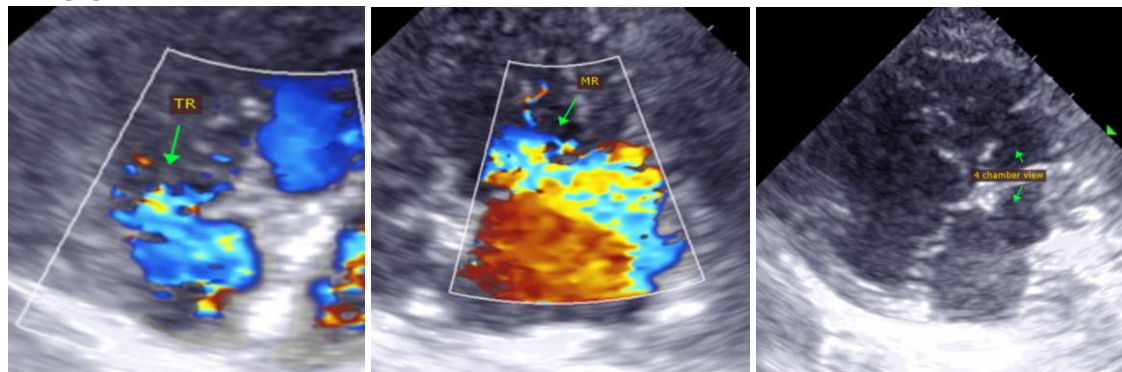
No other cardiac medications are clearly indicated; however, omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes.

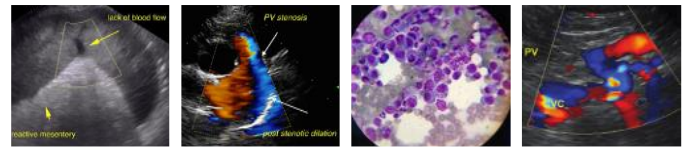
## PLAN

Institute heart muscle support Pimobendan 0.3mg/kg PO q12h.

Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

## IMAGES





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**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. This report was generated using transcription software, and minor dictation errors may be present. 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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