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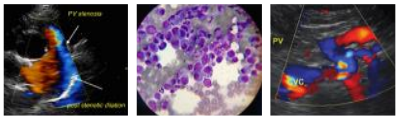

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PATIENT
Taco Kautz

SPECIES
Canine

BREED
Chihuahua

SEX
Male Neutered

AGE
14 years

WEIGHT
28lbs

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

IMAGING PERFORMED BY
Andi Parkinson, RDMS

HOSPITAL NAME
Paradise Animal Hospital

REFERRING VET
Dr. King

INVOICE
22349

DATE
12/8/21

PRESENTING CLINICAL SIGNS

History: Grade 3/6 murmur. Ongoing cough since 2020, heart murmur has been present at least that long. Cough was worse and some lethargy starting late October. Was put on a course of antibiotics which seemed to decrease coughing. Has a rectal mass (small) which we may pursue surgery on depending on heart status. Prior chest radiographs were consistent with pulmonary edema; has been started on Lasix and Pimobendan since then.
-Current medications: Furosemide 10mg BID PO, Vetmedin 2.5mg BID PO.
-Blood pressure: 110mmHg.
-Sedation used: Patient was sedated with Torbugesic.
-STAT: Not requested.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Mild eccentric mitral regurgitation is suspected, although not confirmed on ancillary views. There is no left atrial dilation. Normal MR velocity. Significantly decreased LV diameter with adequate myocardial function. Borderline LV hypertrophy. The tricuspid valve appears normal with trivial 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 (aortic valve difficult to visualize extensively). Significantly elevated pulmonic and aortic outflow velocities without an obvious structural cause. No obvious aortic or pulmonic insufficiency. No valvular or sub-valvular abnormalities are visualized. 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	6.0	NM	NM	1.1	47	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	200	>4	2.2	12.7	1.4	2.1	1.1
*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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing mild mitral and trivial tricuspid regurgitation is suspected, although cannot be confirmed on multiple views. Lack of significant left atrial enlargement indicates the current risk for complication is low. What is also unusual is there is significantly elevated flow velocity through both great vessels. The patient appears volume underloaded with a small LV internal dimension, which is making visualization difficult; however, this is commonly a cause of increased LVOT/RVOT velocities. The aortic outflow velocity is severely elevated which is unusual in the absence of stenosis, and some false elevation due to MR is also a possibility. **Regardless, the patient's volume status should be assessed ASAP and the Lasix discontinued.** Volume depletion may also be contributing to relative hypotension (stressed BP 110mmHg reported). No additional issues are noted in this study.

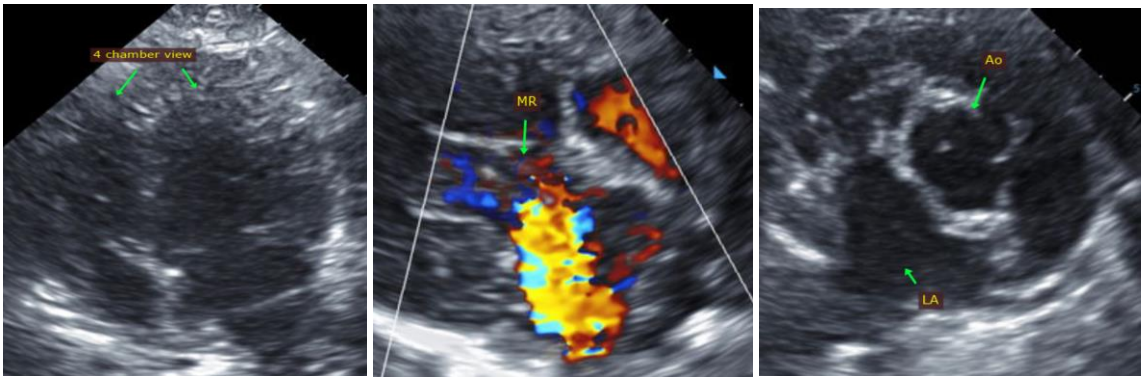
Given these findings, the cough is **unlikely to be cardiac in origin** and primary respiratory causes should be considered. Consider further respiratory work up/treatment (hydrocodone, taper course of steroids, Enrofloxacin, TTW/BAL, etc.).

In a dog with no significant left atrial enlargement, **no cardiac medications are clearly indicated and Pimobendan can also be safely discontinued**. This is directly discordant with prior reported radiographic findings, and if there is any question on the diagnosis a **Radiologist review of the films is strongly recommended**. Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage (B1). 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.

Pending lab work assessment/BP normalization, 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: Discontinue Lasix/Pimobendan. Consider a Radiologist review of the prior films if there is any question on the diagnosis/cause of the cough. Assess full labwork (including UA) with volume resuscitation if indicated. Further cough evaluation/treatment as discussed.
A brief recheck of LA/LV dimensions may be useful once volume is normalized. A full recheck echocardiogram is recommended 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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