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Clinical Sonography & Telecytology
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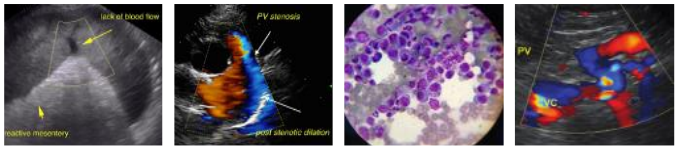


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Zoe Eschliman

SPECIES
Canine

BREED
Lab Mix

SEX
Female Spayed

AGE
14 years

WEIGHT
65lbs

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

IMAGING PERFORMED BY
Brita Kiffney, DVM

HOSPITAL NAME
Northshore Veterinary Hospital

REFERRING VET
Dr. Kiffney

INVOICE
24430

DATE
5/26/22

PRESENTING CLINICAL SIGNS

History: Recheck echo/ECG. No change at home.
-Current medications: Diltiazem 30mg BID.
-Pertinent previous echo findings (3/2022 EL): CVD B1, FS: 26%.
-Pertinent previous ECG results (3/24/22MML): Bradycardia/sinus pauses. Frequent SVT. Concern for SSS.
-Holter results (4/2022 MML): Proximal SVT, occasional VPC and AV block/sinus arrest. Referral versus Diltiazem recommended.

ELECTROCARDIOGRAPHIC FINDINGS

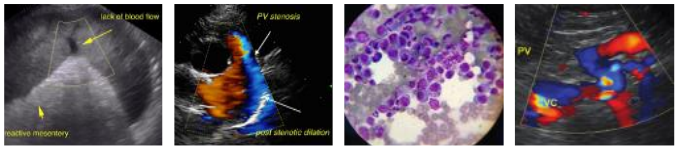
Photographs of a six-lead ECG are submitted at 50mm/s; 10mm/mV. Dramatic heart rate variation with underlying sinus rhythm. The average sinus rate is 80bpm, although frequent supraventricular arrythmias impede evaluation. The PR interval in prolonged consistent with AV block. The QRS morphology is positive with normal dimension. MEA is normal. Frequent SVT persists with a heart rate of 214bpm. No sustained SVT is seen. Isolated VPCs throughout; singles only, monomorphic.
ECG diagnosis: Findings are similar to the previous study with sinus bradycardia and 1st degree AV block, proximal SVTAPCs and isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Mild anterior-directed mitral regurgitation with mild left atrial dilation. Normal MR velocity. Normal LV diameter with borderline myocardial function. The tricuspid valve appears normal with mild 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	>4.5	NM	NM	1.6	29	53	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	NM	0.9	0.7	29.5	2.4	4.5	3.2
*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.* Adapted from June Boon, Veterinary Echocardiography, 1998				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)



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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	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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing mild mitral and tricuspid regurgitation persists. Compared to the prior study these findings are similar, which is not surprising given the time frame. The systolic function remains borderline, and no additional issues are identified.

The ECG shows persistent arrythmias, although no sustained SVT is appreciated. This likely reflects a slight improvement on the medication, which was essentially the goal. Treating tachyarrhythmias in the face of sinus bradycardia is difficult, and further dose titration may result in worsening clinical signs. As previously discussed, the finding of sinus bradycardia/AV block in addition to rapid arrythmias remains concerning for sick sinus syndrome and referral remains strongly recommended. If declined and the patient remains relatively asymptomatic, no additional medical management is warranted at this time. If any syncope develops in the future, patient should be referred immediately as a pacemaker may be necessary.

No cardiac medications are clearly indicated. 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.

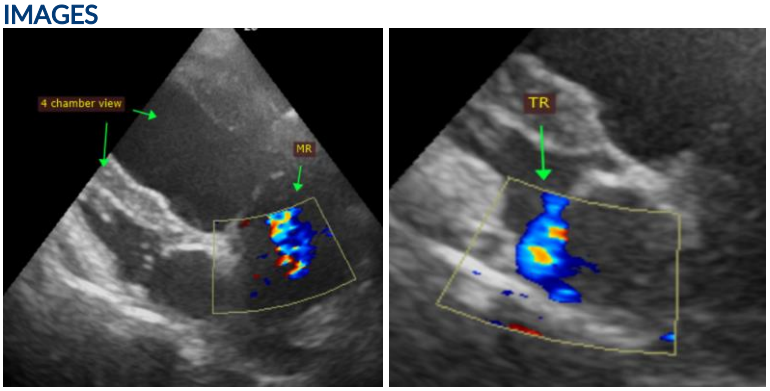
Anesthesia is not advised.

PLAN

Continue Diltiazem as prescribed.

Recheck echocardiogram and ECG is recommended in 6 months, sooner if any syncope or decline occurs in the interim.

IMAGES



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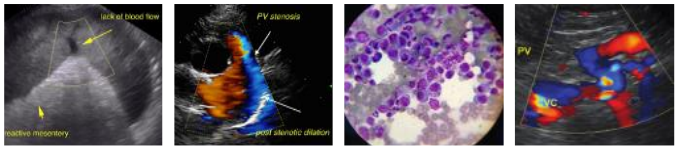

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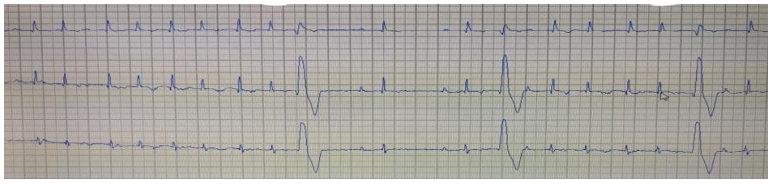

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com