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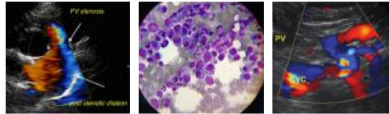

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PATIENT
George Koch

SPECIES
Canine

BREED
Chihuahua

SEX
Male Neutered

AGE
11.4.12

WEIGHT
9.2lbs

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

HOSPITAL NAME
Northwind Animal Hospital

REFERRING VET
Dr. Wilson

INVOICE
24251

DATE
5.18.22

PRESENTING CLINICAL SIGNS

History: Recently started having episodes of labored breathing, coughing, tachycardia. Was doing well on previous regimen of heart meds. Owner was authorized to increase Furosemide and add Tussigon, but not noticing a significant difference. Referral to ER/Cardiologist declined.
-Pertinent abnormal PE/Chem/CBC/UA Results: 1/22- Chem 25/CBC/T4 WNL.
-Current medications: Furosemide 20mg ½ AM, 1 PM, Spironolactone 25mg ¼ SID, Enalapril 2.5mg SID, Tussigon 1/4-1/2 PRN for cough. Pimobendan 1.25mg PO q12h.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results (IP/Idexx 1/2022): CVD severe. LA/AO: 2.1, TR: 3.3m/s, LV: 3.3.
-STAT: Requested by DVM.
-Imaging performed by: Stephanie Pearce RDCS, RVT.

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

Severe cardiomegaly with evidence of recurrent CHF.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with prolapse into the left atrial lumen. Marked eccentric mitral regurgitation with marked left atrial dilation. Normal MR velocity. Moderate LV dilation with hyperdynamic myocardial function. The tricuspid valve appears thickened with mild TR. Velocity consistent with mild to moderate pulmonary hypertension. Mild right heart enlargement. The pulmonic and aortic valves are normal in morphology and mobility. Normal aortic and pulmonic outflow velocities with laminar flow. No AI/PI. 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	5.0	3.6	NM	2.4	47	79	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	188	1.0	0.97	4.2	3.0	3.5	1.5

*Normal chamber parameters expressed as a mean value (SD)

BODY WEIGHT (kg)	LA (cm)	LVIDd (cm)	LVIDs (cm)
3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
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)

BODY WEIGHT DEPENDENT PARAMETERS

**Note: All measurements based upon multi-modal images and methods. An average value is reported.*

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 marked mitral and mild tricuspid regurgitation. Compared to the prior study, both the LA and LV are both increasingly enlarged. Pulmonary pressures are similar to the prior study with mild to moderate elevation. No obvious additional issues are identified. Tachycardia is noted throughout the study and an ECG is strongly recommended.

In light of recurrent respiratory signs, chest radiograph findings and severity of disease on echocardiogram seen here, the patient is likely experiencing recurrent CHF and hospitalization should be considered. If unstable, oxygen support and injectable diuretics are the most effective treatment in the acute phase. Going forward, medication recommendations are as below; however, any decline warrants further evaluation. Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Cough suppression to improve QOL can also be considered (hydrocodone, 0.2-0.4mg/kg up to q4-6h PRN) for any residual mechanical cough in the face of normal sleeping respiratory rates. The average survival time of canine patients with active pulmonary edema is 8-9 months 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.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for acute progression of the cough, labored breathing, exercise intolerance or collapse episodes in the future.

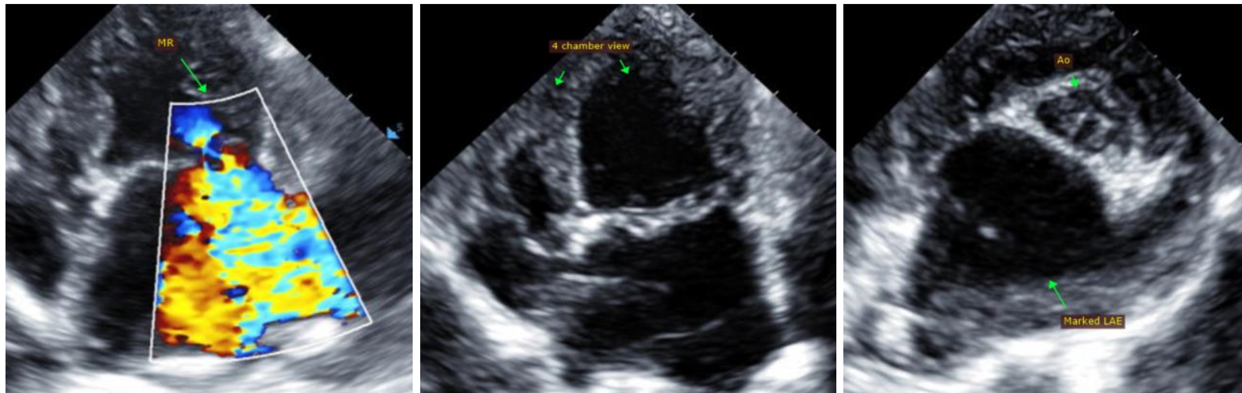
PLAN

If patient appears unstable, recommend hospitalization for oxygen support and injectable therapy. Screening BP and ECG are recommended ASAP. If declined, administer 2mg/kg Lasix IV or IM in hospital prior to discharge. Oral medications are as follows: increased Pimobendan to 1.25mg PO q8h. Increase Lasix 10 10mg am, 10mg mid-day, 20mg pm. Increased spironolactone 6.25mg PO q12h. Continue Enalapril as prescribed, pending BP assessment. Continue Hydrocodone as needed for quality of life.

Monitor SRRs at home. Monitor renal values and BP in 1-2 weeks, then every 3-4 months lifelong. The dose of Lasix is nearing the toxic range and close follow up is advised, particularly should inappetence be noted.

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

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