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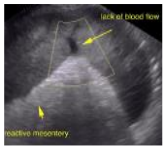
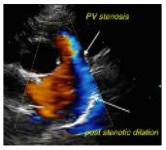
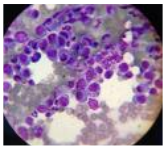
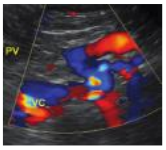
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

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

PATIENT
Awesome Pete Dreier

SPECIES
Canine

BREED
Border Collie

SEX
Male

AGE
11 years

WEIGHT
35.9lbs

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

IMAGING PERFORMED BY
Erica Harmon, DVM

HOSPITAL NAME
Willamette Veterinary Hospital

REFERRING VET
Dr. Harmon

INVOICE
24467

DATE
5/28/22

PRESENTING CLINICAL SIGNS

History: Grade 5/6 systolic murmur, with pronounced sinus arrhythmia present. episodes of collapse after exercise. HX of coughing. Rads: generalized cardiomegaly with compression of mainstem bronchi, no overt CHF noted. heart murmur diagnosed at age 4, not progressive per rDVM notes. Possible arrhythmia. P also had BG ranging from 60-69 on rDVM labs and on BG check today associated with exam. P takes prednisone for history of meningitis (dx w/ neurologist at age. Possible arrhythmia noted at rDVM, few shortened RR intervals, no visible P wave at these complexes *per rDVM record*

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with prolapse of the anterior leaflet into the left atrial lumen. Lack of coaptation in systole. There is severe eccentric mitral regurgitation present. There is severe left atrial enlargement with a bulbous appearance. There is severe left ventricular dilation. Left ventricular systolic function is depressed. There is normal systolic flow velocity across the aortic valve. The aortic valve appears trileaflet with normal mobility. Normal pulmonic outflow velocity. The main pulmonary artery is normal. Mild right atrial and right ventricular dilation. The tricuspid valve is mildly thickened with trace tricuspid regurgitation. No pulmonic insufficiency; no aortic insufficiency. Scant pericardial effusion. No obvious evidence of pleural effusion. No cardiac masses are seen. Bradycardia throughout.

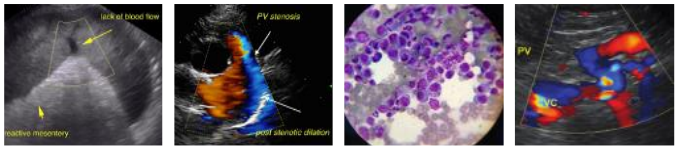
CARDIAC CHART

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	4.5		NM	2.8	35	68	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			0.6	16.4	4.5	6.0	3.9
*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

Severe chronic degenerative valve disease is present causing severe mitral and mild tricuspid regurgitation. Severe left atrial dilation indicates the risk for spontaneous decompensation is



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elevated. The right heart is mildly dilated, without obvious evidence of significant PAH. No additional structural issues are identified.

As an imminent complicating factor there is also small volume pericardial effusion. This finding is most consistent with a small left atrial tear (leading to hemorrhage into the pericardial space); however, other possibilities such as an arrhythmia or other cause of right-sided congestion, a pericardial bleed or other hemorrhagic effusion considered much less likely. This may explain a prior syncopal episodes, although recurrence is atypical.

An arrhythmia is noted in the history, and unexpected bradycardia is seen throughout the study. This is highly concerning, as a patient in CHF should be sympathetically driven. Consider the arrhythmia as a possible cause of PCE/syncope as well; however, further comment cannot be made without an ECG tracing.

Ideally, I would treat this patient with diuretic therapy and supportive care and monitor the amount of effusion in hopes of stabilizing the situation. If the amount of effusion increases or the patient further decompensates, a pericardial tap may become indicated. Overnight hospitalization would be the ideal approach.

Strict activity restriction is advised until the fluid is able to reabsorb, as there is a high risk for decompensation if the clot/healing is disrupted. If any syncope/decompensation occurs acutely in the future, then the amount should be reassessed.

Unfortunately even if we are able to stabilize the situation, the long term prognosis is poor to grave given the severity of disease and complexity of issues, with risk for recurrent spontaneous decompensation, fulminant heart failure, development of arrhythmias and/or sudden death in the future.

Monitoring of sleeping breathing rates is recommended as the best way to screen for CHF at home. Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

Immediate ECG evaluation recommended. Consider hospitalization for supportive care as discussed, with close monitoring of volume of pericardial effusion/need for centesis, continuous ECG evaluation, blood pressure monitoring, diuretic therapy and O2 support if needed. Continue Pimobendan 0.3mg/kg PO q12h. No obvious indication for Sildenafil

Once stabilized, discharge on the following: Institute furosemide 1-2mg/kg PO q12h; spironolactone 1-2mg/kg PO q12h; Pimobendan 0.3mg/kg PO q12h.

A renal panel, ECG, blood pressure and (if possible) reassessment of pericardial effusion is recommended in 1-2 weeks following discharge, then every 3-4 months going forward. Once stable, normotensive and doing well at home, institute ACEI 0.5mg/kg PO q12h.

A recheck echocardiogram is recommended in 6 months to screen for progression, sooner if clinical signs arise.

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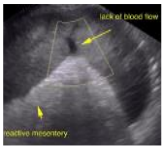
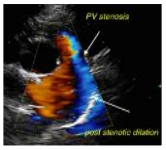
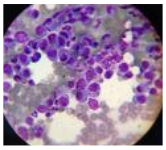
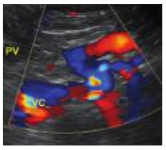

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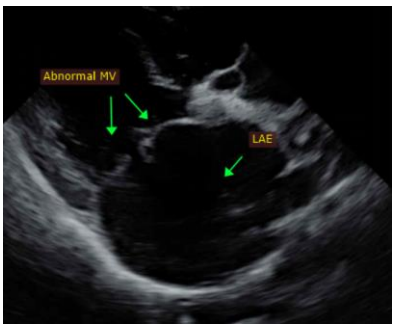
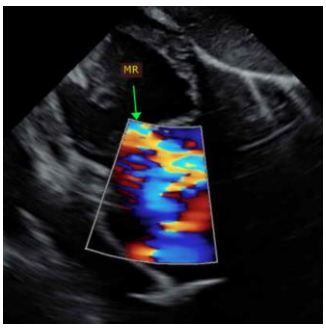
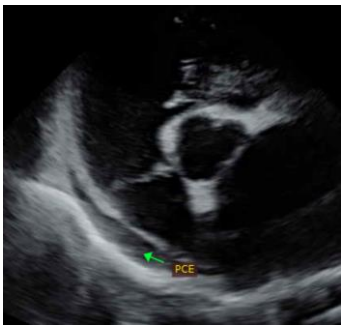
IMAGES







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. 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