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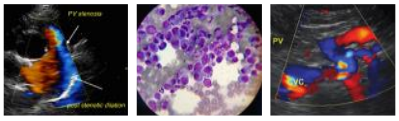

SonoPath
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PATIENT
Bailey Derry

SPECIES
Canine

BREED
Bichon Mix

SEX
FS

AGE
2011

WEIGHT
6.8lbs

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

HOSPITAL NAME
Everhart VH

REFERRING VET
Dr. Key

INVOICE
23713

DATE
4/18/22

PRESENTING CLINICAL SIGNS

History: Pet seen at ER March 19th for rapid breathing. Had pleural effusion/pulmonary edema, loud heart murmur; suspect CHF. Given O2 therapy, lasix and pimobendan started. Saw for recheck 3/29. Pet had increased resp effort/RR but owner noted gets very upset at vet. Owner declined repeat radiographs and echo at that time. Discussed will send out labs and if normal and RR at home still abnormal, will increase furosemide. Owner sent video 48 hours later -increased furosemide as RR 70 with increased effort. Owner sent repeat video on 4/11 - no significant improvement. Pet had 1 episode of possible collapse. Labs NSF.
Current medications: 3/16- Furosemide started. Currently 6.25mg TID x 2 weeks (6mg/kg/day), Pimobendan 1.25mg - 1/2 T BID. 4/14 - Benazepril started 1.25mg BID
Blood pressure: 80mmHg.
STAT: Requested by DVM.
Imaging performed by: Stephanie Pearce RDCS, RVT.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at both 25 and 50mm/s; 2mm/mV. The average heart rate is 188bpm (range 150-210bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. MEA is normal. No ectopic beats, pauses or dysrhythmias observed.
ECG diagnosis: Normal sinus tachycardia.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with significant 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 significant left ventricular dilation. 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	4.7	NM	NM	2.8	52	84	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	185	1.3	0.6	3.1	2.5	3.2	1.5
*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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. Severe left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. Early pulmonary hypertension is suspected, which is likely secondary to chronic LA pressure elevation. No additional issues are identified. The ECG is unremarkable with a normal sinus tachycardia.

Given these findings, the previous diagnosis of congestive heart failure is supported and medications are recommended lifelong as below. A lack response to 6 mg/kg/day of Lasix is concerning for an ancillary pathology such as primary respiratory disease and/or PAH. Even without obvious severe PAH seen here, consider a sildenafil trial as below. Additionally, reassessing CXR is recommended with a Radiologist review if possible to determine if residual CHF is contributing. Finally, stopping the ACEI is recommended due to hypotention. See recommendations below.

Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Cough suppression to improve QOL can also be considered (hydrocodone, 0.2-0.4mg/kg up to q4-6h PRN) for any residual mechanical cough in the face of normal sleeping respiratory rates.

The average survival time 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.

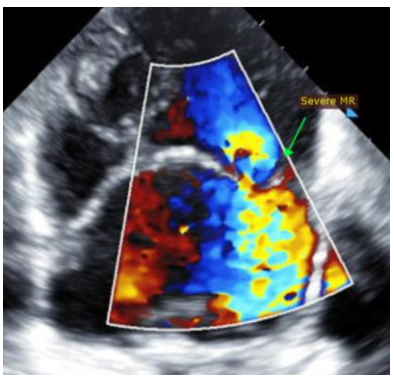
Omega fatty acid supplementation and mild salt restriction may also be of some long term benefit. Monitor for acute progression of the cough, labored breathing, exercise intolerance or collapse episodes in the future.

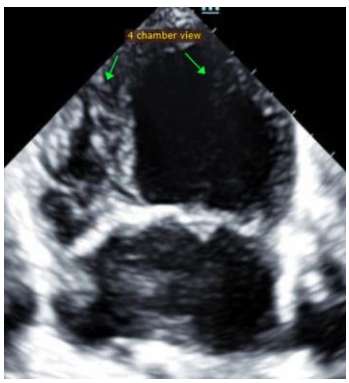
Plan: DOSE INC: Administer Pimobendan 1.25mg PO q12h. Continue Lasix as prescribed (6.25mg PO q8h). Discontinue ACEI. Institute spironolactone 1-2mg/kg PO q12h.
If increased RR/RE persists despite these changes, institute a sildenafil trial 1-2mg/kg PO q8h. If response is positive, wean to q12h after 5-7 days. If response is minimal, discontinue the medication and strongly recommend repeat CXR as discussed.

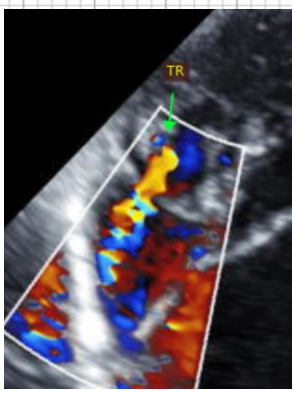
Monitor SRRs at home. Monitor renal values and BP in 10-14 days, then every 3-4 months while on diuretics. Consider hydrocodone if needed for QOL.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of associated clinical signs occurs in the interim.

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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