



PATIENT

Angel Hatch

SPECIES

Canine

BREED

Pomeranian

SEX

Female Sapyed

AGE

11 years

WEIGHT

11.6lbs

INTERPRETED BY

Maggie Machen
Lamy, DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Sara Hansen

HOSPITAL NAME

H & H Veterinary
Care

REFERRING VET

Dr. Henery

INVOICE

22962

DATE

3/7/22

PRESENTING CLINICAL SIGNS

History: Recheck echo. Grade 1-2 heart murmur.

-Abnormal PE/Chem/CBC/UA Results: Hem 2+ lip 3+ ict 0 ALB 5.2 alp 550 alt 98 amy 722 bun 27 ca 12.5 phos 3.5 cre 0.6 glu 114 na 4.2 tp 7.6 glob 2.4.

-Current Medications: Pimobendan 1.25mg 1 capsule by mouth q12h. Furosemide 12.5mg 2 tablets by mouth q12h, Benazepril 5mg 1/2 tablet by mouth q12h.

-Pertinent previous echo findings (9/2020 MML): Moderate to sever MR, moderate LAE, mild LVE, trace TR. LA: 2.0, LV: 3.0.

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, 10mm/mV. The average heart rate is 114bpm (range 71-150bpm). P waves are difficult to identify throughout due to device insensitivity; however, a sinus origin is suspected. P for every QRS complex and vice versa. No ectopic beats, pauses or dysrhythmias observed.

ECG diagnosis: Normal sinus rhythm with respiratory variation.

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. Velocity consistent with early pulmonary hypertension. 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	4.7	2.9	1.5	1.9	50	94	0.2
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	108	1.4	1.0	5.3	2.0	2.5	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)
				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
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435



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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 persists with evidence of stability. Moderate mitral and trace tricuspid regurgitation are unchanged. The left heart dimensions are similar to previous study without obvious progression. Early pulmonary hypertension is noted which is likely due to chronic disease. No additional issues are identified. The ECG is unremarkable with a respiratory sinus arrhythmia.

Given these findings, it is reasonable to continue Pimobendan as previously recommended. Furosemide and Benazepril were instituted without explanation since the prior assessment. These medications are only necessary if the patient has a history of documented CHF, otherwise they can be safely discontinued.

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.

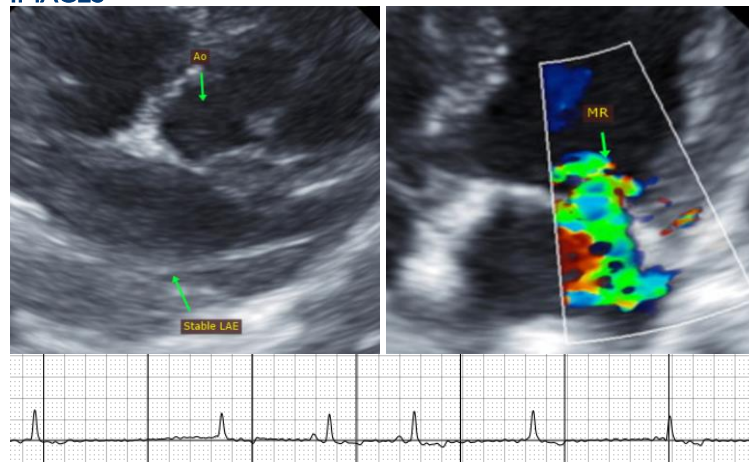
Anesthetic risk is considered mildly elevated. Cardiac protective drug choices (opioid/benzodiazepine premedication, Propofol or alfaxalone induction, iso or sevo gas) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

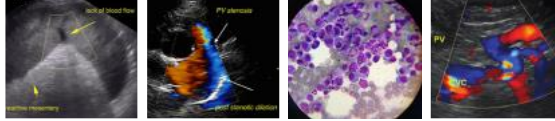
PLAN

Continue Pimobendan as prescribed. Consider hydrocodone if needed for a cough. No indication for Lasix or Benazepril therapy prior to CHF; consider continue versus discontinue.

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

IMAGES





PATIENT

Angel Hatch

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.

SPECIES

Canine

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.

BREED

Pomeranian

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

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