
**PATIENT**

Porsche Garvie

**PRESENTING CLINICAL SIGNS**

 History: New grade 4/6 heart murmur. Increased RR as dog has severe anxiety.  
 -Current medications: Proin.  
 -Abnormal PE/Chem/CBC/UA Results: Slightly elevated SDMA of 19 and mild eosinophilia.

**SPECIES**

Canine

**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, 20mm/mV. The average heart rate is 80bpm (range 66-100bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. Isolated VPC are seen throughout; primarily singles with one couplet (instantaneous heart rate: 170bpm). VPCs are monomorphic. No APCs, pauses or other dysrhythmias observed.  
 ECG diagnosis: Normal sinus rhythm with isolated and couplet VPCs.

**BREED**

Doberman

**SEX**

Female Spayed

**AGE**

10 years

**WEIGHT**

72.8lbs

**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 eccentric mitral regurgitation with no left atrial dilation. Normal MR velocity. Borderline LV diameter with borderline myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. Mild aortic and pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

**INTERPRETED BY**

 Maggie Machen Lamy,  
 DVM DACVIM  
 (Cardiology)

**CARDIAC CHART**
**IMAGING PERFORMED BY**

Kelly Reschny, RVT

**HOSPITAL NAME**

 Snelgrove Veterinary  
 Services

**REFERRING VET**

Dr. McQueen

**INVOICE**

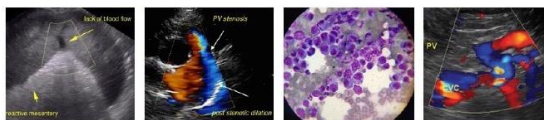
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**DATE**

10/27/22

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	5.5	NA	1.5	1.3	27	50	0.6
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	2.0	1.1	33.0	3.8	4.9	3.6
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
<b>BODY WEIGHT DEPENDENT PARAMETERS</b>				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



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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Mild degenerative valve disease is identified with mitral regurgitation. Lack of significant left atrial enlargement would suggest the risk for complication is low. The LV function is borderline; however, given the signalment this is likely a normal variant without obvious DCM. Finally, a small aortic leak is noted, and lifelong blood pressure monitoring is advised. No additional issues are identified.

Ventricular premature contractions (VPCs) are noted on the ECG. VPCs are generated from abnormal conductive or fibrotic tissue in the ventricles of the heart muscle, and even frequent single VPCs will often cause no clinical signs in dogs. When sustained however, ventricular tachycardia can lead to symptoms such as lethargy, collapse and sudden death. VPCs are a very non-specific finding. They can be due to significant cardiac disease (not present in this study) or be extra-cardiac in origin, i.e., due to pain, stress, inflammation, cancer, GI disease, DIC/sepsis, etc. In this senior dog all differentials should be ruled out. An abdominal ultrasound to monitor for any underlying abnormalities, in addition to tick titers and cardiac troponin level can be considered. Unfortunately, there is always an elevated risk for collapse and sudden death in any arrhythmic patient, and even on medications this risk unfortunately still persists.

Based strictly upon the amount of arrhythmia present on the available ECG, anti-arrhythmic therapy is not clearly indicated. Pending results of systemic work up, can consider a holter monitor especially if any significant lethargy or collapse is noted. This particular signalment is highly predisposed to maglinant arrhythmias and a holter monitor is strongly suggested.

Fish oil supplementation is recommended for dogs with arrhythmias (500-1000mg of omega 3 and 6 once to twice daily).

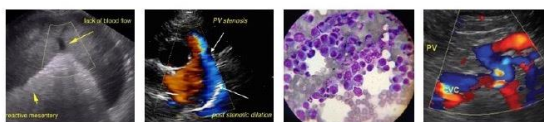
Monitor at home for collapse, exercise intolerance, and/or lethargy. If a holter monitor is elected, this will dictate whether therapy is needed and follow up protocol.

Anesthetic risk is considered moderately elevated. Avoid ketamine, telazol, Dexdomitor (or other alpha-2 agonists) and acepromazine. Recommend having lidocaine CRI available for use in the event of worsening ventricular arrhythmias under anesthesia (CRI 50–75mcg/kg/min).

**PLAN**

Consider further work up through labs, abdominal ultrasound, etc. Highly recommend a holter monitor in this case. If declined, a recheck ECG is recommended in 2-3 months.

A recheck echocardiogram/ECG is recommended in 6 months, sooner if symptoms of cardiac disease arise (cough, labored breathing, etc.).



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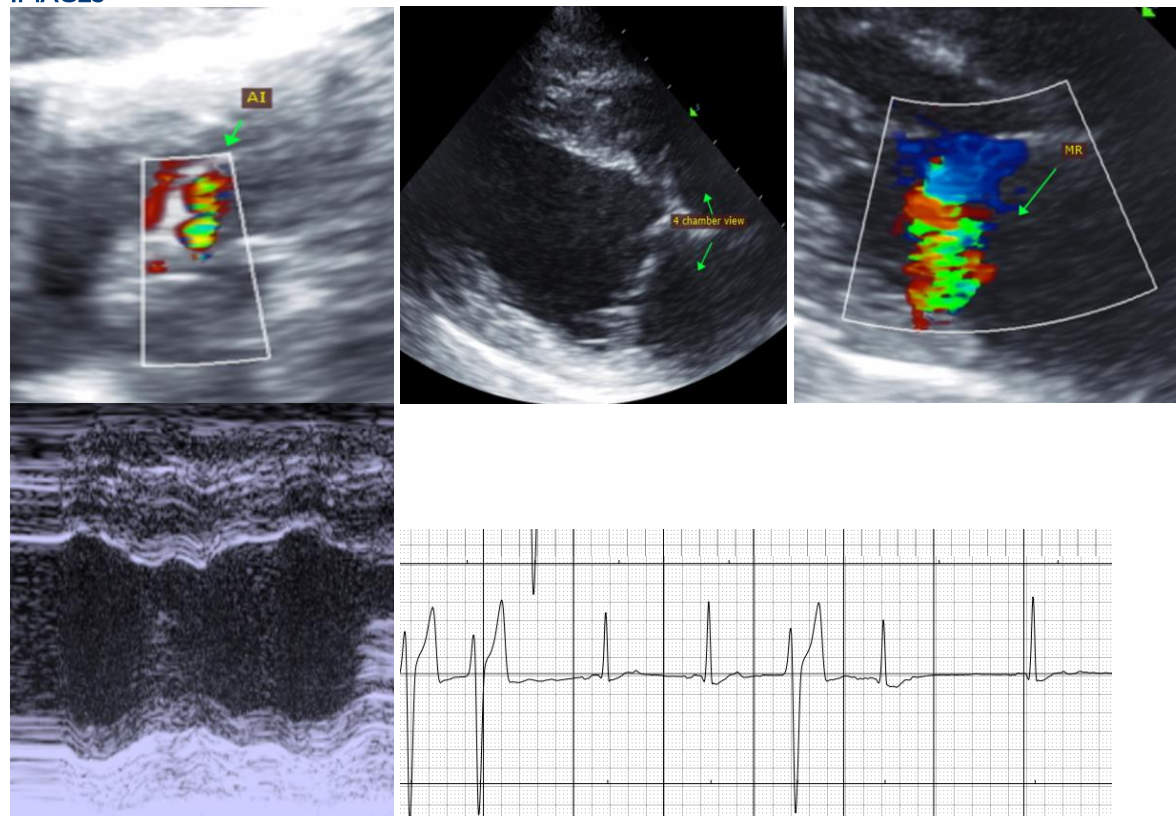
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**IMAGES**



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. 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  
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