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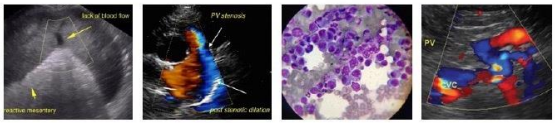

THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Charlie Owen

SPECIES
Canine

BREED
Eskimo Mix

SEX
Male Neutered

AGE
16 years

WEIGHT
20.1lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Kelly Reschny, RVT

HOSPITAL NAME
Hartzel Animal Hospital

REFERRING VET
Dr. Morris

INVOICE
32450

DATE
8/21/23

PRESENTING CLINICAL SIGNS

History: Progressive murmur, now grade 5-6. Episodes of tachypnea, often when sleeping – resolve without treatment. History of chronic bronchitis. Worsening azotemia and elevated spec cPL.
-Current medications: Vetmedin, Cerenia PRN, gabapentin, reactine, aventi kidney, Flovent inhaler.
-Abnormal PE/Chem/CBC/UA Results: SDMA 24 (0-14), Creat 136 (44-133), area 18.2 (3.2-11) phosph 1.6 spec cPLi 355 (0-200)

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; 50mm/s, 20mm/mV. The average heart rate is 110bpm (range 55-150bpm). 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: Profound respiratory sinus arrythmia suspected.

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. Severe eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Mildly increased LV diameter with adequate myocardial function. The tricuspid valve appears subjectively normal, with no tricuspid regurgitation. Normal right atrial and ventricular diameter. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities. Trace aortic and no 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	6.5		NM	1.7	48	80	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	105	1.0	1.1	9.1	3.0	4.1	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

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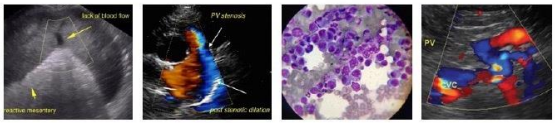

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing severe mitral regurgitation. Moderate left atrial enlargement indicates there is relatively low risk for imminent complication, however risk for progression to spontaneous congestive heart failure in the future is elevated. A small aortic valve insufficiency is noted, and a baseline BP is strongly recommended. No additional issues are identified.

The ECG is most consistent with a respiratory sinus arrythmia. This is likely due to high vagal tone, secondary to respiratory disease. If the heart rate does not stimulate with activity and/or stress, an atropine challenge should be considered.

Even with disease identified here, this is unlikely to explain intermittent breathing changes. Primary respiratory disease is the likely culprit, as is being treated.

Given these findings, continue Pimobendan 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).

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.

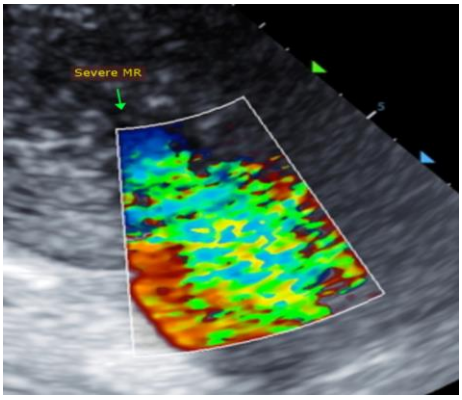
From a cardiac standpoint, anesthetic risk is considered mildly elevated. Premedicate with a vagolytic due to high vagal tone. Cardiac protective drug choices (opioid/benzodiazepine premedication, Propofol or alfaxalone induction, iso or sevo gas) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload.

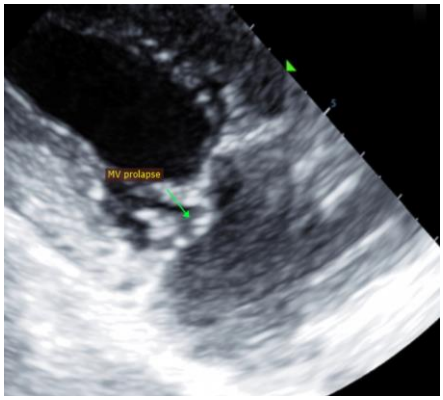
PLAN

Baseline BP recommended. Continue Pimobendan 0.3mg/kg PO q12h. Further pulmonary workup/treatment if indicated. Ensure the heart rate stimulates with mild stress or exertion. If there is any question, an atropine challenge should be administered (0.04mg/kg IV or IM) and assess response.

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

IMAGES





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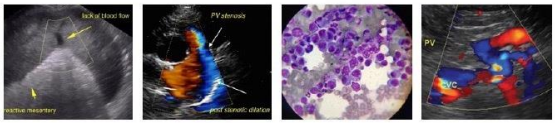

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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