



PATIENT

Minnie Edwards

SPECIES

Canine

BREED

Chihuahua

SEX

Female Spayed

AGE

12.9 years

WEIGHT

9.11lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Amanda Crook, SDEP

HOSPITAL NAME

Rivers Edge Pet
Medical Center

REFERRING VET

Dr. Gray

INVOICE

29520

DATE

3/9/23

PRESENTING CLINICAL SIGNS

History: Coughing for several weeks, previous vet prescribed enalapril which caused diarrhea. Heart murmur, grade 2-3/6. On a homemade diet BP: 170, 172, 172mmHg. Lab work WNL.
-Radiographs: Showed enlarged cardiac silhouette with no obvious pulmonary edema

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
Minimal cardiomegaly. No obvious evidence of CHF.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 110bpm (range 75-150bpm). The rhythm is sinus in origin, with a p for every QRS complex. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. MEA is normal. A single blocked P wave is observed, consistent with 2nd degree AV block. The PR interval does not significantly prolong; most consistent with type II. No ectopic beats, pauses or dysrhythmias observed.

ECG diagnosis: Normal sinus rhythm with respiratory variation. Single blocked P wave; consistent with 2nd degree AV block.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Mild eccentric mitral regurgitation with mild left atrial dilation. Normal MR velocity. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with trace 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 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	5.6	2.5	NM	1.4	41	74	0.5
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	BELOW	BELOW	BELOW	BELOW
PATIENT	NM	1.3	1.2	4.1	1.5	2.2	1.3
*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)
				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)

Adapted from June Boon, Veterinary Echocardiography, 1998
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435
Hansson et al, Vet Rad and Ultrasound 2002



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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)

SPECIES

Canine

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing mild mitral and trace tricuspid regurgitation. Lack of significant left atrial enlargement indicates the current risk for complication is low. No concurrent issues such as systolic dysfunction or pulmonary hypertension are noted in this study.

BREED

Chihuahua

The ECG does show a respiratory sinus arrhythmia with a single blocked P wave. This is consistent with 2nd degree AV block, which may be due to high vagal tone or reflect early Sinus node dysfunction. Given the concurrent finding of an RSA (i.e. high vagal tone), this is suspected to be the cause. That being said, there is no obvious prolongation of the PR interval prior to the block which may suggest early dysfunction. What is seen here is relatively benign and doesn't warrant therapy; however, monitoring for progression is advised going forward. Monitor for associated symptoms such as lethargy or syncope.

AGE

12.9 years

Given these findings, **the cough is unlikely to be cardiac in origin and primary respiratory causes should be considered.** Consider further respiratory work up/treatment (hydrocodone, taper course of steroids, Enrofloxacin, TTW/BAL, etc.).

WEIGHT

9.11lbs

In a dog without significant left atrial enlargement, no cardiac medications are clearly indicated. Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage (B1). Omega fatty acid supplementation and mild salt restriction may be of some long term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

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Anesthetic risk is considered mild if needed; however, an adequate response to atropine should be confirmed during pre-medication prior to proceeding (administer 0.04mg/kg atropine IV/IM and HR should at least double for 10+ minutes). Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload.

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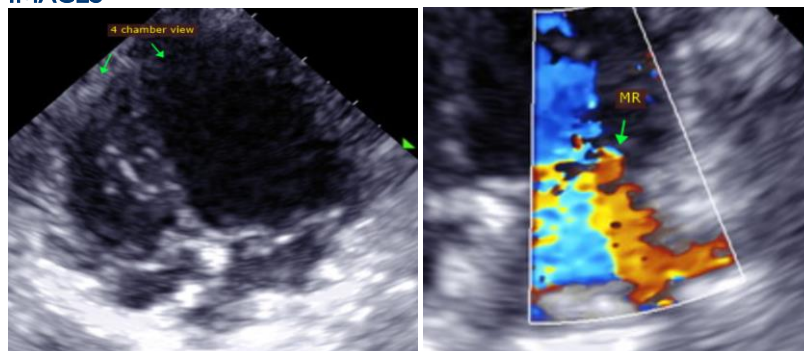
Rivers Edge Pet
Medical Center

Recommend conservative monitoring with a recheck echocardiogram and ECG in 6 months, sooner if any development of clinical signs.

REFERRING VET

Dr. Gray

IMAGES

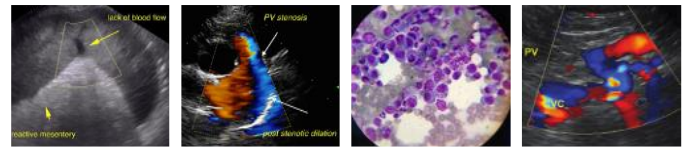


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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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