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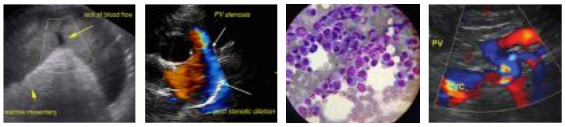


ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

PATIENT
Kiko Delgado

SPECIES
Canine

BREED
Maltese

SEX
Male Intact

AGE
15 years

WEIGHT
11.5lbs

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

IMAGING PERFORMED BY
Sara Hansen

HOSPITAL NAME
The Veterinary Hospital

REFERRING VET
Dr. Berman

INVOICE
28733

DATE
2/1/23

PRESENTING CLINICAL SIGNS

History: Increasing frequency of syncope episodes. Tachypnea. Decreased appetite but still eating/lethargy. Notable arthritis in lumbar spine.
-Current medications: Pimobendan 1.25mg BID (started 1/28/23), Rimadyl (18.75mg SID), Gabapentin 50-100mg BID-TID PRN.
-Radiograph REPORT: Mild cardiomegaly. No CHF.

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

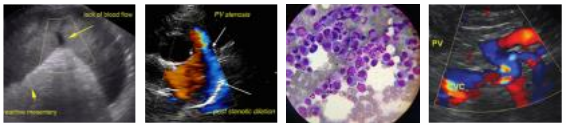
A single lead ECG is available; 50mm/s, 20mm/mV. The average heart rate is 190bpm with a largely regular rhythm. The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or dysrhythmias observed.
ECG diagnosis: Normal sinus tachycardia.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with prolapse into the left atrial lumen. No obvious ruptured chordae are identified. There is moderate eccentric mitral regurgitation present. There is moderate left atrial enlargement. There is mild left ventricular dilation. Left ventricular systolic function is hyperdynamic. The aortic valve appears normal with trace AI. There is normal systolic flow velocity across the aortic valve. The right atrial and right ventricular are mildly dilated. The tricuspid valve is mildly thickened with mild to moderate tricuspid regurgitation. Velocity consistent with mild pulmonary hypertension. The pulmonary artery and pulmonic valve are normal. No PI. No pericardial/pleural effusion or cardiac masses are seen.

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	3.2	1.9	1.8	60	90	0.22
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	NM	2.0	1.4	5.2	2.1	2.9	1.2
*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)
				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
Adapted from June Boon, Veterinary Echocardiography, 1998 Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				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)



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Hansson et al, Vet Rad and Ultrasound 2002 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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 mild/moderate tricuspid regurgitation. Moderate left atrial and mild left ventricular dilation indicate the disease is currently well compensated for and the risk for spontaneous congestive heart failure while currently low certainly may progress in the future. Mild pulmonary hypertension is identified, likely secondary to a combination of elevated LA pressure and potentially underlying respiratory disease in this predisposed breed. Finally, a small aortic insufficiency is noted, and a baseline blood pressure is recommended. No additional issues are identified and the ECG is unremarkable with a normal sinus tachycardia.

No definitive cardiac cause for the episodes is seen in this study (i.e. only mild PAH, no obvious rupture or tears, reasonable cardiac output, etc.) and other issues should be considered. These possible issues include vasovagal events, intermittent arrhythmias (unlikely), neurologic/systemic issues, etc. If the episodes are related to reported tachypnea addressing respiratory signs is recommended to monitor response. The CXR report does not mention significant respiratory or cardiac disease leaving the cause of tachypnea open at this time. Finally, while no arrhythmias are noted during this study, an intermittent arrhythmia still cannot be ruled out without a Holter monitor, and this should be considered if episodes continue undiagnosed. Further systemic evaluation may also be considered including AUS. Finally, atypical seizures should also be considered, pending more extensive history/situational nature of the episodes.

Given the results of the EPIC study, continued Pimobendan is certainly warranted in this case. Pending BP >130mmHg, and ACE-I is also suggested due to an aortic insufficiency. No obvious indication for Lasix prior to CHF.

Anesthetic risk is considered moderate however cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, iso/sevoflurane 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.

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

Continue heart muscle support Pimobendan 0.3mg/kg PO q12h. Pending BP >130mmhg, institute ACE-I 0.5mg/kg PO q12h. Further evaluation of syncope and tachypnea as discussed.

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

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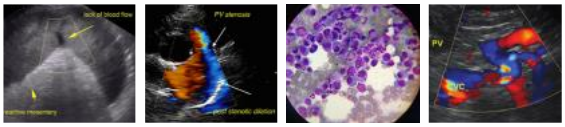

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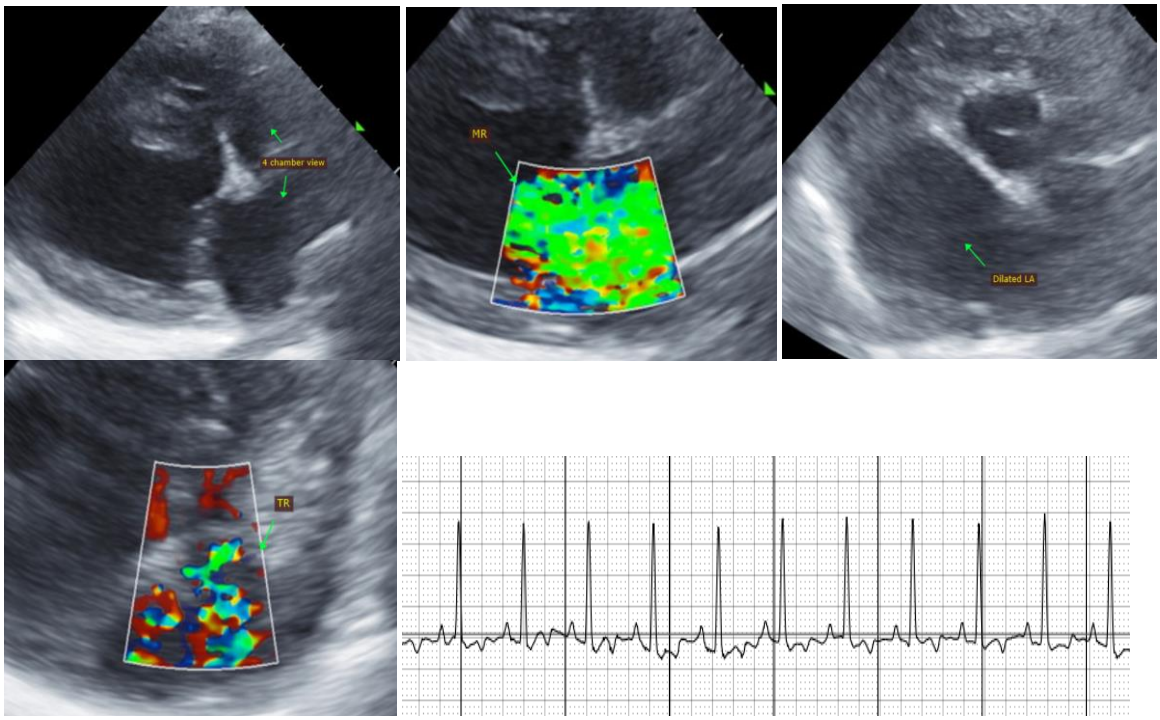
IMAGES



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.

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