



**PATIENT**

Bailey Olmsted

**SPECIES**

Canine

**BREED**

Basset Mix

**SEX**

Female Spayed

**AGE**

12 years

**WEIGHT**

44.9lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Dana Alterman,  
RDCS, LVT

**HOSPITAL NAME**

Eubank Animal Clinic

**REFERRING VET**

Dr. Johnson

**INVOICE**

21329

**DATE**

10/4/21

**PRESENTING CLINICAL SIGNS**

History: Bradycardia, exercise intolerance and audible click.

**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, 20mm/mV. The average heart rate is 100bpm (range 63-136bpm). 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: Profound respiratory sinus arrhythmia.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Mild mitral valve thickening with no prolapse into the left atrial lumen. No mitral regurgitation with a normal left atrial dimension. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with trivial tricuspid regurgitation. Normal TR 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)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
<b>PATIENT</b>	NA	2.2	NM	1.1	59	90	0.6
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)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
<b>PATIENT</b>	NM	1.0	0.7	20.4	2.0	3.2	1.3
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
<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)
				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



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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Overtly normal cardiac dimensions and function, with no obvious dysfunction or dilation of the left heart. No significant valvular leaks are visualized, and no evidence of pulmonary hypertension.

The ECG shows a sinus rhythm with significant variation in heart rate. This is most consistent with a respiratory sinus arrhythmia, which is benign and typically due to high vagal tone. To confirm the diagnosis, response to light exercise/stress is recommended to ensure that the heart rate stimulates appropriately. Alternatively or if there is any question on response, an Atropine Challenge can be performed to ensure a normal exuberant response. Assuming the heart rate does stimulate appropriately, causes of high vagal tone can be considered, such as neurologic, GI or respiratory disease. If the heart rate does NOT stimulate appropriately, further evaluation is advised (holter, referral, etc).

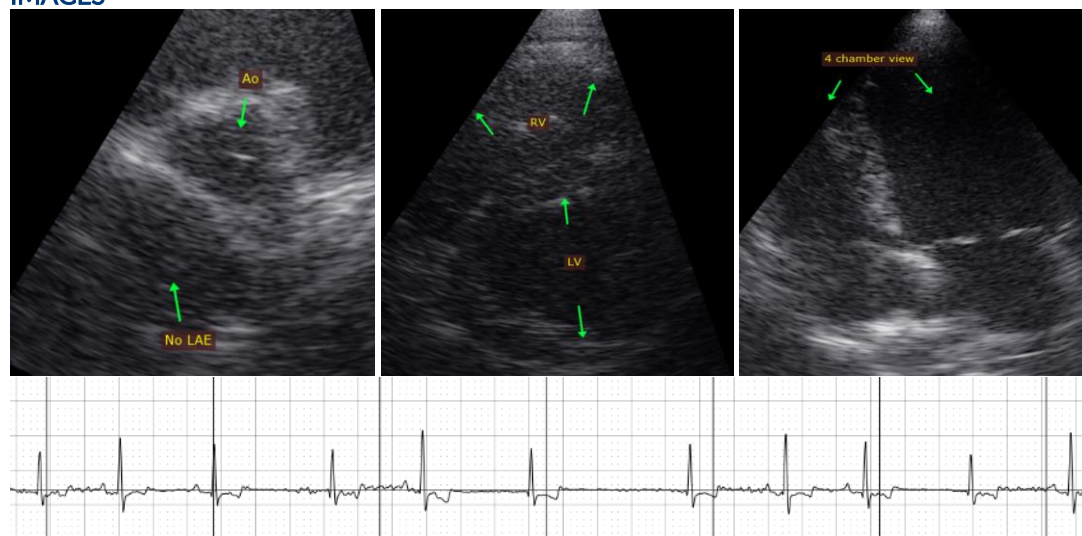
A click in dogs is most commonly due to early valve prolapse, which may be case here. Follow up is advised should a murmur be ausculted in the future.

Pending a normal HR response, there is no contraindication for general anesthesia prior to chamber enlargement if needed (an abnormal response would certainly be a contraindication).

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 in the future or signs of cardiac compromise be noted.

**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.



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Bailey Olmsted

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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Canine

**Maggie Machen Lamy, DVM**  
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)  
info@sonopath.com

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