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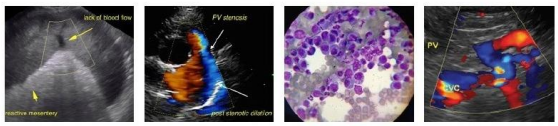

IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8340

PATIENT
Maggy Brown

SPECIES
Canine

BREED
Maltese

SEX
Female Spayed

AGE
11 years

WEIGHT
8.9lbs

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

IMAGING PERFORMED BY
Loetitia St-Jacques, LVT/RVT

HOSPITAL NAME
Alpine Animal Hospital

REFERRING VET
Dr. Sheets

INVOICE
21123

DATE
9/20/21

PRESENTING CLINICAL SIGNS

History: Recheck echo. Grade 4/6 heart murmur. Increased cough.
-Blood pressure: 120,120,115,120,120mmHg.
-Current medications: Pimobendan 1.25mg BID, Enalapril 1.25mg BID, Spironolactone 6.25mg BID.
-Pertinent previous echo findings (9/2019 MML): Severe MR, severe LAE, mild LVE, moderate TR, mild to moderate PAH. TR: 3.5m/s, LA: 2.5, LV: 3.0.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.

Significant cardiomegaly. No obvious evidence of CHF.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 50mm/s; 10mm/mV. The average heart rate is 140bpm (range 120-188bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. MEA is normal. 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. The mitral valve is diffusely thickened with significant prolapse into the left atrial lumen. Flail leaflet. There is severe eccentric mitral regurgitation present. The MR velocity is normal. There is severe left atrial enlargement. There is moderate left ventricular dilation. Left ventricular systolic function is hyperdynamic. There is normal systolic flow velocity across the aortic valve. The aortic valve appears trileaflet with normal mobility. The main pulmonary artery is normal in diameter. The pulmonic valve is normal in appearance. Normal right atrium. Normal right ventricle. Mild thickening of the tricuspid valve with moderate tricuspid regurgitation. Velocity consistent with mild to moderate pulmonary hypertension. 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	5.8	3.67	NM		43	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		1.5	0.93	4.0		3.3	1.9
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)

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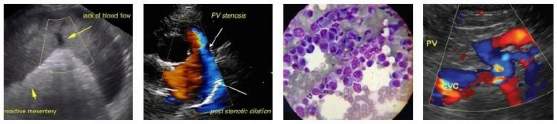

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Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435 Hansson et al, Vet Rad and Ultrasound 2002 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
	35	2.48 (4.3)	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

Compared to the prior study, there is minimal evidence of significant progression which is remarkable given the time frame. The left heart dimensions are similar to previous with only a slight increase in LV dimension. The pulmonary pressures are unchanged, and no additional issues are identified.

A cough in this patient is likely multi-factorial in origin, including mainstem bronchi compression and/or potentially some degree of upper or lower airway disease. Early CHF/pulmonary edema should also be considered; however, this is less likely based upon the reported history and included chest radiographs (i.e., no respiratory changes or obvious pulmonary edema noted). Recommend continue 3 medications as prescribed with close monitoring for need for Lasix therapy. Cough suppression (up to q4-6 hours) may also be helpful for mechanical cough. **Monitoring of sleeping breathing rates is recommended as the best way to screen for CHF at home.**

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a worsening cough, labored breathing, exercise intolerance or collapse episodes. Long term prognosis is guarded to poor, with an average survival time of 8-9mo for canine patients with active pulmonary edema on medications, however they generally are able to maintain a good quality of life for that period. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

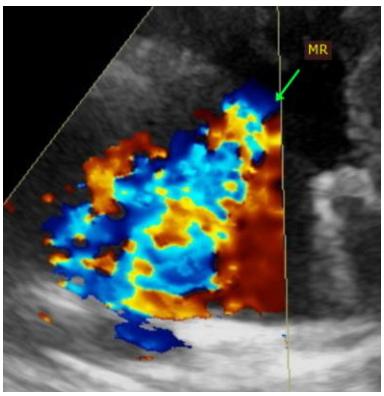
PLAN

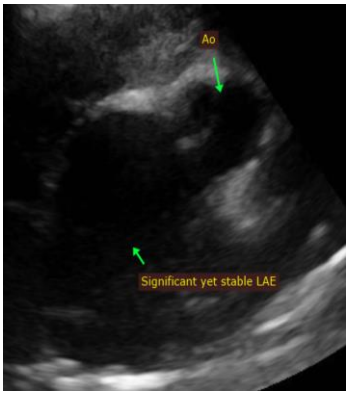
Continue 3 medications as prescribed. Consider Hydrocodone if needed for quality of life. If any change in breathing is noted, institute Lasix 1-2mg/kg PO q12h.

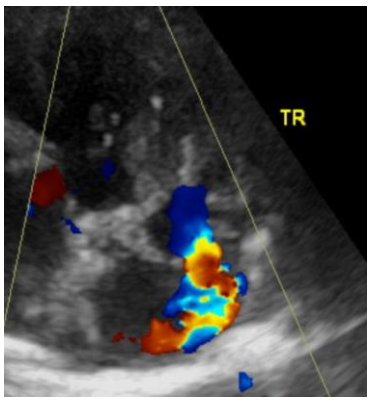
Monitor renal values every 3-4 months lifelong.

A recheck echocardiogram is recommended in 6 months to screen for progression, sooner if clinical signs arise.

IMAGES







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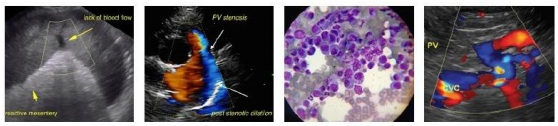

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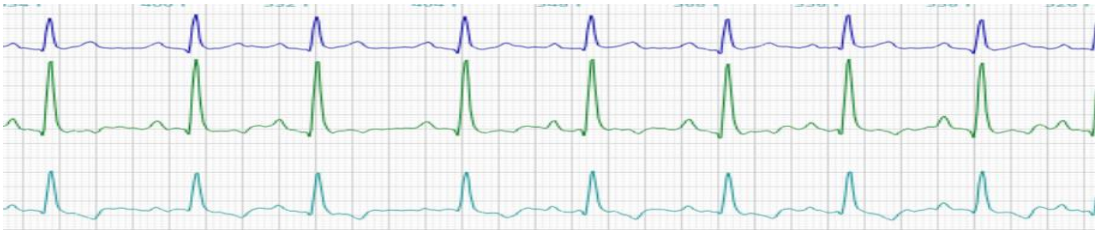

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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