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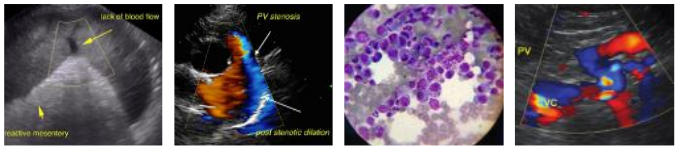

PATIENT
Stella Juckum

SPECIES
Canine

BREED
Mix

SEX
FS

AGE
5years

WEIGHT
33.3kgs

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

IMAGING PERFORMED BY
Tom McNeill

HOSPITAL NAME
SVS Imaging CT

REFERRING VET
Dr. Witzel

INVOICE
24844

DATE
6/17/22

PRESENTING CLINICAL SIGNS

History: Over the last few months, the owners have noticed the following: - Stella wakes them up in the middle of the night panting. She is not greeting them when they come home. She is hiding in confined, abnormal places (like between the couch and wall). Intermittent hyporexia - they add water to her food to entice her to eat - Abnormal stools - soft and small - She sometimes will lay down on walks. - Intermittent coughing - sometimes productive
Abnormal PE/Chem/CBC/UA Results: P 40-60bpm, questionable 2/6 left heart murmur, no coughing, clear lungs
ECG Report: 3rd degree AVB

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of both mitral valve leaflets with no prolapse into the left atrial lumen. There is moderate to severe central mitral regurgitation present. The MR velocity is decreased. There is severe left atrial enlargement. There is moderate left ventricular dilation. Left ventricular systolic function is adequate to hyperdynamic. There is normal RVOT/LVOT outflow velocities. The aortic valve appears normal. The main pulmonary artery is normal in diameter. The pulmonic valve is normal in appearance. Mild right atrial and ventricular dilation (subjective). Normal tricuspid valve with no significant TR. No pericardial/pleural effusion or cardiac masses are seen. Profound bradycardia noted throughout.

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	4.5		2.0	2.5	52	82	0.4

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	42	1.0	0.9	33	5.7	6.0	2.9
*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)
				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

The primary abnormality identified is 4 chamber dilation. This is likely secondary to bradycardia, although concurrent early valve disease is possible. Moderate MR is secondary to annular stretch based upon a lack of obvious valve pathology. Follow up is advised once the HR is stabilized.

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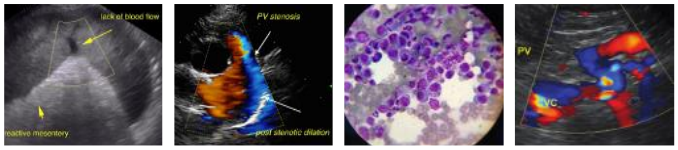

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The underlying issue in this case is profound bradycardia, reportedly secondary to AV block. Follow up and treatment of the arrhythmia should be dictated by the ECG report, with referral for a pacemaker likely recommended. Cardiac supportive medications are recommended as below for support during the short term. Once the heart rate is corrected, there will hopefully be improvement in structural changes seen here, although permanent damage/dilation and need for lifelong medications is a possibility. Given the complexity and severity of this case, **immediate referral should be sought**. If declined, the heart rate will limit outcome (ie simply supporting the heart through the medications below is a bandaid over a bigger issue) and euthanasia will likely be necessary in the near future. Patient is at high risk for acute decompensation, collapse and sudden death.

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.

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

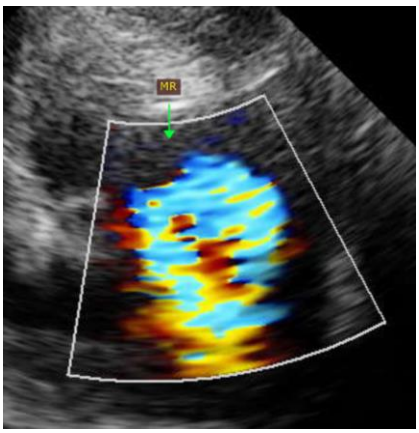
PLAN

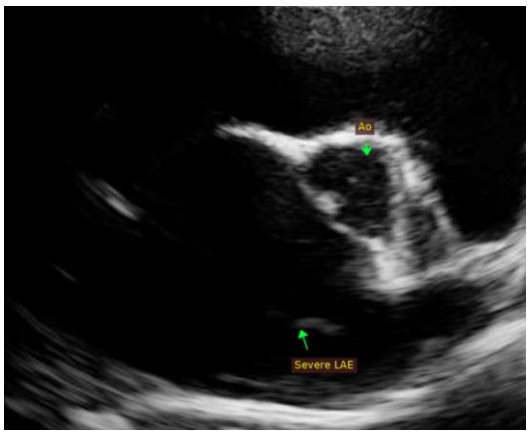
Immediate referral for pacemaker consultation and supportive care. Medical support is as follows: Institute Pimobendan 0.3mg/kg PO q12h. Institute Spironolactone 1-2mg/kg PO q12h. Institute Lasix/furosemide 1 mg/kg PO q12h.

If referral is declined and patient continues to deteriorate, euthanasia should be elected. IF the patient improves on medications, monitor renal values in 1-2 weeks, then every 3-4 months lifelong to ensure tolerance.

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

IMAGES





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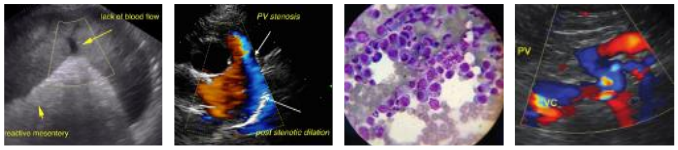

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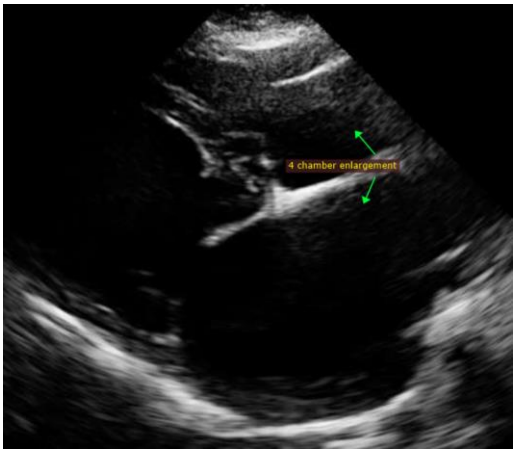

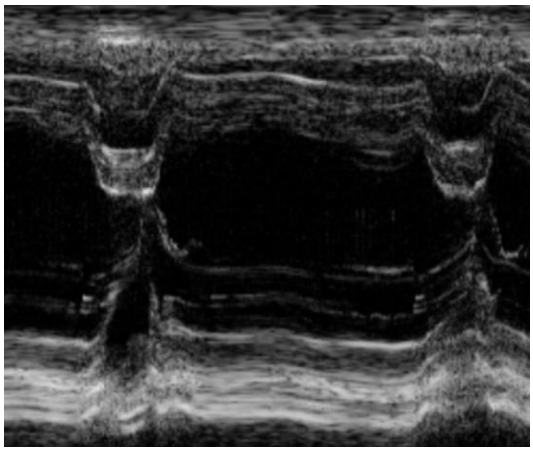

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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