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Clinical Sonography & Telecytology
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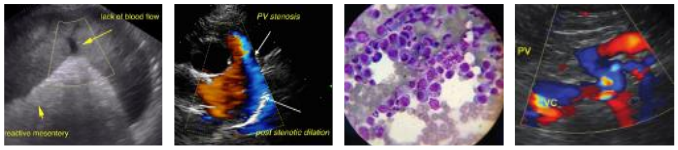

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Luca Mayoral

SPECIES
Canine

BREED
Boxer

SEX
Male Neutered

AGE
12 years

WEIGHT
68lbs

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

IMAGING PERFORMED BY
G. Ferrer, DVM

HOSPITAL NAME
Paseos Veterinary Center

REFERRING VET
Dr. Ferrer

INVOICE
31736

DATE
7/8/23

PRESENTING CLINICAL SIGNS

History: Presented for evaluation on 7-7-23 to recheck a UTI and during the visit the O mentioned that pt seems spaced out, looking into the distance. Also pt has been panting all the time and seems slow and unbalanced. During that visit an arrhythmia was noticed and EKG was done and submitted for evaluation and also pt had hypertension and started enalapril. After O gave enalapril that night, O noticed that pt was weaker and thought that was the medication. An echocardiogram was done on 7-8-23 as recommended by the cardiologist. Medication that was started on 7-7-23: Enalapril 10mg: 1 tablet PO BID. No murmurs, Marked discomfort when getting up. Mild ataxia upon ambulation, decrease muscle strength Adequate PLRs and menace Adequate response to stimuli. Blood pressure: 7-8-23 253/134 HR:128 (168); 241/137 HR: 133 (172); 245/137 HR: 135 (168).
-ECG: Sinus tachycardia is noted. A ventricular arrhythmia is noted. The VPCs are of left bundle branch block morphology, which is consistent with right ventricular origin.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no prolapse into the left atrial lumen. No obvious mitral regurgitation with a normal left atrial dimension. Normal LV diameter with adequate myocardial function. Mild LV hypertrophy (1.4cm globally). The tricuspid valve appears normal with no tricuspid regurgitation. 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	NA	NA	NM	1.2	54	86	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	132	0.8	1.0	30.8	3.1	4.0	2.3
*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)
				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

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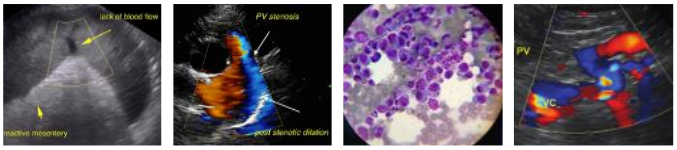

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac dimensions and function. Mild LV hypertrophy is identified, which likely supports reported systemic hypertension. No significant valvular leaks are visualized, and no evidence of pulmonary hypertension.

Given these findings, no medications are indicated. Adequate blood pressure control should be based upon predisposing factors, such as proteinuria, chronicity and severity of the readings, etc. Typically amlodipine is a reasonable first line option in dogs, and immediate vasodilator therapy is warranted. Consider an IM consultation. It is important to note that cardiac disease does not cause SHT; rather the inverse is true with secondary cardiac effects developing secondary to chronic afterload elevation (as is the case here).

No structural cause for VPCs is seen in this study, although uncontrolled SHT may certainly be related. Once the BP is controlled reassessing the ECG is recommended.

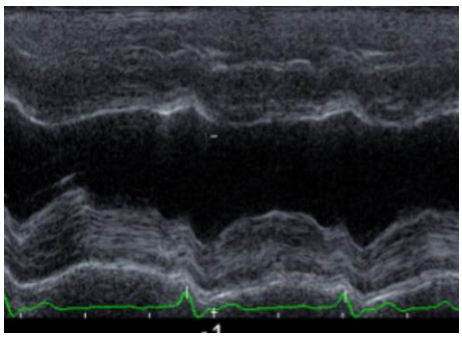
Monitor for development of a heart murmur, cough, labored breathing, exercise intolerance or collapse episodes.

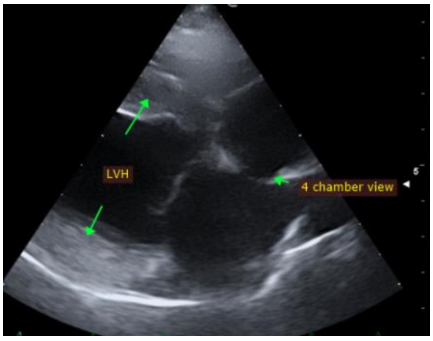
PLAN:

rRecommend vasodilator therapy as dictated by the clinical picture/systemic evaluation. Goal is BP <160mmHg in hospital. Reassess ECG once BP is well controlled for 2-4 weeks. Follow up/treatment for the arrhythmia should be dictated by the ECG report.

A recheck echocardiogram is recommended in 1 year, sooner should a significant murmur develop, or signs of cardiac compromise be noted in the interim.

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.

Maggie Machen Lamy, DVM
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