

PATIENT

Chelsea Cyr

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Female Spayed

AGE

13 years

WEIGHT

14.2lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Dr. Karen Ebersole

HOSPITAL NAME

Scanvet

REFERRING VET

Dr. Kaltsas

INVOICE

20395

DATE

8/5/21

PRESENTING CLINICAL SIGNS

History: Recheck echo. History of chronic cough that has worsened over the past 4-6 weeks. Dry and non-productive cough that increases with exercise. Previous abdominal US showed L adrenal mass and multifocal liver masses. Negative for pheochromocytoma (urine), and borderline HAC with ACTH Stim.

-Current medications: On Gabapentin for seizures (recent onset last year).

-Abnormal PE/Chem/CBC/UA Results: PE: Grade 4-5/6 L sided systolic heart murmur, quiet. RR initially 52, then reduced to 18. ALT 588, ALP 880.

-Previous Echo/AUS report attached RADS (thorax interpretation): The cardiac silhouette is moderately enlarged. There is severe enlargement of the left atrium. There is also prominence of the right side of the heart as well as the auricle. There is marked compression of the principal bronchi and the carina by the enlarged left atrium. The lobar veins are slightly distended when compared to the corresponding arteries. There is a mild interstitial opacification of the pulmonary parenchyma.

CONCLUSIONS: The cardiac changes seen on the study are likely due to mitral and concurrent tricuspid insufficiency however other underlying cardiac disease could be present. There does appear to be early cardiac decompensation on this exam however some of the coughing is likely due the compression the principal bronchi and the carina by the enlarged left atrium.

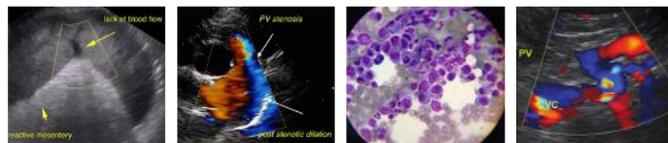
-Pertinent previous echo findings (5/2021 EL): Prominent RH, no TR, normal RA, MR, no LAE. LA/AO: 1.3.

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. Borderline LV with adequate myocardial function. The tricuspid valve appears mildly thickened with moderate tricuspid regurgitation. Velocity consistent with moderate pulmonary hypertension (PG: 50mmHg). Mild right atrial enlargement. Mild right ventricular prominence. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic outflow velocities. Normal aortic outflow velocities. No pulmonic or aortic insufficiency. The MPA is prominent. 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	5.1	3.5	1.5	1.79	45	77	0.3
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	164	1.7	1.5	6.4	2.5	3.3	1.8



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*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 moderate tricuspid regurgitation. Moderate left and mild right atrial enlargement indicates there is risk for progression to congestive heart failure in the future. Significant TR and moderate PAH are also identified, likely due to respiratory disease in this signalment. Given the combination of MV disease and moderate pulmonary arterial hypertension I would institute Pimobendan at this time in this patient as below. No obvious indication for Sildenafil at this time; however, highly recommend aggressively addressing the cough. If any syncope or exertional dyspnea are noted, institute Sildenafil at that time. Prognosis is guarded at this stage (B2).

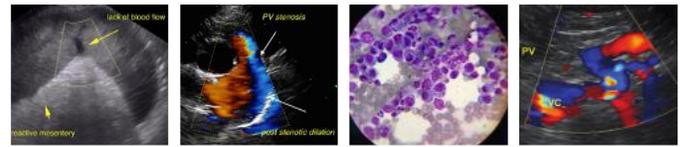
Given these findings, the cough is likely multi-factorial in origin. The left atrial enlargement may partially be causing mainstem bronchi compression; however, this breed is highly predisposed to both upper and lower airway disease as well and primary respiratory causes for coughing should also be considered. The radiology report mentions early decompensation which is considered unlikely based upon these echo findings and reported symptom (chronic dry cough, increases with exercise). That being said, if the patient develops any dyspnea going forward, I would not hesitate to institute Lasix therapy. Pulmonary antibiotics, hydrocodone, etc. may also be useful for a chronic cough. It is important to note that PAH is not the cause of a cough; rather it develops secondary to the chronic cough. Adequate cough control is the most important tool in preventing or slowing it's progression.

Once on the medication for 3-5 days, anesthetic risk is considered moderately elevated. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction) 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. Pre-oxygenate for 5-10 min prior to intubation and recover in O2 if possible.

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.

PLAN

Screening BP is recommended. Institute heart muscle support Pimobendan, 0.25-0.3mg/kg PO BID. Aggressive cough suppression/treatment is recommended as discussed. If exertional



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dyspnea/collapse is noted and/or patient is refractory to therapy, consider institute Sildenafil 1-2mg/kg PO q8h. If any change in respiratory pattern as discussed, institute Lasix 1-2mg/kg PO q12h and reassess chest radiographs in 24-36 hours. Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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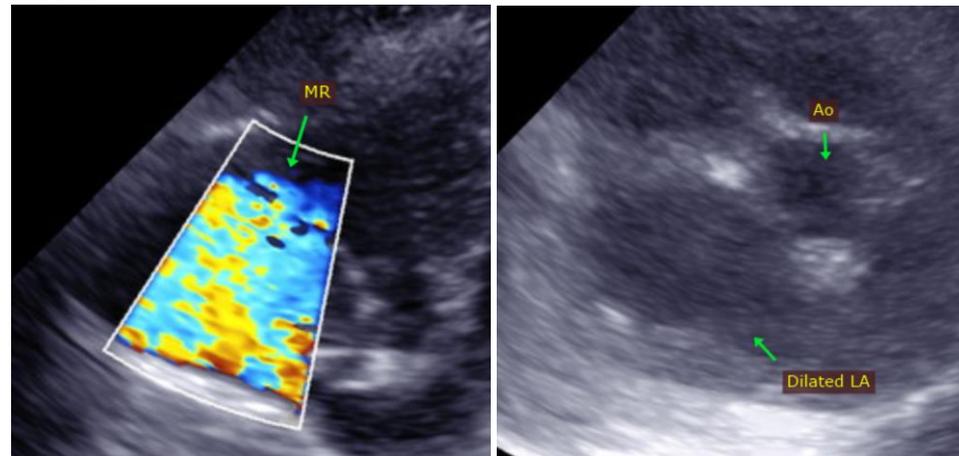
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IMAGES



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.

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DVM, DACVIM
(Cardiology)

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
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com

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