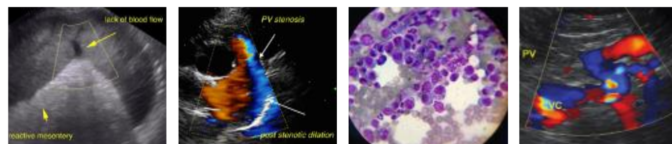

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Clinical Sonography & Telecytology

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PATIENT
Jake Coolbaugh

SPECIES
Canine

BREED
Walker

SEX
Male Neutered

AGE
15 years

WEIGHT
62lbs

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

IMAGING PERFORMED BY
Diane McFadden

HOSPITAL NAME
North Warren Animal Hospital

REFERRING VET
Dr. Corrado

INVOICE
26265

DATE
9/8/22

PRESENTING CLINICAL SIGNS
History: Marked left sided murmur. Coughing.

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.
A video of an anesthesia monitor is included with a single lead ECG is available. The recorded heart rate is 134bpm, which appears accurate. A single isolated VPC is identified. No supraventricular premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with an isolated VPC.

ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Moderate to severe eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Borderline LV dilation with adequate systolic function. The tricuspid valve appears mildly thickened, with moderate tricuspid regurgitation. Velocity consistent with early pulmonary hypertension. Mild right heart enlargement. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic outflow velocities. Trace aortic and pulmonic insufficiency. No pericardial effusion noted. Small volume ascites noted. No cardiac tumors observed. **Intermittent tachycardia noted throughout the study.**

CARDIAC CHART

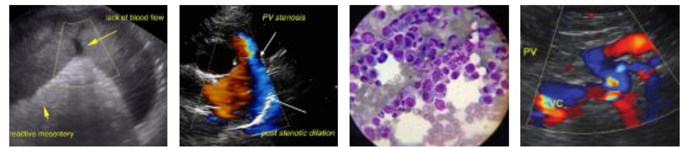
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.2	3.1	NM	1.75	27	50	0.3
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (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	157	1.9	0.6	28.1	4.0	4.7	3.3

*Normal chamber parameters expressed as a mean value (SD)	Body weight (kg)	LA	LVIDd	LVIDs
	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



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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral and tricuspid regurgitation is identified. There is 4 chamber dilation and what appears to be an intermittent tachyarrhythmia. Right heart dilation is common with arrhythmias, such as atrial fibrillation or VT, and may explain development of ascites. Mild pulmonary hypertension is noted, which should be monitored going forward. No additional issues are identified, and systolic function is reasonable for this signalment.

The included video of an ECG, while not ideal, does show a single isolated VPC. This raises suspicion that intermittent tachycardia is ventricular origin, which is an unstable rhythm. **Highly recommend an extended ECG tracing and/or in hospital monitoring, in attempt to catch and record the tachyarrhythmia as treatment is likely warranted.** If this is not possible at your facility, immediate referral to an Emergency Hospital is recommended. In the interim, consider institution of Pimobendan, Lasix and Spironolactone given the finding of ascites and concern for decompensation going forward. Additionally, full abdominal work up should be considered, given the unusual presentation in this case.

Unfortunately, dogs with CHF and arrhythmias are at high risk for complications such as recurrent congestive heart failure, malignant arrhythmias and sudden death. Medications and close monitoring will help give the best prognosis possible, however the average survival time with this condition is <6 months.

Goals of therapy include correcting water retention, improving myocardial contractility, and afterload reduction. Medical management is recommended as below with a guarded to poor prognosis. Monitoring of sleeping breathing rates is recommended to screen for recurrent CHF at home. Moderate activity restriction is advised. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

Elective anesthesia is not advised.

PLAN

Immediate ECG monitoring or referral to a tertiary facility if needed.

Oral medications: Institute Spironolactone 1-2mg/kg PO q12 hours. Administer Furosemide 1-2mg/kg PO q12 hours. Administer Pimobendan 0.2-0.3mg/kg PO q12 hours.

Recheck renal panel/BP in 10-14 days to ensure tolerance of medications. If BP >130mmHg, recommend ACE-I 25mg PO q12h. If <130mmHg discontinue and do not utilize until patient is normotensive and eating well at home.

Monitor renal values every 3-4 months lifelong. A recheck echocardiogram is recommended in 4-6 months to screen for progression.

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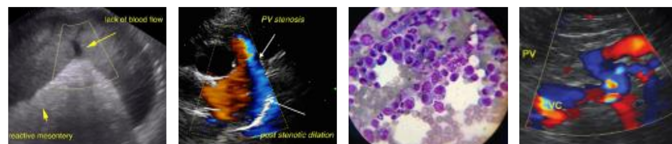

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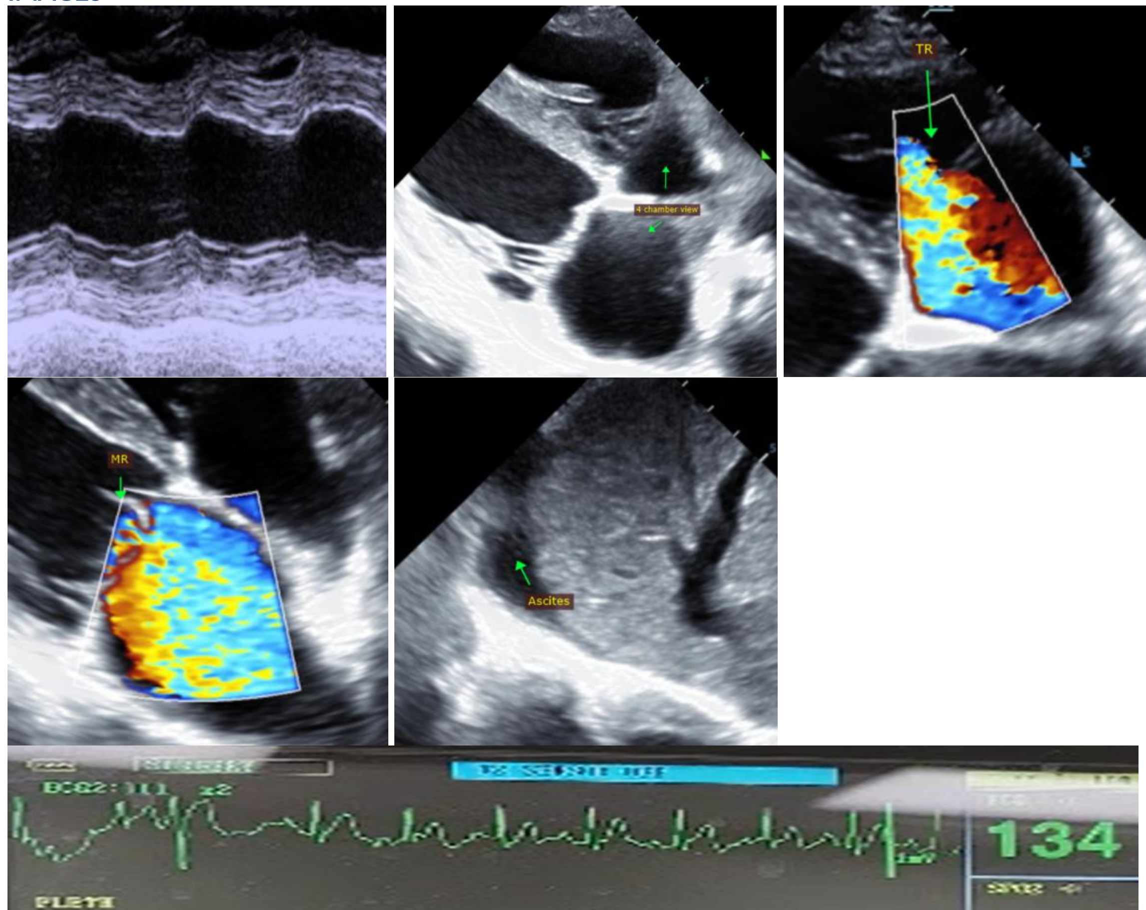
IMAGES



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

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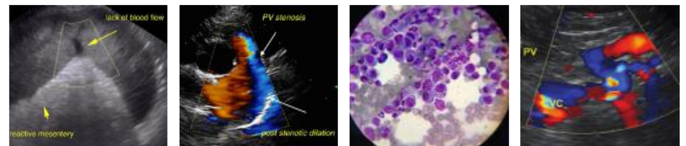

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