SonoPath
Clinical Sonography & Telecytology
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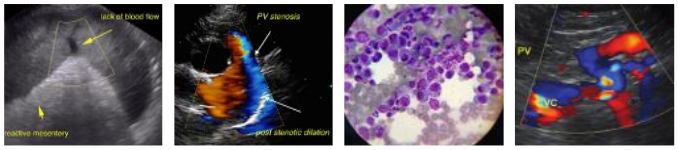

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Belle Ryan

SPECIES
Canine

BREED
Border Collie

SEX
Female Spayed

AGE
10 years

WEIGHT
40lbs

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

IMAGING PERFORMED BY
Shari Reffi, CVT

HOSPITAL NAME
Long Valley Animal Hospital

REFERRING VET
Dr. Earl/Welch

INVOICE
25794

DATE
8/16/22

PRESENTING CLINICAL SIGNS

History: Grade III/VI heart murmur and arrhythmia noted on exam 8/4/22. BP=155/72mmHg. Assess prior to dental.
-Current medications: Trazodone and Gabapentin pre u/s.
-Abnormal PE/Chem/CBC/UA Results: T4 0.6, Alb 2.6, ALP 169.
-ECG report (Idexx): NSR with isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Moderate central mitral regurgitation with mild to moderate left atrial dilation. Normal MR velocity. Mild LV dilation with adequate myocardial function. Increased LV sphericity. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Normal velocity. Normal right heart. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. Trace aortic and pulmonic insufficiency. A small jet of diastolic flow is seen in the region of a PDA; max velocity: 4.5m/s with a left to right direction. Mild MPA dilation. 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	5.2	1.8	1.5	1.5	31	58	0.7
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	1.6	NM	18.1	1.3	5.0	3.5
*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				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

Chronic degenerative valve disease causing moderate mitral and mild tricuspid regurgitation. Mild to moderate left atrial enlargement indicates there may be risk for progression going forward. Interestingly, a small PDA is also present, which is an abnormal vessel present from birth. This likely has resulted in the mismatch in left heart enlargement with a relatively small mitral regurgitation. Trace pulmonic and aortic insufficiency are noted, and a baseline blood pressure is recommended. No additional issues are noted in this study.

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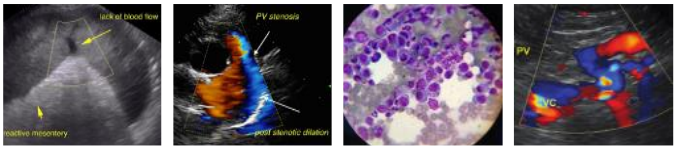

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In a 10-year-old dog the PDA is of mild hemodynamic significance at this point as a sole issue. That being said, the combination of the PDA and potential for significant progressive valve disease developing as this dog ages may lead to progressive volume overload of the left heart. Referral for discussion should be considered if closure would be an option. For now, recommend Pimobendan given the totality of the findings. Continue assessment of progression in the future will help predict long term prognosis, which is guarded at this stage (B1/B2). 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.

VPCs may or may not be cardiogenic in origin with moderate disease. Other causes including stress, pain, inflammation, neoplasia, abdominal disease, etc. should be ruled out through systemic work up. Follow up and treatment should be dictated by the ECG report.

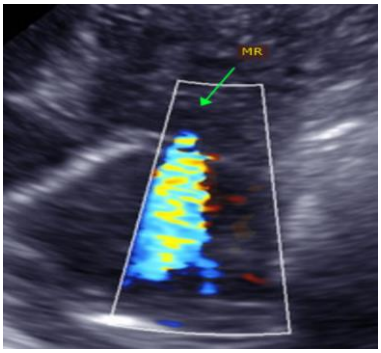
Once on Pimobendan for 3-5 days, anesthetic risk is considered mild if needed. **This does not take the reported arrhythmia into account, and further guidance should be dictated by the ECG report. Cardiac** protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

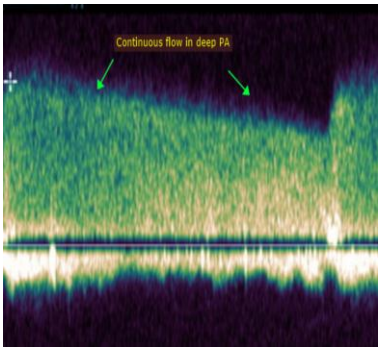
PLAN

Baseline BP recommended. Institute Pimobendan 0.3mg/kg PO q12h. Consider referral as discussed. Follow up/treatment for VPCs should be dictated by the ECG report.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

IMAGES





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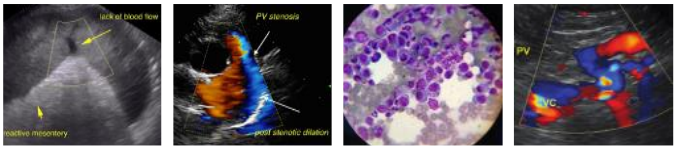

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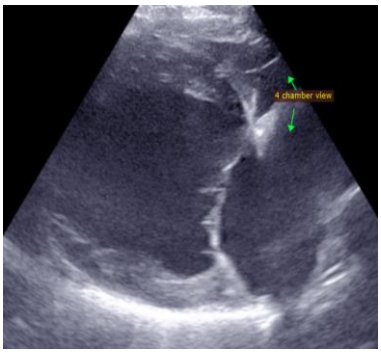

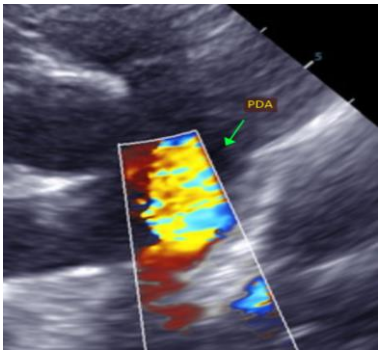

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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