



PATIENT

Apple Thukral

SPECIES

Canine

BREED

Maltese Mix

SEX

Female Spayed

PRESENTING CLINICAL SIGNS

History: Grade 6/6 heart murmur with palpable thrill was noted on exam. Radiographs show an enlarged heart with tracheal deviation. History of syncopal episodes.
-Current medications: Pimobendan, Benazepril and just started Furosemide on 11.8.2022.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Severe diffuse nodular thickening of mitral valve leaflets. Mild prolapse into the left atrial lumen. Lack of coaptation in systole. Severe eccentric mitral regurgitation with severe left atrial enlargement. Moderate LV dilation with increased sphericity and hyperdynamic myocardial function. Evidence of volume overload. The tricuspid valve appears mildly thickened with septal prolapse and mild tricuspid regurgitation. Normal TR velocity. Mild right heart enlargement. The pulmonic and aortic valves appear normal in appearance and mobility. Normal pulmonic and mildly elevated aortic outflow velocities. Trace aortic and no pulmonic insufficiency noted. No pericardial or pleural effusion seen.

CARDIAC CHART

AGE

13 years

WEIGHT

14.7lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

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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	6.0	2.2	1.9	2.2	65	93	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	150	1.5	0.84	6.7	3.6	3.8	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)
<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 severe mitral and mild tricuspid regurgitation. Severe left atrial and ventricular enlargement indicates there is an elevated risk for spontaneous congestive heart failure. A small aortic leak is noted, and a baseline blood pressure is recommended. No additional issues are identified, such as significant pulmonary hypertension.

Syncope in this patient is most likely cardiogenic in origin. Possible causes include poor forward blood flow leading to hypoxia, early CHF, severe pulmonary hypertension (not seen), an arrhythmia and/or blood pressure swings. In light of severity of disease on echocardiogram, there

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is concern this patient is progressing to early congestive heart failure and full lifelong cardiac supportive therapy is warranted as below. If the episodes continue despite therapy, other causes should be considered. Long term prognosis is guarded to poor; however, most dogs are able to maintain a good QOL on medications for an average of 8-12 months.

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Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or worsening collapse episodes in the future.

BREED

Maltese Mix

Elective anesthesia is not advised, as there is high risk for complication. Risk: benefit ratio should be considered. Consider consultation with and/or referral to a facility with an anesthesiologist. Should you elect to proceed, cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, iso or sevoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction and recover in O₂ cage. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Moderate IV fluid restriction is recommended to avoid fluid overload, while considering comorbidities, hydration status, BP, etc. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

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PLAN

Screening BP recommended. Continue furosemide 1mg/kg PO q12h. Continue Pimobendan 0.3mg/kg PO q12h. Assuming BP >150mmHg, continue ACE-inhibitor Enalapril or Benazepril 0.5mg/kg PO q12h. Institute Spironolactone 0.5mg/kg PO q12h. If exertional syncope persists, highly recommend further evaluation.

INTERPRETED BY

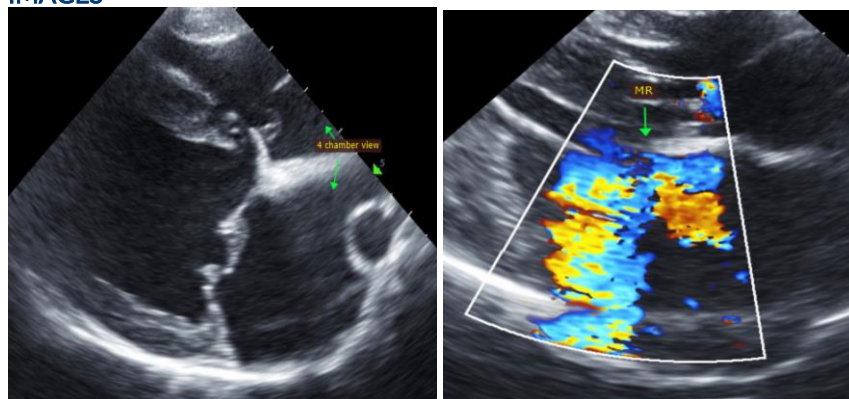
Maggie Machen Lamy,
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(Cardiology)

Monitor SRRs at home. Monitor renal values in 10-14 days, then every 3-4 months while on diuretics.

Recommend conservative monitoring with a recheck echocardiogram in 4-6 months, sooner if any development of associated clinical signs occurs in the interim.

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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.

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Maltese Mix

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