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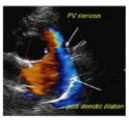
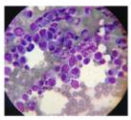
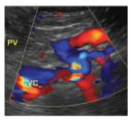




SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Max Tranchita

SPECIES

Canine

BREED

Labradoodle

SEX

Male Neutered

AGE

14 years

WEIGHT

39.6lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Ellenberger

INVOICE

24758

DATE

6/13/22

PRESENTING CLINICAL SIGNS

History: History of heart murmur since 2020. Started on Furosemide 50mg BID and vetmedin 5mg BID. In March radiographs revealed an enlarged LA and suspected mild perihilar edema. VHS 10.5. On 6/8/22 recheck radiographs reveal heart is stable. Heart murmur noted as grade 5-6/6.
-Abnormal PE/Chem/CBC/UA Results: Alk Phos 931 Albumin 4.6 BUN 40 Creatinine 1.3.

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

6/8/22: Mild cardiomegaly. No obvious CHF.

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

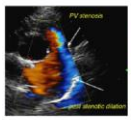
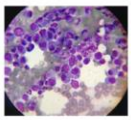
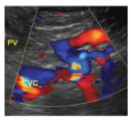
A single lead ECG is available; 50mm/s, 10mm/mV. The average heart rate is 160bpm; however period of sinus tachycardia up to 188bpm. The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. A single premature beat is identified with an instantaneous HR of 270bpm; suspect atrial origin. No ventricular ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus tachycardia with a single premature beat; suspect APC.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets (anterior>posterior) with minimal prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Borderline LV dilation with adequate myocardial function. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Normal right atrial and ventricular diameter. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and mildly elevated aortic outflow velocities. Trace aortic and no pulmonic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed. Rapid tachycardia noted throughout the study.

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		1.3	1.6	43	76	0.3
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	270	2.8	1.5	18.0	3.6	2.6	1.5
*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 **Note: All measurements based upon multi-modal images and methods. An average value is reported.*				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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)

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Hansson et al, Vet Rad and Ultrasound 2002 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral and mild tricuspid regurgitation. Moderate left atrial enlargement indicates there is relatively low risk for imminent complication, however risk for progression to spontaneous congestive heart failure in the future is elevated. No additional issues are identified.

The ECG shows a sinus rhythm with a single premature beat. Unfortunately single lead tracings are limited in sensitivity; however, an atrial origin (APC) is suspected. What is more concerning is the HR during the echocardiogram is 270bpm, which is not reflected in the ECG. The tachycardia is sustained for brief periods, which can lead to decompensation. An SVT is more likely given the ECG findings and lack of syncope at home; however, further evaluation is strongly recommended. Consider referral to a local Cardiologist for a 6 lead tracing and advanced evaluation. If declined, a holter can be ordered through Sonopath for interpretation. If this option is also declined, consider cautious use of Diltiazem below given the sustained rhythms seen here. This is not ideal without a definitive diagnosis and should be used as a last resort.

Given the totality of the findings (moderate CVD and tachyarrhythmias), recommend continue full cardiac support at below. Assessment of progression in the future will help predict long term outcome, however prognosis is guarded at this stage (B2/C).

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

Elective anesthesia is not advised until the arrhythmia is addressed.

PLAN

Highly recommend referral to a local Cardiologist for advanced imaging and a 6 lead ECG/holter. If declined, consider holter application through Sonopath. If also declined, recommend Diltiazem 1-2mg/kg PO q12h with a recheck ECG/holter in 1-2 weeks.
Full cardiac support recommended as follows if referral is declined: continue Pimobendan 0.3mg/kg PO q12h. Continue Lasix 1-2mg/kg PO q12h. Institute Spironolactone 1-2mg/kg PO q12h.

Monitor renal values/BP in 1-2 weeks, then every 3-4 months lifelong. If doing well and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h.

Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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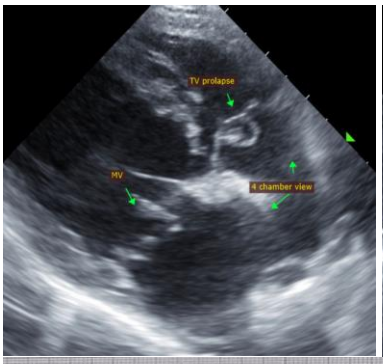

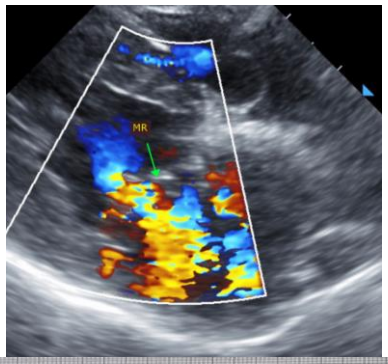

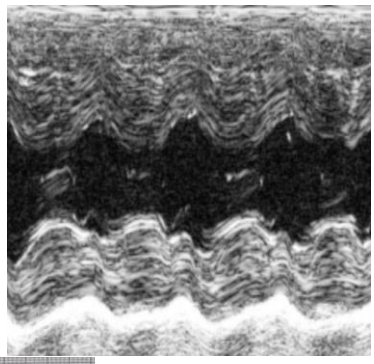
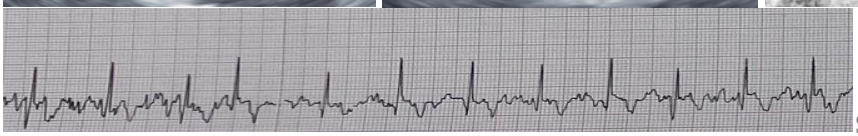

Single premature beat

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