



PATIENT

Russo Del Valle
Melendez

PRESENTING CLINICAL SIGNS

History: Grade 5/6 heart murmur. Patient has a history of chronic cough and a heart murmur.
-Current medications: Spironolactone 25mg: 1/2 BID, Pimobendan 2.5mg: 1 BID, Aminophylline 100mg: 1 tab BID, Furosemide 12.5mg: 1 tab BID, Enalapril 2.5mg: 1 tab BID, Tussionex: 1ml BID.

SPECIES

Canine

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with mild prolapse into the left atrial lumen. There is moderate mitral regurgitation present. Normal velocity. There is moderate left atrial enlargement. There is mild left ventricular dilation. Left ventricular systolic function is hyperdynamic. There is normal systolic flow velocity across the aortic valve, no insufficiency. The aortic valve appears normal. Moderate right atrial enlargement. Right ventricular is enlargement with significant hypertrophy. Subtle septal flattening in end-systole. The tricuspid valve is thickened with septal prolapse; moderate tricuspid regurgitation. Velocity consistent with moderate PAH; however, this is suspected to be an underestimation. The pulmonary artery and branches are markedly dilated. Mild PI. Normal outflow velocity. No pericardial/pleural effusion or cardiac masses are seen.

BREED

Cocker Spaniel

SEX

Male Intact

AGE

14 years

CARDIAC CHART

WEIGHT

23.8lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

G. Ferrer, DVM

HOSPITAL NAME

Paseos Veterinary
Center

REFERRING VET

Dr. Cruz

INVOICE

22758

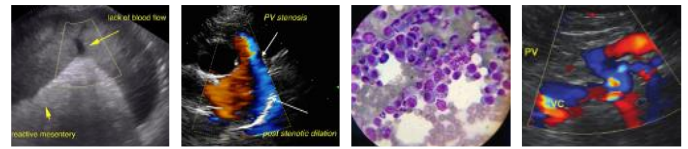
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CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.1	4.2	NM	2.2	69	95	0.9
CANINE CARDIAC PARAMETERS	HR (BPM)	AV 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	133	0.9	0.5	10.8	3.7	4.0	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)
<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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral and tricuspid regurgitation. Moderate left atrial enlargement indicates the risk for imminent spontaneous congestive heart failure is low; however, risk for progression in the future is high. Additionally, there is evidence of severe pulmonary hypertension (PAH), with mild to moderate right heart and marked MPA enlargement. This degree of MPA dilation is unusual in the absence of historical heartworm



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disease. Consider advanced imaging, such as a thoracic CT scan, to ensure no compressive lesions are seen peripherally. No additional issues are identified.

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The underlying genesis of PAH is poorly understood in cases other than heartworm infestation (this patient was negative), though it occurs with increased frequency in a variety of forms of **chronic lung disease** and in patients with idiopathic pulmonary fibrosis. Clinical signs of weakness, heavy breathing, cyanosis, and syncope are attributed to severe PAH. It is important to note that **the cough is not the result of pulmonary hypertension; rather the opposite is true with chronic respiratory disease leading to its development.** The most likely scenario in this case is that chronic airway disease has over time begun to affect the heart through development of PAH and increased right-sided pressures. Concurrent valve disease is essentially as a separate issue, although one certainly impacts the other.

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Given the degree of disease seen here, Sildenafil is recommended in hopes of lowering pulmonary pressures and improving clinical signs. It is important to note that this is not expected to address the cough, which should be further evaluated/treated utilizing options such as hydrocodone, theophylline, etc. If an increase in symptom was noted, a course of Baytril may be attempted to cover any infectious exacerbant. If the cough continues to be refractory, advanced imaging/sampling may be useful (TTW/BAL), in addition to Radiologist review of the films, internal medicine consultation, etc. Additionally, Pimobendan is warranted as below, given both the finding of both PAH and moderate LA dilation/MR. The use of Lasix is debatable in this case. If the patient improved on Lasix therapy and/or historical CHF has been documented, this should be continued. Otherwise, there is no indication for its use. Spironolactone is benign and is reasonable to remain on this medication.

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(Cardiology)

Prognosis is guarded long term, with risk for progression to left or right-sided CHF, development of exertional dyspnea/collapse, and/or debilitating cyanosis.

Anesthesia is not advised at this time.

IMAGING PERFORMED BY

G. Ferrer, DVM

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a worsening cough, labored breathing, exercise intolerance or collapse episodes.

PLAN:

Institute sildenafil 1-2mg/kg PO q8h. Administer Pimobendan 0.3mg/kg PO q12h. Administer Spironolactone 1-2mg/kg PO q12h. Continue ACEI 0.5mg/kg PO q12h. Consider continue versus discontinue Lasix as discussed. Consider Hydrocodone, Baytril, theophylline, etc. as discussed. Advanced imaging should be considered due to marked MPA dilation.

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Recommend recheck echocardiogram in 6 months to screen for progression, sooner if any development of clinical signs arise.

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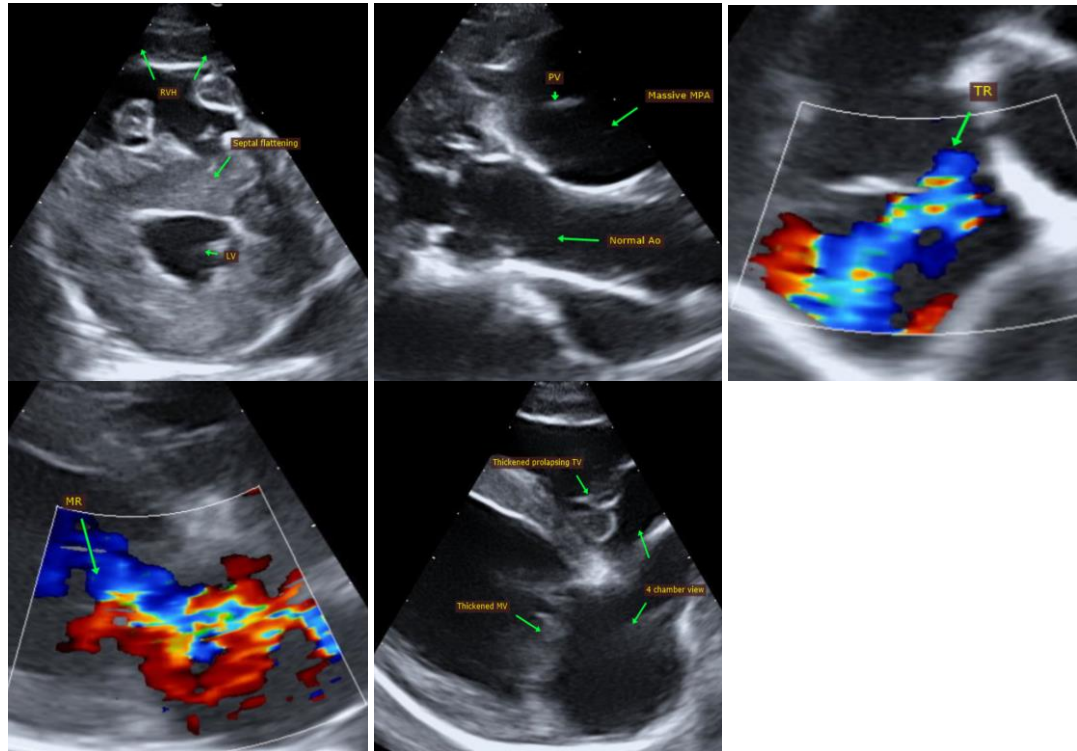
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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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