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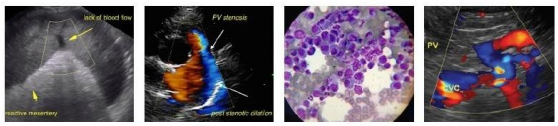


IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8340

PATIENT
Bella Higuera

SPECIES
Canine

BREED
Chihuahua

SEX
Female Spayed

AGE
12.10 years

WEIGHT
6.4lbs

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

IMAGING PERFORMED BY
Loetitia St-Jacques, LVT/RVT

HOSPITAL NAME
Mountain View Animal Hospital

REFERRING VET
Dr. Kalivoda

INVOICE
29522

DATE
3/9/23

PRESENTING CLINICAL SIGNS

History: Newly diagnosed grade 3-4/6 heart murmur. Recent episodes of syncopal like episodes. BP: 132mmHg.
-Current medications: Corydalis PRN, Dasaquin.
-Abnormal PE/Chem/CBC/UA Results: Temp 102 Pulse 160 Resp 30 CRT <2 sec BP 132 CLP essentially normal, ProBNP: 2,739

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 12.5mm/s; 5mm/mV. The average heart rate is 188bpm with a regular rhythm. 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 tachycardia.

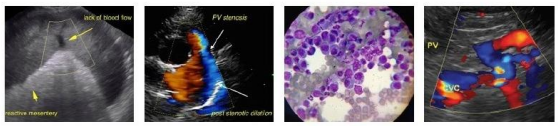
ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is mildly thickened with prolapse into the left atrial lumen. There is severe eccentric mitral regurgitation present. The MR velocity is normal. There is moderate to severe left atrial enlargement. There is mild 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 mildly dilated. Moderate right atrial and right ventricular dilation. The tricuspid valve is thickened with moderate tricuspid regurgitation. Elevated TR velocity consistent with significant pulmonary hypertension. No pulmonic or aortic insufficiency. A small hyperechoic lesion is seen associated with the heart base in some views, although the finding is inconsistent (rule out small heart base tumor versus normal tissue). Scant volume pericardial effusion. No pleural effusion.

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	5.2	4.4	NM	2.0	46	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	170	1.3	0.7	2.9	2.0	2.3	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)
**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)

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



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Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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 to severe mitral and tricuspid regurgitation. Significant left atrial and ventricular enlargement indicates the risk for spontaneous left-sided congestive heart failure is elevated. Additionally, there is severe pulmonary hypertension present, which puts the patient at risk for **right-sided congestion**, and/or **syncope**. The finding of pericardial effusion in a collapsing dog likely reflects just that and full lifelong cardiac supportive medications including diuretics and Sildenafil are recommended as below. In addition, recommend spironolactone as a K-sparing weak diuretic given the severity of disease and presence of pericardial effusion. It is worth noting, a small hypoechoic soft tissue lesion is seen adjacent to the heart base. While a small chemodectoma cannot be ruled out, normal tissues highlighted by the effusion is also a possibility. Regardless, this is clinically insignificant at this time. The ECG is unremarkable with a normal sinus rhythm.

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 worsening collapse episodes. Monitoring of sleeping breathing rates is recommended as the best way to screen for progression to CHF at home. Unfortunately, there is high risk for spontaneous CHF, worsening cough and/or malignant arrhythmias and sudden death in the future. The prognosis with this degree of disease is poor, with most dogs able to maintain a good QOL on medications for an average of 8-12 months.

Elective anesthesia is not advised.

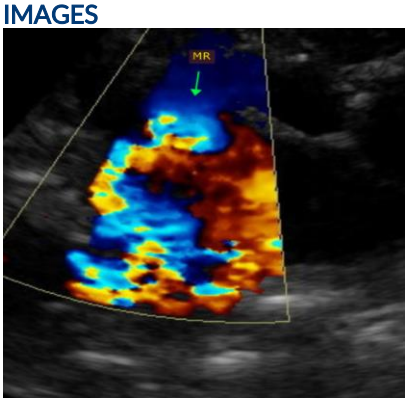
PLAN

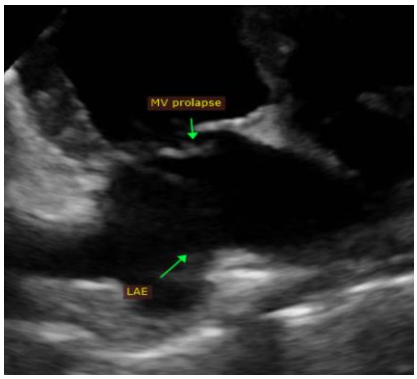
Institute Pimobendan 0.3mg/kg PO q12h. Institute Furosemide 1-2mg/kg PO q12h. Institute spironolactone 1-2mg/kg PO q12h. Institute Sildenafil 1-2mg/kg PO q8h.

Monitor SRRs at home. Monitor renal values and BP in 10-14 days, then every 3-4 months while on diuretics. If doing well and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h. Consider hydrocodone if needed for QOL.

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

IMAGES





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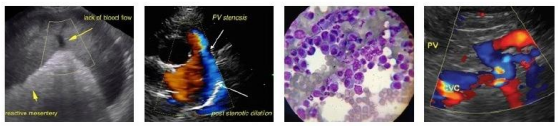

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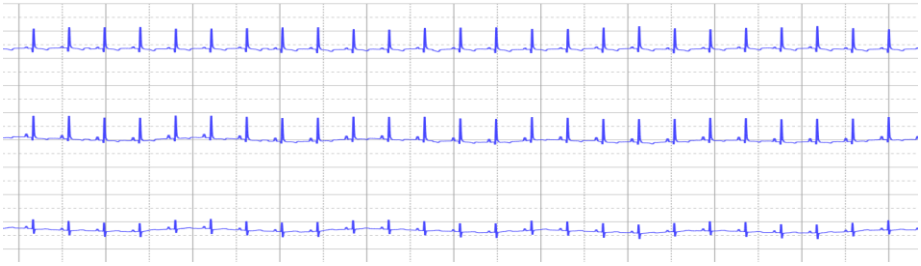

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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