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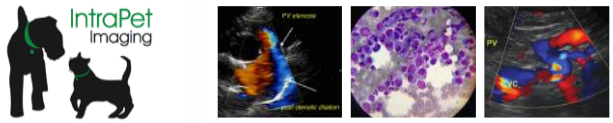

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PATIENT
Linus Beavers

SPECIES
Canine

BREED
Jack Russell Terrier

SEX
Male Neutered

AGE
11 years

WEIGHT
13lbs

INTERPRETED BY
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY
Andi Parkinson, RDMS

HOSPITAL NAME
Animal Care Center

REFERRING VET
Dr. Beavers

INVOICE
22319

DATE
12/7/21

PRESENTING CLINICAL SIGNS

History: Recheck echo. Chronic progressive dry non-productive cough for 12-18 months. No exercise intolerance but noted general decrease in energy for 1-2 months. Increase resting RR and inc effort mainly inspiratory. New murmur heard 12/2021. Grade 1-2/6 left only; jet-like. Inc wheeze noted with lung auscultation. History of PU/PD~ 1 year.
-Pertinent abnormal PE/Chem/CBC/UA Results: NSF.
-Current medications: Low fat i/d diet, Dasuquin Advanced.
-Sedation used: Gabapentin.
-Pertinent previous ultrasound results (2-4-2020 MML): Mild MR, mild LAE, normal LV, no TR.
-STAT: Not requested.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental information only.

Mild cardiomegaly. No obvious evidence of CHF.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets (anterior>posterior) with mild prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Mildly increased LV diameter with hyperdynamic myocardial function. The tricuspid valve appears subjectively normal, with trace tricuspid regurgitation. Normal velocity. Normal right atrial and ventricular diameter. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities. No aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed.

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	5.3	2.0	NM	1.7	30	59	NM
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	150	1.1	0.6	5.9	2.4	3.1	2.1
*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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease persists with evidence of progression. Mild mitral regurgitation has advanced to moderate with development of left heart enlargement. Trace tricuspid regurgitation is noted; however, pulmonary pressures do not appear significantly elevated. No additional issues are identified.

Given these findings, Pimobendan is now indicated in this patient as below. Assessment of progression in the future will help predict long term outcome, however prognosis is guarded at this stage (B2).

While mainstem bronchi compression may be contributing, the chronicity of the cough in this patient is much more consistent with **primary airway disease** (tracheal collapse, COPD/chronic bronchitis, etc.). Consider hydrocodone for any mechanical component due to cardiomegaly. Advanced diagnostic and/or treatment should also be considered (a course of Baytril, theophylline, TTW/BAL, etc.), depending on severity of the symptom.

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

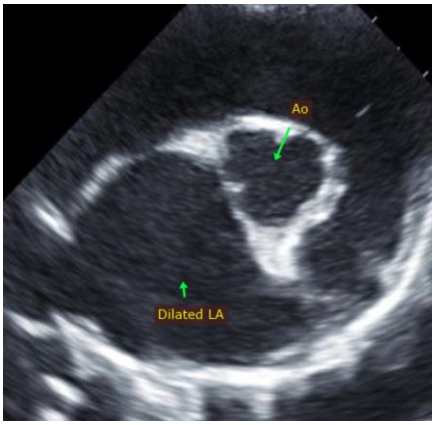
From a cardiac standpoint, once on the medication for 3-5 days, anesthetic risk is considered mildly elevated. Patients with chronic respiratory disease however do carry an increased risk for hypoxic events and this should be considered. Cardiac protective drug choices (opioid/benzodiazepine premedication, Propofol or alfaxalone induction, iso or sevo gas) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

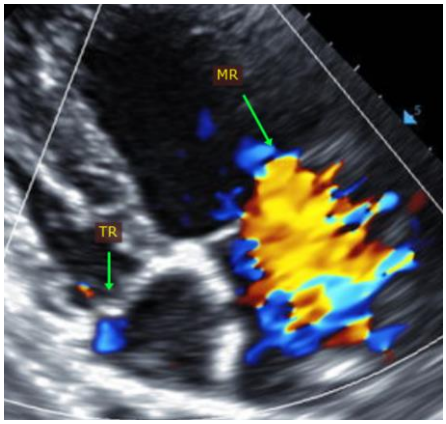
PLAN

Institute heart muscle support Pimobendan 0.3mg/kg PO q12h. Consider Hydrocodone, Baytril, etc. as discussed.

Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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.

Maggie Machen Lamy, DVM
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