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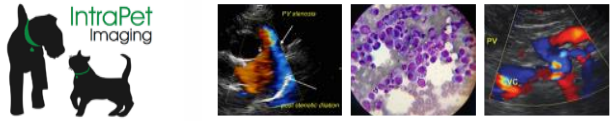

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PATIENT
Oliver Knouse

SPECIES
Feline

BREED
DSH

SEX
Male Neutered

AGE
2.20.14

WEIGHT
15.15lbs

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

HOSPITAL NAME
Banfield Westminster

REFERRING VET
Dr. Stephens

INVOICE
24279

DATE
5/18/22

PRESENTING CLINICAL SIGNS

History: Seizure like episode Sunday night, been acting normal since. Grade 2/6 heart murmur – not heard today. Overweight.
-Current medications: None listed.
-Blood pressure:
-Sedation used: gabapentin
-Pertinent previous ultrasound results: No previous.
-STAT: Not requested
-Imaging performed by: Andi Parkinson BS RDMS

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

A single lead ECG is available; 25mm/s, sens NP. Two competing rhythms are identified. The underlying rhythm is sinus in origin with an average heart rate is 200bpm (range 188-220bpm). The P and QRS morphologies are positive. When the heart rate slows briefly to 188bpm, a ventricular rhythm takes over with a HR of 200bpm most consistent with AIVR. No ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with intermittent AIVR.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is mildly hypertrophied with regions of irregularity. There is a diffusely hyperechoic endocardium consistent with fibrosis and ventricular remodeling. Mild papillary muscle remodeling. The right ventricle is subjectively normal in size and morphology. There is borderline left atrial enlargement present. No right atrial enlargement present. Normal RVOT velocity. Mild systolic anterior motion (SAM) of the mitral valve present, with an elevated dynamic LVOT velocity (not captured on Spectral doppler). There is mild eccentric mitral regurgitation present secondary to SAM. No other significant valvular regurgitation is present. There is no pericardial effusion noted. No pleural effusion appreciated. 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	6.9	200	0.62	1.7	0.61	41	80
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	1.39		1.2		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 diagnosis is hypertrophic obstructive cardiomyopathy (HOCM). This indicates LV thickening (mild in this case) with a dynamic LVOT obstruction (SAM) and secondary mitral regurgitation as the cause of the heart murmur. The hypertrophy and obstruction are both mild. There is minimal left atrial enlargement present, indicating the risk of spontaneous CHF and/or a thrombotic event is currently low. No additional issues are identified.

The ECG shows an accelerated idioventricular rhythm (AIVR) as the cause of the arrythmia. AIVR is highly unusual in cats. It is a benign ventricular rhythm that develops secondary to systemic illness. It is visually similar to ventricular tachycardia; however, the rate is significantly slower (accelerated implies slightly increased compared to the sinus rate). This is a benign rhythm that does not warrant therapy, nor should it cause hemodynamically compromise. AIVR will resolve with treatment of the underlying issue.

Given the totality of the findings, even though mild structural disease is present this does not necessarily explain the clinical episode or development of the arrythmia. Highly recommend full systemic workup in this patient to screen for underlying issues, such as neurologic or systemic abnormalities. Atenolol may be a reasonable choice in this patient, given an LVOT obstruction which may also help the development of arrythmias in the future. If the patient is difficult to medicate, simple follow up is advised. If the episodes persist undiagnosed, this may be a reasonable next step to assess response.

Monitor at home for any respiratory signs or blood clot events (neurologic change, paralysis, etc.).

Anesthetic risk is considered mild, however judicious IV fluid rates are advised to avoid fluid overload. Additionally, 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 worsen (i.e., sustained VT) and lead to hemodynamic compromise (hypotension).

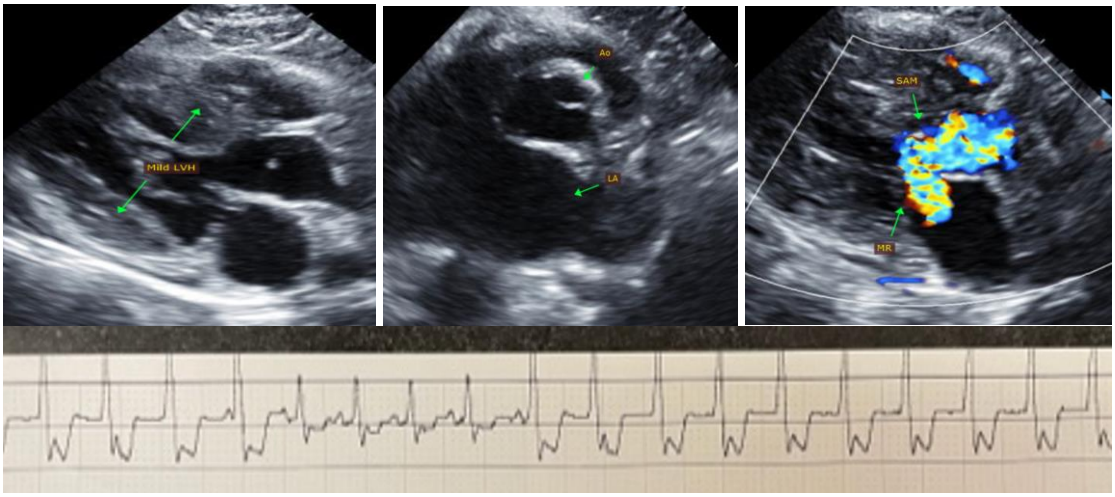
PLAN

If elected, administer titrating dose of atenolol: 25mg tablets; Give ¼ tab once daily. Recheck heart rate in 1-2 weeks with target stressed rate of 140-160bpm 12-24 hours post-administration. Increase as needed until target reached.

Screening blood pressure and T4 are recommended every 6 months. Highly recommend full systemic evaluation as discussed.

Recommend recheck echocardiogram in 6 months to assess for progression, sooner if clinical issues arise.

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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