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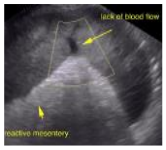
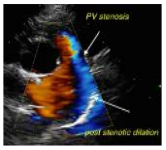
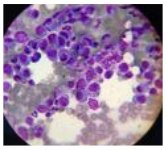
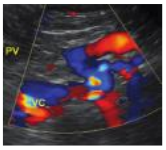

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1-800-838-4268 info@sonopath.com

PATIENT
Piper Jewell

SPECIES
Canine

BREED
Bichon Frise

SEX
Female Spayed

AGE
13 years

WEIGHT
10.7lbs

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

IMAGING PERFORMED BY
G. Gunther, DVM

HOSPITAL NAME
New Frontier Animal Medical Center

REFERRING VET
Dr. Gunther

INVOICE
30375

DATE
4/20/23

PRESENTING CLINICAL SIGNS

History: Hypertensive encephalopathy diagnosed January 2023 (Systolic 280mmHg). Previous blood pressure in November 2021 had been normal. Pt also has a biliary mucocele. She has been having episodes of weakness and ataxia. Neurologist suspect an underlying cardiac issue but has not ruled out an intracranial issue (no MRI performed at this time). She improved significantly on oral Prednisolone and Levetiracetam, however as they were tapering the Pred, she became symptomatic again,
-Current medications: Prednisolone 1.2mg PO BID, Levetiracetam 75mg PO TID, Amlodipine 2.5mg 1 PO SID, Ursodiol 30mg PO SID.

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. Trace/mild eccentric mitral regurgitation with no left atrial dilation. Normal LV diameter with adequate myocardial function. The LV wall thickness is moderate to severely increased (0.95/0.84cm). The tricuspid valve appears normal with trace 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	NM	NM	1.1	1.5	40	76	0.2
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	1.2	0.6	4.9	1.5	1.69	1.0
*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

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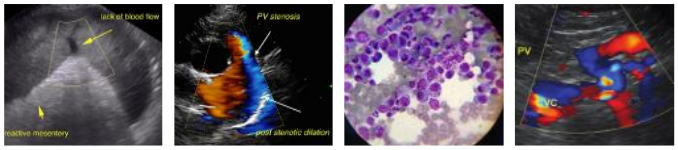

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing trace/mild mitral and tricuspid regurgitation. The disease is subclinical without left or right atrial enlargement at this time. This would suggest the current risk for complication is low. Of note, the LV wall thickness is also significantly increased consistent with pressure overload. Given the history of significant systemic hypertension, this is likely a secondary development. No treatment is warranted specifically; however, ensuring the blood pressure remains well controlled is certainly recommended. No additional issues are identified.

No cause for ataxia/weakness is appreciated in this study and other possibilities should be considered more likely. A holter could be considered if neurologic issues are ruled out; however, suspicion for arrhythmogenic syncope in this signalment is low.

Given these findings, 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.

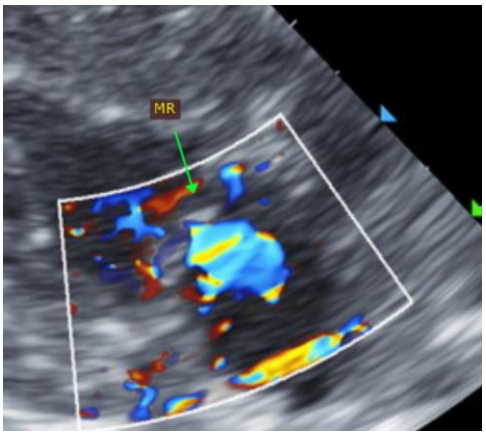
Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively 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.

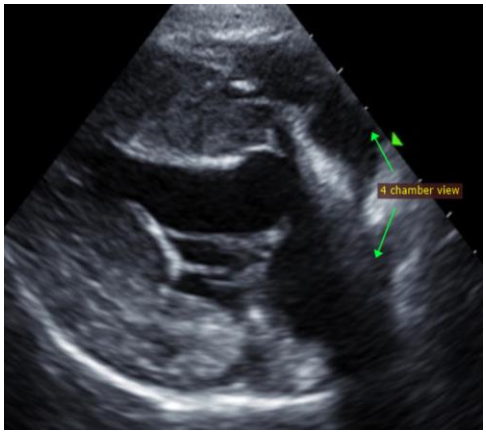
PLAN

Continue blood pressure support as dictated by follow up measurements. Further evaluation of episodes as dictated by neurology. If indicated, a holter monitor could be considered.

Recommend conservative monitoring with a recheck echocardiogram in 6-12 months, to assess for progression/regression in LV dimension once the BP is controlled, sooner if any development of clinical signs.

IMAGES





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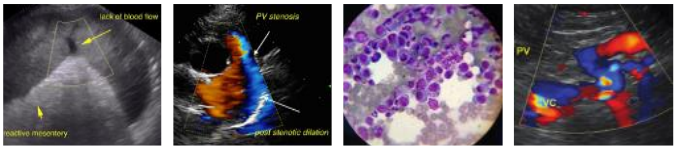

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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