
PATIENT PRESENTING CLINICAL SIGNS

Wave Young
 History: Grade 1/6 systolic murmur. Pre surgical evaluation.
 -Blood pressure: 195/111, 235/141, 201/124mmHg.

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

A single lead ECG is available from an AliveCor monitor; 50mm/s, 20mm/mV. The average heart rate is 50bpm (range 40-80bpm). P waves are difficult to identify throughout; however, a sinus origin is suspected. The P and QRS morphologies are positive with normal dimension. No ectopic beats, pauses or other dysrhythmias observed.
 ECG diagnosis: Suspect profound sinus bradycardia/respiratory arrhythmia due to high vagal tone.

BREED

Lab Mix

SEX

Female

AGE

8 years

WEIGHT

61lbs

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 mild left atrial dilation. Normal MR velocity. Mild LV dilation in both systole and diastole 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.

INTERPRETED BY

 Maggie Machen Lamy,
 DVM, DACVIM
 (Cardiology)

CARDIAC CHART
IMAGING PERFORMED BY

 Rebekah Jakum, CVT
 ARDMS/RVT

HOSPITAL NAME

 Pocono Peak
 Veterinary Clinic

REFERRING VET

Dr. Thompson

INVOICE

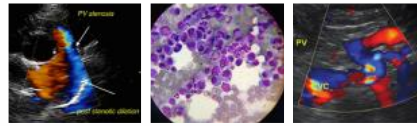
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DATE

8/11/21

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	6.0	2.2	1.7	1.4	33	60	0.9
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	1.5	0.9	27.7	2.9	5.1	3.4
*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)
				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)

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
 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995



PATIENT **INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Wave Young

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

SPECIES

Canine

The ECG is most consistent with a sinus arrhythmia with suspected respiratory variation. The concerning finding in this case is the resting heart rate is remarkably low, which should be further explored. This is typically a normal finding secondary to high vagal tone (causes for high vagal tone can be investigated including GI, respiratory, neurologic disease, etc.) or can be inappropriate and reflect sinus node dysfunction. The only way to know the difference is to assess response to exercise (does the heart rate/rhythm have a normal response?) or an atropine challenge (0.04mg/kg IV or IM). **If the rate does not stimulate appropriately, anesthesia should be aborted and a holter monitor considered as the next step in evaluation.** The former is suspected in an asymptomatic senior dog.

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In a dog without significant 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.

WEIGHT

61lbs

The reported blood pressures are elevated, yet **too variable to interpret**. Ideally obtain serial measurements in a controlled, low stress environment and continue until the readings plateau within 5mmHg of variability for 3+ readings.

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

Anesthetic risk is considered mild if needed (**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.

IMAGING PERFORMED BY

Rebekah Jakum, CVT
ARDMS/RVT

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

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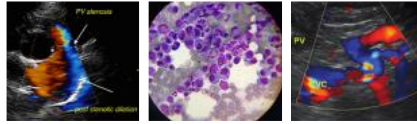
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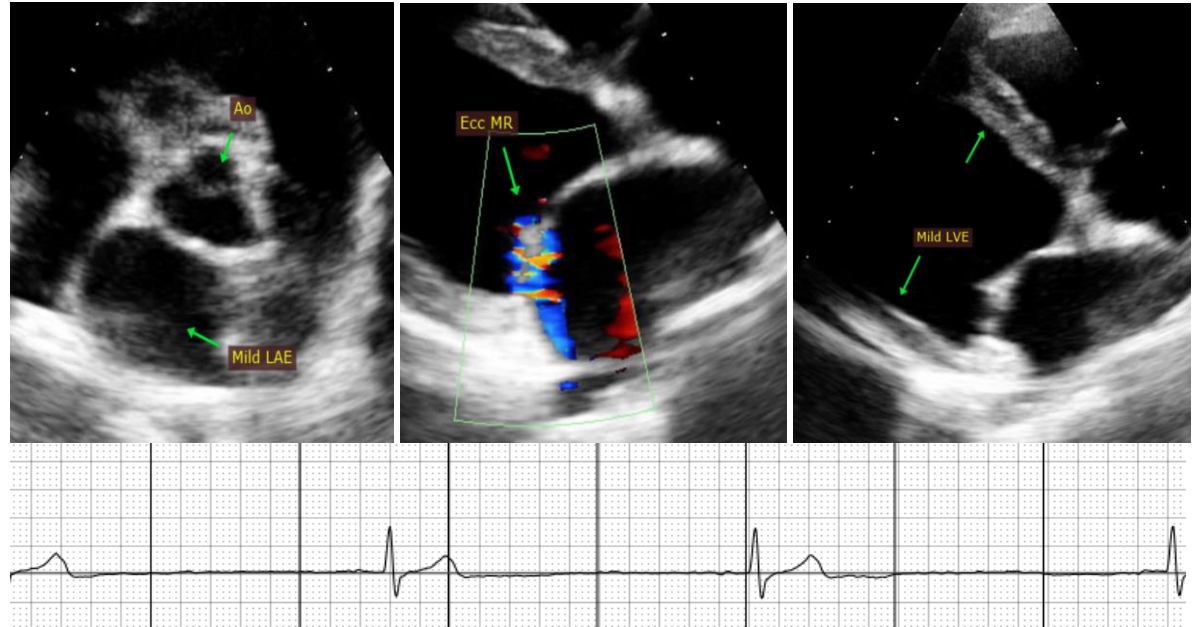
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IMAGES



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. 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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