



**PATIENT**

Odie Williams-Slappey

**SPECIES**

Canine

**BREED**

Cavalier

**SEX**

Male Neutered

**AGE**

13 years

**WEIGHT**

20.9lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Kim Liedberg

**HOSPITAL NAME**

SVS Imaging WI

**REFERRING VET**

Dr. Wiegel

**INVOICE**

23042

**DATE**

3/10/22

**PRESENTING CLINICAL SIGNS**

History: On PE a grade 4/6 systolic heart murmur with an arrhythmia was noted.

-ECG report (Idexx): Sinus rhythm with APCs.

-Current medications: Furosemide 2mg/kg BID, Enalapril 5mg BID, Vetmedin 2.5mg BID. Abnormal - PE/Chem/CBC/UA Results: SDMA 17 Sodium 140 Chloride 94 TCO2 28 ALT 443 ALP 3,077 GGT 22 Lipase 1,541.

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

**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, 10mm/mV. The average heart rate is 120bpm (range 88-150bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. Occasional isolated APCs. No ventricular ectopic beats, pauses or other dysrhythmias observed.

ECG diagnosis: Normal sinus rhythm with respiratory variation. Isolated APCs.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with significant prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with severe left atrial dilation. Normal MR velocity. Mild LV dilation with hyperdynamic myocardial function. The tricuspid valve appears mildly thickened with mild to moderate TR.

Normal velocity. Normal right atrial and ventricular diameter and morphology. The pulmonic and aortic valves are normal in morphology and mobility. Normal aortic and pulmonic outflow velocities with laminar flow. No AI/PI. 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	2.2	2.0	2.0	44	80	0.14
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	124	1.3	0.9	9.5	3.4	3.6	2.0
*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)

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**

	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)
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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The cause of the murmur is chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. Severe left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. No additional issues are identified.

No clinical signs are reported in the history; however, the patient is on Lasix which would suggest CHF has been documented. If this is the case, certainly cardiac support should be continued as recommended below. No active CHF is seen on the current films and monitoring is advised. Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Cough suppression to improve QOL can also be considered (hydrocodone, 0.2-0.4mg/kg up to q4-6h PRN) for any residual mechanical cough in the face of normal sleeping respiratory rates. The average survival time of canine patients with active pulmonary edema is 8-9 months on medications, however they generally are able to maintain a good quality of life for that period. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

The ECG shows occasional isolated APCs, similar to the prior ECG report. APCs are common in dogs with significant atrial dilation, particularly during stressful events like a hospital visit. These are only seen as single ectopic beats, without couplets or runs of SVT appreciated. No treatment is indicated based upon what is seen here; however, it is worth mentioning that this patient is at high risk for development of rapid AF. Monitor for signs of this development including acute collapse/lethargy.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for acute progression of the cough, labored breathing, exercise intolerance or collapse episodes in the future.

Elective anesthesia, fluid or steroid therapy should be avoided.

**PLAN**

Administer Pimobendan 0.3mg/kg PO q12h. Administer Furosemide 1-2mg/kg PO q12h. Institute spironolactone 1-2mg/kg PO q12h. Administer Enalapril 0.5mg/kg PO q12h.

Monitor SRRs at home. Monitor renal values and BP in 10-14 days, then every 3-4 months while on diuretics. Consider hydrocodone if needed for QOL.

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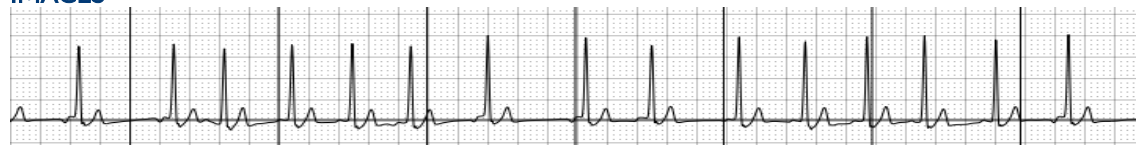
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**IMAGES**



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svsmobileimaging.com 309-737-3070



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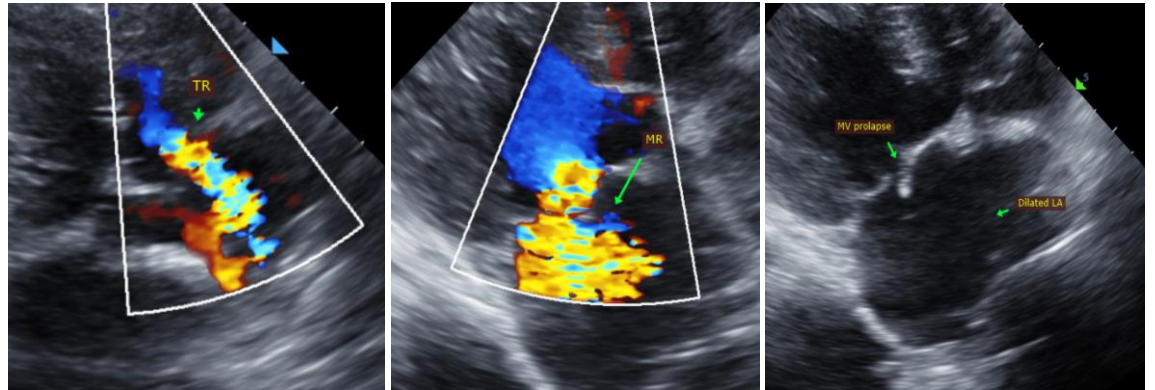
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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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