

PATIENT

Maxie Dillon

SPECIES

Canine

BREED

Dachshund

SEX

Female Spayed

AGE

13 years

WEIGHT

12lbs

INTERPRETED BY

Maggie Machen
 Lamy, DVM, DACVIM
 (Cardiology)

IMAGING PERFORMED BY

Jenna Walsh, CVT

HOSPITAL NAME

Countryside Animal
 Clinic

REFERRING VET

Dr. Cox

INVOICE

30246

DATE

4/13/23

PRESENTING CLINICAL SIGNS

History: Presented 4/10 - owner had noted loud cardiac sounds when she listened at home. Some coughing episodes. Decreased energy and appetite. Mild cardiomegaly noted on radiograph. No murmur noted. Long pause heard at irregular intervals. Sometimes not even for a minute or two.
 -Abnormal PE/Chem/CBC/UA Results: NSF in CBC Chem: SDMA = 25, Crea = 2.1, BUN = 59 Cl 107
 Cardiopet ProBNP = 2,545 T4 is wnl at 1.4 Urinalysis: spgr 1.017, ph = 5.5, 0-2 wbc, 0-2 rbc, 1+ epi cells.

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; 50mm/s, 10mm/mV. The average heart rate is 100bpm (range 55-157bpm) with occasional sinus pauses. P for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or dysrhythmias observed.
 ECG diagnosis: Suspect profound respiratory sinus arrhythmia with sinus pauses; sinus node dysfunction cannot be ruled out.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Mild eccentric mitral regurgitation with no left atrial dilation. 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. 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	6.1	2.7	1.3	1.3	48	82	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	80	1.1	0.7	5.4	1.8	2.3	1.2
*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)
				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
 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	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)
	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 mild mitral 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.

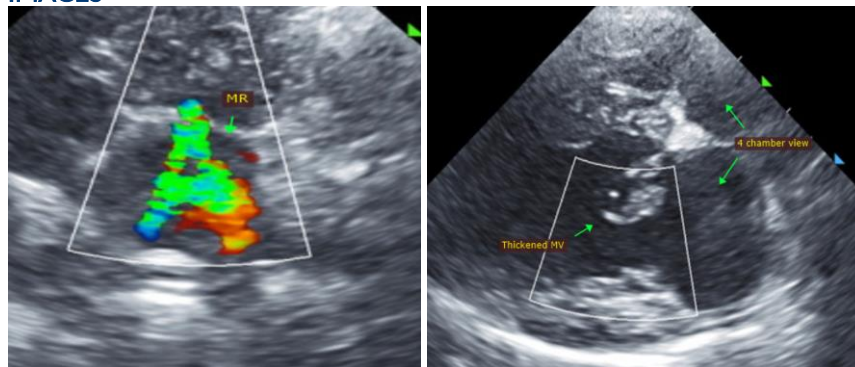
The ECG is most consistent with a respiratory sinus arrhythmia (RSA), however correlation with respiratory phase should be confirmed (i.e., increased rate with inspiration and decrease with expiration is diagnostic for a sinus arrhythmia) as early sinus node dysfunction cannot be ruled out. High vagal tone can be a normal variant or be secondary to a variety of systemic issues such as neurologic or respiratory disease. Further evaluation via an atropine challenge and/or holter monitor may be necessary, particularly prior to anesthesia. An atropine challenge would be the next step (administer 0.04mg/kg atropine IV or IM and assess response; can administer as a pre-med prior to induction even); pending a normal response high vagal tone is diagnosed which is a benign cause. An abnormal response would indicate sinus node dysfunction (common in this breed), and a holter monitor and/or possible referral should be considered prior to anesthetizing.

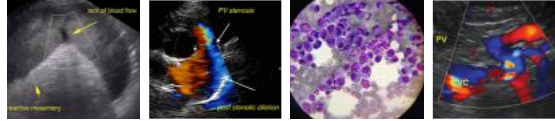
In an asymptomatic dog with no significant left atrial enlargement, no cardiac medications are clearly indicated. Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

Anesthetic risk is considered mild, **pending a normal atropine challenge**. 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.

Recommend conservative monitoring with a recheck echocardiogram in 6-12 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.

Maggie Machen Lamy, DVM
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