



PATIENT

Zombie Miucicci

SPECIES

Canine

BREED

Chihuahua

SEX

Male Neutered

AGE

11.18.07

WEIGHT

8.8lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

HOSPITAL NAME

Banfield Towson

REFERRING VET

Dr. Mike

INVOICE

24744

DATE

6.13.22

PRESENTING CLINICAL SIGNS

History: Recheck echo. Grade 4/6 murmur. Assess prior to anesthesia.

-Current medications: 1.25mg Pimobendan.

-Blood pressure: 191/127 MAP 143 HR 205 Per DVM this is a consistent average of multiple readings.

-Sedation used: Not required to complete full diagnostic ultrasound.

-Pertinent previous ultrasound results (1/2019 MML): Moderate MR, mild to moderate LAE, mild TR: 2.4m/s. LA: 2.0, LV: 2.1.

-STAT: Declined.

-Imaging performed by: Stephanie Pearce RDCS, RVT.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at both 25 and 50mm/s; 2mm/mV. The average heart rate is 180bpm (range 157-200bpm). 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. Isolated APCs are identified; singles only and rate in occurrence. No ventricular premature beats, pauses or other dysrhythmias observed.

ECG diagnosis: Normal sinus tachycardia with isolated APCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets (ant>>post) with prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with mild/moderate left atrial dilation. Normal MR velocity. Normal LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Velocity consistent with mild to moderate pulmonary hypertension. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

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	5.5	3.4	NM	1.6	48	81	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	174	1.1	0.83	4.0	1.9	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)
<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)

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
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease persists with remarkable stability. The left heart is unchanged from 2019 with stable left heart dimensions. One progressive issue is development of mild to moderate pulmonary hypertension; however, this is of unknown concern in an asymptomatic dog. No additional issues are identified.

The ECG is largely unremarkable, although occasional APCs are identified. These are not surprising given a stressed patient with atrial enlargement. Given what is seen here, no treatment is warranted as these are of little clinical concern.

Given these findings, no additional medications are warranted. Prognosis remains guarded long-term with risk for progression to CHF going forward. That being said, stability over a 3-year period is clearly encouraging.

The reported blood pressure is elevated and should be reassessed for accuracy particularly given no reported clinical signs of severe hypertension (retinal changes, etc.) or evidence of LVH on echo. Ideally obtain serial measurements in a controlled, low stress environment and continue until 3 consecutive readings plateau within 5mmHg of variability. If persistently >180mmHg despite a relatively calm demeanor, recommend institution of amlodipine to effect. Additionally, if deemed accurate, screening for predisposing underlying causes of SHT is recommended (Cushings, PLN, adrenal tumor, etc.), as primary disease is relatively uncommon and a rule out diagnosis.

Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

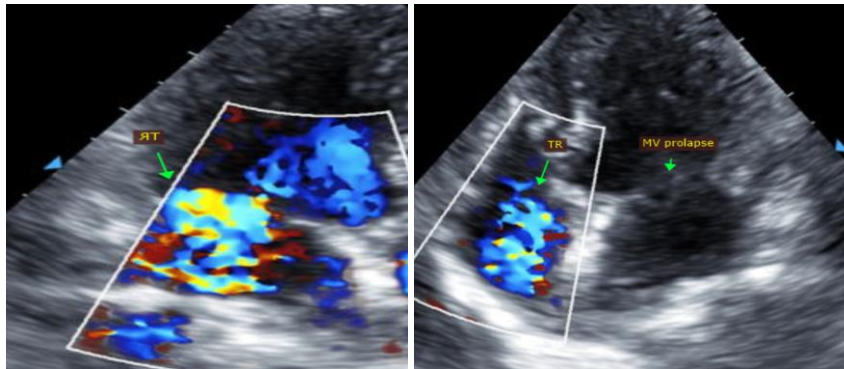
Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

PLAN

Reassess BP is recommended. Continue Pimobendan 0.3mg/kg PO q12h.

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

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.

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