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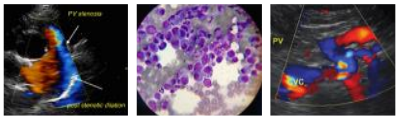

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PATIENT
William Smith

SPECIES
Canine

BREED
West Highland Terrier

SEX
Male Neutered

AGE
9.12.11

WEIGHT
26.8lbs

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

HOSPITAL NAME
Everhart Veterinary Hospital

REFERRING VET
Dr. Baumler

INVOICE
26809

DATE
10.10.22

PRESENTING CLINICAL SIGNS

History: Presents for labored breathing/increased RR. Chronic cough of multiple months, and exercise intolerance/lethargy. Has not previously had a regular veterinarian, vaccinations, or on any f/t/hwp for the past few years. On PE P had mildly pale MM, increased RR/RE, and a grade 5/6 systolic heart murmur with strong and synchronous femoral pulses, HR 150-160, no arrhythmias. Caudal lung fields bilaterally mild pulmonary crackles auscultated.
-Pertinent abnormal PE/Chem/CBC/UA Results: AFAST: negative for free fluid. TFAST: increased lumen of ventricles, subjective decreased contractility, suspicious for heart based mass vs LAE. Three view thoracic radiographs: Left atrial enlargement and left ventricular enlargement (tall heart, increased width of waist of heart), suspicion for heart base mass on lateral radiographs. Caudal lung fields suspect mild pulmonary edema.
-Current medications: started 10/5/22: Pimobendan 2.5mg BID PO, furosemide 20mg BID PO.
-Blood pressure: 170mmHg.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Not requested
-Imaging performed by: Andi Parkinson, BS, RDMS.

ECHOCARDIOGRAM FINDINGS

2D, m-mode and Doppler imaging are available. Diffuse thickening of mitral valve leaflets (anterior> posterior) with mild prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with severe left atrial dilation. Significant LV dilation with hyperdynamic myocardial function. The tricuspid valve appears mildly thickened, with no tricuspid regurgitation. Mild right atrial and ventricular dilation. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities. No pulmonic or aortic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed.

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	NA	NM	2.2	41	72	NM
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	100	2.0	0.7	12.2	3.5	4.5	2.6
*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 cause of the murmur is chronic degenerative valve disease causing severe mitral regurgitation. Severe left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. No additional issues such as systolic dysfunction are identified.

The described cough/labored breathing is likely multi-factorial in origin, including a mechanical component due to cardiomegaly, possible concurrent airway disease and/or early CHF given the severity of disease. Even with reported CHF noted on CXR (not included in submission), given this patients predisposition for pulmonary fibrosis concurrent respiratory disease must also be considered. These can present in a similar fashion and the differentiation is radiographic. If there is any question, consider a Radiologist review of the films. Regardless, full cardiac support is recommended as below; however, further primary respiratory therapy may be warranted. Depending on clinical response to the medications, cough suppression may also be useful. Monitoring of sleeping breathing rates in the future will be paramount to determine the origin of any future cough. The average survival of canine patients with active pulmonary edema is 8-9 months on medications, however they generally are able to maintain a good quality of life for that period. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future. Monitoring of renal values is recommended lifelong.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a worsening cough, labored breathing, exercise intolerance or collapse episodes.

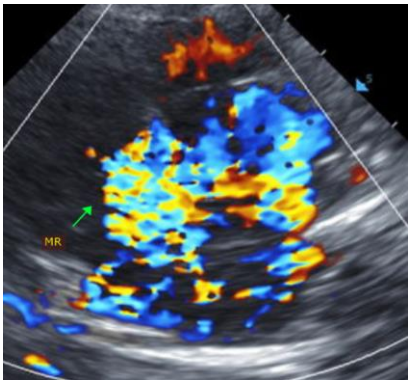
PLAN

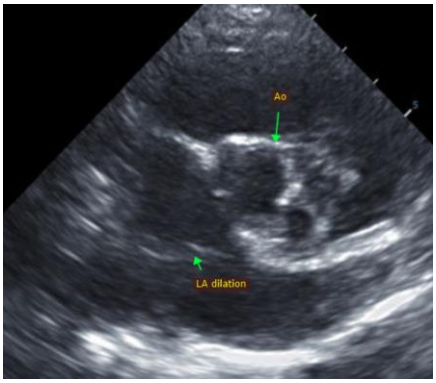
Administer Pimobendan 0.3mg/kg PO q12h. Administer Lasix 1-2 mg/kg PO q12h. Administer spironolactone 1-2mg/kg PO q12h. Further respiratory therapy maybe warranted. Consider hydrocodone with homatropine (0.2-0.4mg/kg PO up to q4-6 hours PRN) if cough persists despite normal SRRs.

A renal panel and BP is recommended in 10-14 days, then every 3-4 months on diuretics to ensure tolerance of medications. If doing well at that time and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h.

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

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.

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