IMAGING PERFORMED BY

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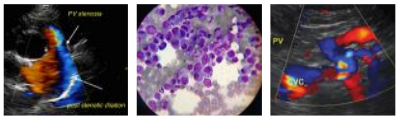

SonoPath
Clinical Sonography & Telecytology
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PATIENT
Silas St Clair

SPECIES
Feline

BREED
DSH

SEX
Male Neutered

AGE
7.21.15

WEIGHT
11.4lbs

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

HOSPITAL NAME
Timonium Animal Hospital

REFERRING VET
Dr. Stephens

INVOICE
25813

DATE
8.16.22

PRESENTING CLINICAL SIGNS

History: Ongoing diabetes mellitus, history of UTIs. On exam after blood draw and attempted cystocentesis noted bradycardia and arrythmia- irregularly, irregular dropped individual beats (ECG not yet performed)
-Pertinent abnormal PE/Chem/CBC/UA Results: pro-BNP elevated at 311(>270 abnormal)
-Current medications: Lantus insulin ~1.5u q 12 hours- exact amount varies by glucose (owner checks before dosing)
-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.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at both 25 and 50mm/s; 2mm/mV. The average heart rate is 150bpm (range 136-166bpm). 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 is isoelectric. MEA is shifted left. Isolated VPCs are identified; six in total. Primarily singles with one couplet. No supraventricular premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with isolated VPCs and a single couplet.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is largely normal in dimension with regions of irregularity. There is a diffusely hyperechoic endocardium consistent with fibrosis. The papillary muscles are remodeled. The mitral valve is normal with trace central MR. The left atrium is mildly dilated and bulbous in appearance. No obvious smoke. The right atrium is normal. Tricuspid valve is normal with no TR. The right ventricle appears normal. Blood flow through both the LVOT and RVOT is normal in velocity. No pericardial effusion seen. No 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	5.2	150	0.54	1.6	0.53	40	75
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	1.4	1.1		1.3	0.92	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 mild left atrial enlargement in the face of normal LV dimensions is most consistent with Unclassified Cardiomyopathy (UCM); however, some prior infectious or inflammatory issues cannot be ruled out. Mild left atrial dilation is present, which may suggest risk for progression going forward. No additional structural issues are identified.

Additionally, there is an arrhythmia present on the ECG with isolated VPCs identified. The abnormal beats are primarily singles, although one couplet is identified. What is seen here in cat with mild disease, does not warrant anti-arrhythmic therapy; however, the couplet is concerning. Ideally, a holter monitor would be placed; however, this is unlikely a possibility in a cat and simple monitoring is advised. It is important to note that anti-arrhythmics in cats are difficult to use and should only be institute if sustained arrhythmias or syncope are noted in the future.

While mild structural disease can lead to development of VPCs, full systemic evaluation should be considered to rule out ancillary systemic issues.

How this correlates with the recent cystocentesis is unknown unless we are certain the findings were not apparent until following the procedure.

Given what is seen here, no indication for medications at this time. Follow up is certainly advised, as any progressive left atrial enlargement will warrant medical management.

The long-term prognosis given the totality of the findings is guarded; however, there is a highly variable rate of progression in cats with subclinical disease. There will always remain risk for progression to CHF and development of blood clots and/or sudden death in the future. Monitoring is certainly advised, particularly should any respiratory signs, collapse or significant lethargy be noted in the future.

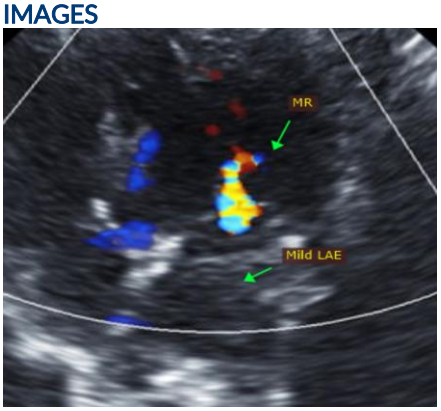
Anesthetic risk is considered moderately elevated due to a combination of mild LAE and VPCs. Drugs that stimulate heart rate should be avoided unless clinically necessary (glycopyrrolate, atropine). Avoid ketamine, telazol, alpha 2 agonists. A reasonable protocol includes opioid/benzodiazepine premedication, propofol induction, isoflurane maintenance. Monitor ECG intra and post-operatively, with careful intervention if ventricular arrhythmias are sustained (i.e., sustained VT) and lead to hemodynamic compromise.

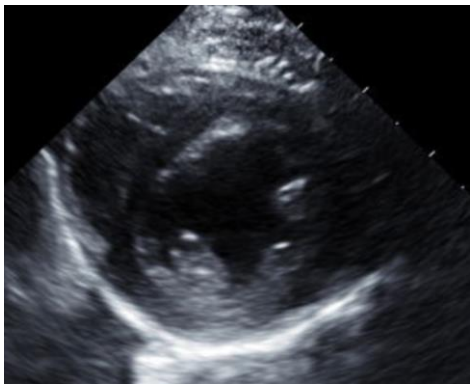
PLAN

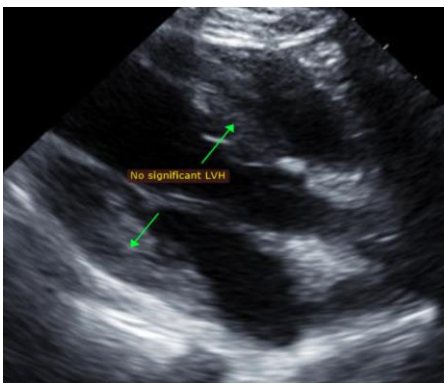
Consider systemic evaluation as discussed.

A recheck echocardiogram and ECG is recommended in 6 months, sooner if any recurrent episodes occur.

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
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