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Clinical Sonography & Telecytology

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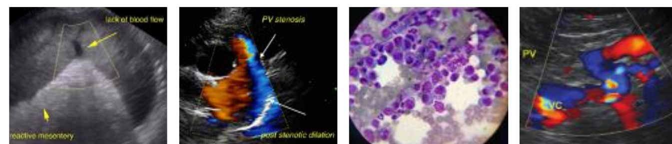


SonoPath.com™
1-800-838-4268 info@sonopath.com

PATIENT
Sammy Hess

SPECIES
Canine

BREED
Chihuahua

SEX
Male Neutered

AGE
7 years

WEIGHT
17lbs

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

IMAGING PERFORMED BY
Sam Doverspike, DVM

HOSPITAL NAME
Franklin Animal Clinic Inc

REFERRING VET
Dr. Doverspike

INVOICE
25201

DATE
7/7/22

PRESENTING CLINICAL SIGNS

History: History of CVD stage B2. First seen in Sept. 2021, started Pimobendan. Follow up in Oct. 2021: per EL consider adding Enalapril and Spironolactone. Follow up March 2022 : per EL *LAmax: 3.9 (elevated from before) *LA:Ao: 1.93 *LVIDd increased at 3.24 *FS: 45% added Lasix
Blood Pressure today 166/79 (Dog is nervous and somewhat aggressive in clinic).
-Current medications: Pimobendan, Furosemide, Enalapril, Spironolactone and Amlodipine.

ECHOCARDIOGRAM FINDINGS

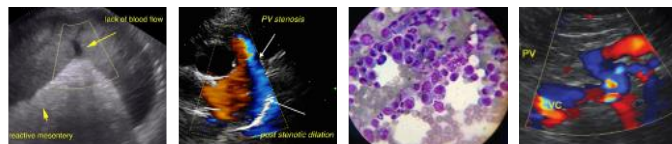
2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with mild prolapse into the left atrial lumen. There is moderate to severe eccentric mitral regurgitation present. The MR velocity is normal. There is moderate to severe left atrial enlargement. There is mild left ventricular dilation. Left ventricular systolic function is hyperdynamic. Mild right atrial and ventricular dilation. Thickening of the tricuspid valve with mild septal prolapse and mild TR. Normal velocity. There is normal systolic flow velocity across the aortic valve. The aortic valve appears trileaflet with normal mobility. The main pulmonary artery is normal in diameter. The pulmonic valve is normal in appearance. No pericardial/pleural effusion or cardiac masses are seen.

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	5.4	2.0	1.8	1.9	46	88	0.12
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	1.9	0.61	7.7	2.6	3.5	1.9
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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 persists with severe mitral and mild tricuspid regurgitation. These findings are similar to what is described in the most recent study (3/2022). No obvious evidence of progression in left heart dimensions or development of concurrent issues, such as pulmonary hypertension.



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Given these findings, it is reasonable to continue cardiac support as below. While there are a handful of ways to manage late B2 cases, in my opinion Lasix is likely unnecessary prior to development of clinical signs and/or radiographic evidence of CHF. That being said, if well tolerated from a renal standpoint, a low dose can be continued. Assessment of progression in the future will help predict long term outcome, however prognosis is guarded at this stage (late B2). Unfortunately, the patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

Close monitoring for development of associated clinical signs (development of a cough, labored breathing, exercise intolerance or worsening collapse episodes) is recommended. Monitoring of sleeping breathing rates is recommended as the best way to screen for CHF at home.

Elective anesthesia is not advised, as there is high risk for complication. If necessary, cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, iso or sevoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction and recover in O2 cage. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Moderate IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit.

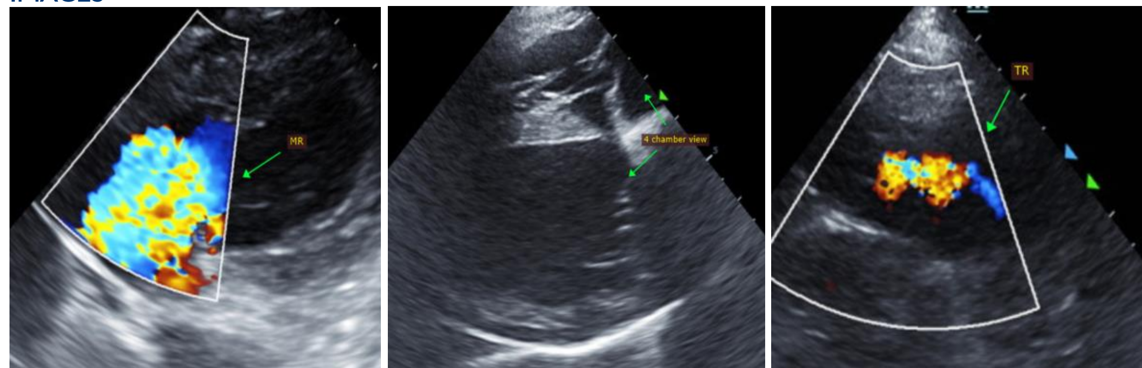
PLAN

Administer Pimobendan 0.3mg/kg PO q12h. Administer ACE-I (benazepril or enalapril) 0.5mg/kg PO q12h. Administer spironolactone 1-2mg/kg PO q12h. Reasonable to continue Amlodipine. If elected, continue Furosemide 1mg/kg PO q12h; however, the necessity of this medication is unlikely prior to CHF.

Monitor renal values and BP every 3-4 months lifelong.

A recheck echocardiogram is recommended in 6 months to screen for progression, sooner if clinical signs arise.

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.

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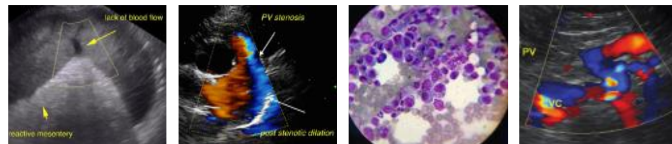

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Thank you for this referral. This report was generated using transcription software, and minor dictation errors may be present. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance, please contact me.

Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com