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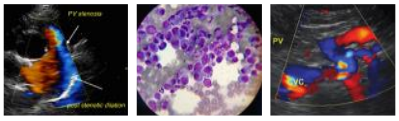

SonoPath
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PATIENT
Zeus Jones

SPECIES
Feline

BREED
DSH

SEX
MN

AGE
2005

WEIGHT
9.2lbs

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

HOSPITAL NAME
Everhart

REFERRING VET
Dr. Rubinstein

INVOICE
23563

DATE
4/11/2022

PRESENTING CLINICAL SIGNS

History: CHF - pleural effusion diagnosed 4/7/22 and thoracocentesis performed. Hospitalization declined; discharged on lasix (lower dose as pt has kidney disease concurrently).
Pertinent abnormal PE/Chem/CBC/UA Results: Creat 2.3, BUN 52, no other significant findings.
Current medications: Lasix 10mg BID started 4/7/22.
Blood pressure: 160//129mmHg.
Sedation used: Torbugesic IV.
Pertinent previous ultrasound results: No previous.
STAT: Requested/Approved.
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 250bpm (range 166-300bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. P waves cannot be visualized. The QRS morphology is inverted in lead II. MEA is shifted right.
ECG diagnosis: Atrial fibrillation.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is highly asymmetric with thinning of the free wall. Regions of remodeling and irregularity. There is a diffusely hyperechoic endocardium consistent with fibrosis. The systolic function is decreased with evidence of diastolic dysfunction as well. The papillary muscles are mildly remodeled. The left atrium is severely dilated. Obvious spontaneous contrast; no obvious thrombus. Mild central MR due to annular stretch. The right ventricle is also affected, with diffuse fibrosis and remodeling. Severe RA dilation. Mild central TR; normal velocity. Blood flow through the RVOT and LVOT is low normal velocity. Trace pericardial effusion. Scant volume pleural effusion. No obvious cardiac tumors.

CARDIAC CHART

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm) (Moise, Pipers)	LVIDd (cm) (Moise, Pipers)	LVWd (cm) (Moise, Pipers)	FS (%)	EF (%)
NORMAL PARAMETER	------	150-240	3.5-0.55	<2 (mean 1.5)	3.5-0.55	35-67	80-100
PATIENT	4.2		0.51	1.92	0.46	34	67
FELINE CARDIAC PARAMETERS	**LA/AO** (Boon)	**LA/AO HEART BASE (Swe)** (Abbott)	**LA** 2D short axis Base view (cm) (Abbott)		**LVOT VEL** (m/s)	**RVOT VEL** (m/s)	**E max (m/s)**
NORMAL	<1.5	<1.3	<1.2		<1.6	<1.3	<0.9
PATIENT	NM	2.5	2.0		0.8	0.6	NM

Adapted from June Boon,Veterinary Echocardiography,1998
Abbott J & MacLean H JVIM 2006;20: 111-119, Moise et al. Am J Vet Res 47:1476, 1986. Pipers et al. Am J Vet Res 40:882, 1979.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The finding of severe biatrial enlargement in the face of normal/decreased LV wall thickness and systolic dysfunction is most consistent with Restrictive Cardiomyopathy (RCM), however some historical infectious or inflammatory insult to the myocardium cannot be definitively ruled out. The biatrial dilation is causing insufficiency of both AV valves, and systolic dysfunction has developed.

The ECG is most consistent with atrial fibrillation (AF) which is concerning for more malignant arrhythmias and sudden death in the future. Most cats are asymptomatic with AF and do not require medications. The overall heart rate is a bit high even for a stressed cat in this case, and low dose diltiazem is recommended as below. There is some risk in this approach, as dropping the heart rate too far could lead to a decline in cardiac output and recurrent clinical issues. That being said, rates as high as 300bpm are obviously of concern as well.

Regardless of categorical classification, this degree of atrial dilation and arrhythmic disease confers the patient is certainly in spontaneous congestive heart failure and continued lifelong medications are warranted as below. The underlying renal disease mentioned in the history is of great concern, and close follow-up of balancing both issues is advised. Given that there is minimal residual effusion at this time I would not further increase the Lasix dose. Any further increases may have negative impact on renal disease and may be an endpoint. The long-term prognosis is guarded to poor, however most cats are able to maintain a good quality of life for some time on medications if tolerated.

Going forward there will always remain risk for episodes of CHF and development of blood clots and/or sudden death in the future. Monitoring of sleeping breathing rates at home is recommended as the best way to screen for progression to CHF at home. Tolerance of medications in geriatric cats is always of concern, and blood values must be watched carefully. Elective anesthesia should be avoided.

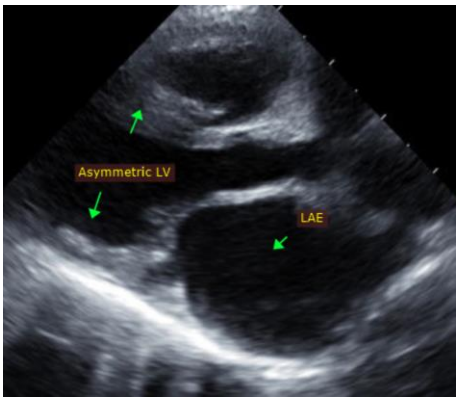
PLAN

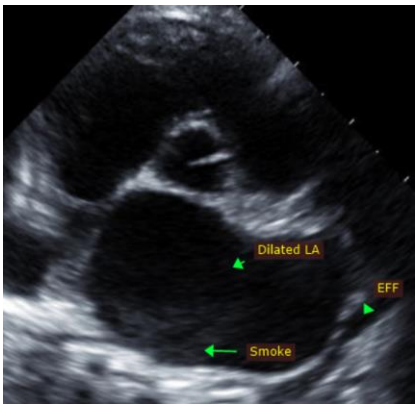
Continue Lasix as prescribed. Institute blood thinner Clopidogrel (Plavix) 75mg tablets; give ¼ tab orally once daily (NOTE: this medication is very bitter on the cut edges). Institute Pimobendan (off label use) 1.25mg PO q12h. , Institute low dose Diltiazem 30mg tablets, give ¼ tab by mouth q12h.

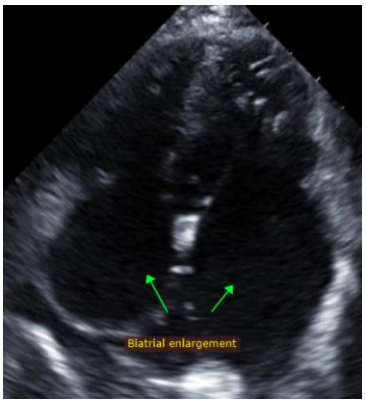
Recheck heart rate/ECG 5-7 days later with a target of <160-180bpm in hospital. Recheck BP and renal values at this visit as well, sooner if any decline in appetite/energy level at home.

A recheck echocardiogram is recommended in 6 months to assess progression.

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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