



PATIENT

Pandora Stewart

SPECIES

Canine

BREED

Black Mouth Curr

SEX

Female Spayed

AGE

8.9 years

WEIGHT

92.3lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Doyle

INVOICE

29423

DATE

3/6/23

PRESENTING CLINICAL SIGNS

History: Presenting for worsening of cough. O states that cough went away for a week after dental and has since returned. Cough has been worsening over the last week. Pt seems to be panting more and get tired easily on walks. EDUD normally PE: Pk + moist H- wnl L- increased bronchovesicular sounds in all lung fields. Panting but eupneic. AU + OU clean/clear Distended abdomen w/ possible fluid wave Flat + round soft SQ growth on R flank about 3 cm in diameter Diagnostics: ECG- normal sinus rhythm recheck TXR- generalized cardiomegaly w/ increased generalized pulmonary opacity w/ a bronchial component. Abnormal rounded cranial margin of heart on lateral projection. Symmetrical pulmonary vessels. FNA of R SQ growth- adipose cells consistent w/ lipoma Treatment: Dex-SP- 0.1 mg/kg IM given in hospital O discussion- Pt has significant change to lower airway compared to previous projections. Consulted with other DVMs on staff who were torn between a dominant alveolar pattern vs bronchial pattern. Recommended scheduling echo at soonest convenience. Recommended a 1-time treatment trial with injectable steroid. If no improvement or worsening over the next 24 hours,

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only. Mild cardiomegaly. No obvious evidence of CHF. Suspect primary respiratory disease.

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

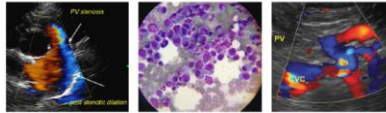
A single lead ECG is available; 25mm/s, 5mm/mV. The average heart rate is 140bpm (range 136-150bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus rhythm with respiratory variation.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Mild central mitral regurgitation with mild left atrial dilation. Normal velocity. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with trace tricuspid regurgitation. Prominent right heart/MPA. TR velocity indicative of early 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)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	4.5	3.0	1.7	1.4	44	75	0.45
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	140	1.7	1.0	41.9	2.8	4.4	2.5



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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)
Adapted from June Boon, Veterinary Echocardiography, 1998	25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435	30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002	35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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 mild mitral and trace tricuspid regurgitation. Lack of significant left atrial enlargement indicates the current risk for complication is low. Mild pulmonary hypertension is noted, which is likely developing secondary to the cough/airway disease. No concurrent issues such as systolic dysfunction are noted in this study. The ECG is unremarkable with a normal sinus rhythm.

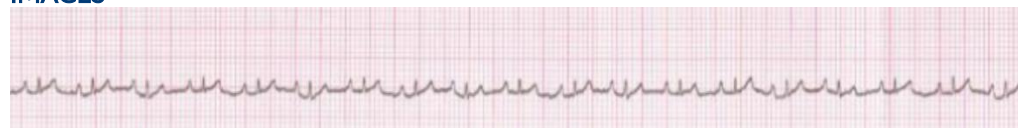
Given these findings, the cough is certainly non-cardiogenic in origin and respiratory disease is likely. If the cough is poorly controlled/progresses long term, this can certainly lead to worsening of PAH. Clinical signs of significant PAH include exertional dyspnea/collapse. Continued monitoring is advised. Cough control is recommended lifelong (hydrocodone, intermittent AI prednisone, fluoroquinolone for acute flare up, etc.). **If the cough did not respond to the steroid injection, consider a course of Baytril as the next step with concurrent aggressive hydrocodone for the short term.**

In a dog without significant left atrial enlargement, no cardiac medications are clearly indicated. Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage (B1). Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. **Pre-oxygenate for 5-10 minutes prior to induction.** Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

IMAGES



IMAGING PERFORMED BY

svsmobileimaging.com 309-737-3070



PATIENT

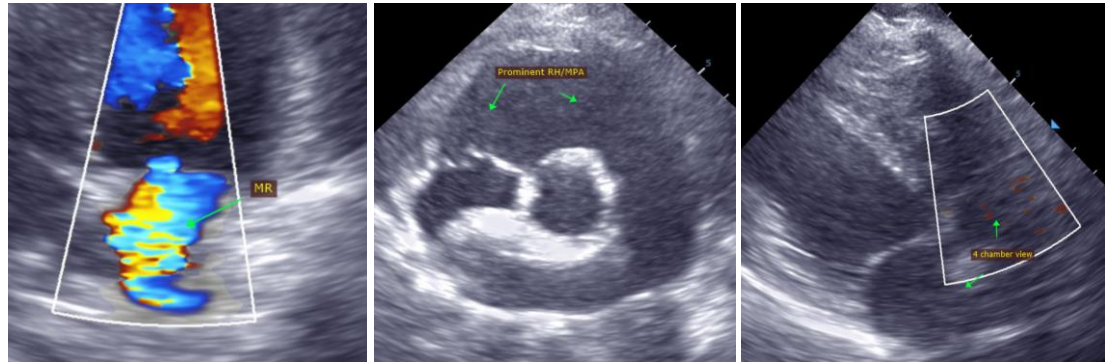
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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.

WEIGHT

92.3lbs

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

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