Pennsylvania Mobile
VETERINARY ULTRASOUND SERVICES

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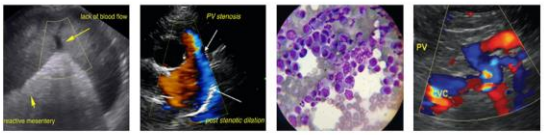

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Scruffy Fuenfstueck

SPECIES

Canine

BREED

Terrier Mix

SEX

Male Neutered

AGE

9 years

WEIGHT

17.5 lbs

INTERPRETED BY

Maggie Machen, DVM
DACVIM (Cardiology)

IMAGING PERFORMED BY

Rebekah Jakum, CVT
ARDMS/RVT

HOSPITAL NAME

Alburtis AH

REFERRING VET

Dr. Borrellli

INVOICE

20733

DATE

8.24.2021

PRESENTING CLINICAL SIGNS

History: Heart murmur. 3 episodes of trembling in the past month with abdominal muscle spasms and restlessness. Possible mentation change in the past 12-24h. Two episodes included vomiting. Increased thirst over the past month. Chronic murmur since 2017; Pimobendan and Lasix started at that time. On prednisone for pruritus. Chronic colitis.
Medication: Prednisolone, Dasuquin, Tylan, Lasix 6.25mg PO q12h (1.5mg/kg/day), Pimobendan 2.5mg PO q12h

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 severe eccentric mitral regurgitation present. The MR velocity is normal There is severe left atrial enlargement. There is moderate left ventricular dilation with increased sphericity. Left ventricular systolic function is hyperdynamic. Mild right atrial and ventricular dilation (subjective). Mild thickening of the tricuspid valve with mild TR. 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	5.3		NM	2.21	51	82	0.18
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	120	1.6	1.2		3.1	4.5	2.2
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Hansson et al, Vet Rad and Ultrasound 2002				40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

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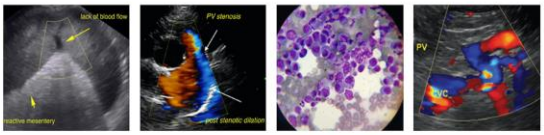

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. The LA is significantly dilated indicating a high risk for clinical signs going forward. Early pulmonary hypertension is suspected, which is likely secondary to chronic LA pressure elevation. No additional concurrent issues such as systolic dysfunction are documented.

With this degree of left heart changes, the risk for spontaneous congestive heart failure is elevated and continued cardiac supportive Pimobendan is certainly indicated as below. Typically concurrent use of spironolactone and an ACEI is ideal; however, given the systemic issues I would not institute these at this time (benefit is theoretic). The history does not appear to include congestive heart failure making Lasix likely unnecessary as well (further historical information should be sought). The dose is quite low for this body size and is likely of little clinical benefit.

The described 'episodes' are unlikely to be cardiogenic in origin in the absence of respiratory signs or fainting. An intermittent arrhythmia could be ruled out with a baseline ECG and/or Holter monitor however, suspicion is low. Given a recent mentation change, systemic/neurologic issues are considered more likely. Further evaluation is advised.

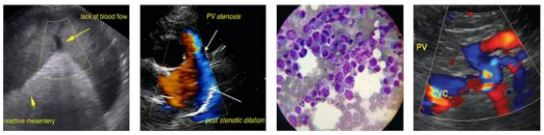
Continued assessment of progression in the future will help predict long term outcome, however prognosis is guarded at this stage (late B2). Unfortunately the patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

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: A screening BP is recommended. Continue Pimobendan as prescribed. In the absence of historical CHF, low dose Lasix is likely unnecessary



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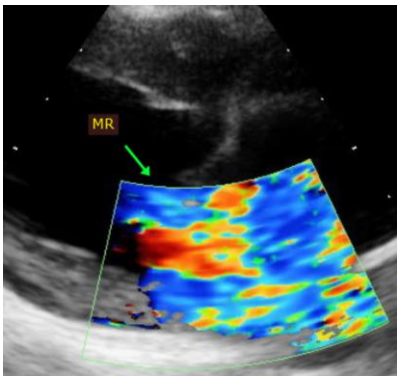
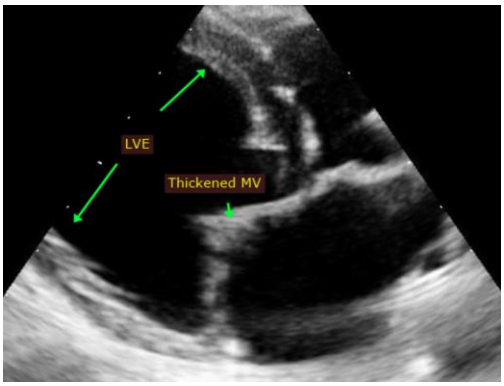
A recheck echocardiogram is recommended in 4-6 months to screen for progression, sooner if clinical signs arise.

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.

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