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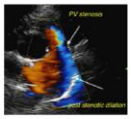
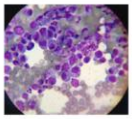
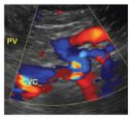

SonoPath
Clinical Sonography & Telecytology
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PATIENT
Loki Gaultney-Westvoer

SPECIES
Feline

BREED
DSH

SEX
Male Neutered

AGE
5 years

WEIGHT
18.1lbs

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

IMAGING PERFORMED BY
Amy Mayhew, LVT

HOSPITAL NAME
SVS Imaging MI

REFERRING VET
Dr. Hunt

INVOICE
28910

DATE
2/9/23

PRESENTING CLINICAL SIGNS
History: Recheck echo. Two episodes of seizure-like activity in past month (extending forelimbs, laying lateral, no loss of bowels/bladder), usually lasts 1-2 minutes. Grade 3-4/6 systolic murmur. Had last seizure in mid-2021. Hospitalized in 2020 after first seizure-like episode. Not worked up with neuro specialist. Occ blood in stool, on Probiocin when needed.
-Abnormal PE/Chem/CBC/UA Results: Last echo was 2020 at VCC after first seizure-like episode, diagnosed with DIPS (dynamic infundibular pulmonic stenosis), benign per VCC, no meds needed at that time. Last BP was 190mmHg on 1-23-23 Fructosamine run today was normal (273) Bloodwork has been wnl UA has been wnl
-Sedation: .15 of Torbugesic and 3.3 m of Alfaxan ~20 minutes prior to Echo

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
A single lateral film is included. Normal cardiac silhouette. No obvious evidence of CHF.

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, 10/20mm/mV. The average heart rate is 230bpm (range 214-250bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus tachycardia.

ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is borderline in dimension. Hyperechoic endocardium consistent with fibrosis and remodeling. The left atrium is normal in size. The right atrium is normal in size. The right ventricle appears normal. The mitral valve is normal in structure and mobility with no MR. No TR. Blood flow through the LVOT is laminar and normal in velocity. A dynamic RVOT obstruction is seen on multimodal imaging. No evidence of cardiac tumors or effusions in this scan. Tachycardia throughout.

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	0.35-0.55	<2 (mean 1.5)	3.5-0.55	35-67	80-100
PATIENT	8.2		0.54	1.27	0.58		
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	1.3	1.1		1.33	2.2	NM

**Note: All measurements based upon multi-modal images and methods. An average value is reported.*
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.

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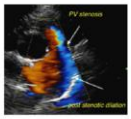
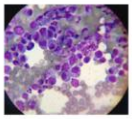
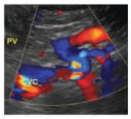

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The only cause of a murmur identified is a heart rate dependent flow obstruction through the right ventricular outflow tract, which is a physiologic finding (i.e., benign and of no clinical significance) and may cause a murmur depending on heart rate. This was noted previously and is unchanged. There are however borderline LV wall dimensions which may reflect early hypertrophic disease or may simply be a normal variant. Pseudohypertrophy (ie secondary to volume depletion) can also have this appearance, and baseline labs are suggested if not recently performed. Follow up is advised in this relatively young cat. No additional issues are identified.

The ECG does show tachycardia although it appears sinus in origin. It is odd to have a tachycardia persist despite alfaxalone/heavy sedation however, and reassessment is recommended if the rate is consistently elevated. Consider response to a vagal maneuver if possible. If persistently elevated, referral for a 6 lead tracing may b warranted.

These findings do not clearly explain reported episodes, and seizures are considered more likely. That being said, a true persistent tachycardia can have unusual clinical signs and should be considered. Additionally, vascular events, neurologic issues, etc remain a possibility and further evaluation may be warranted.

The reported blood pressure is elevated, and should be reassessed for accuracy/persistence given borderline LVH. Ideally obtain serial measurements in a controlled, low stress environment and continue until 3 consecutive readings plateau within 5mmHg of variability. If persistently >180mmHg despite a relatively calm demeanor, recommend institution of amlodipine to effect. Additionally if deemed accurate, screening for predisposing underlying causes of SHT is recommended (Cushings, PLN, adrenal tumor, etc), as primary disease is relatively uncommon and a rule out diagnosis.

From a clinical standpoint, the left atrial dimension is normal indicating the disease is currently stable. Given these findings, no medications are indicated at this time. Monitor at home for any change in RR/RE or signs of a blood clot event.

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 vasodilators as this may worsen the obstruction. A reasonable protocol includes opioid/benzodiazepine premedication, propofol induction, isoflurane maintenance.

PLAN

Reassess BP and treat if indicated. Consider further evaluation of tachycardia if persistent (extended ECG/holter, vagal manuever, 6 lead tracing, etc). Recommend lab assessment, neuro consult, etc.

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

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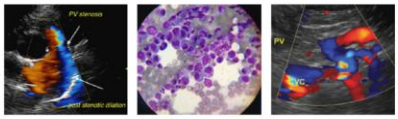

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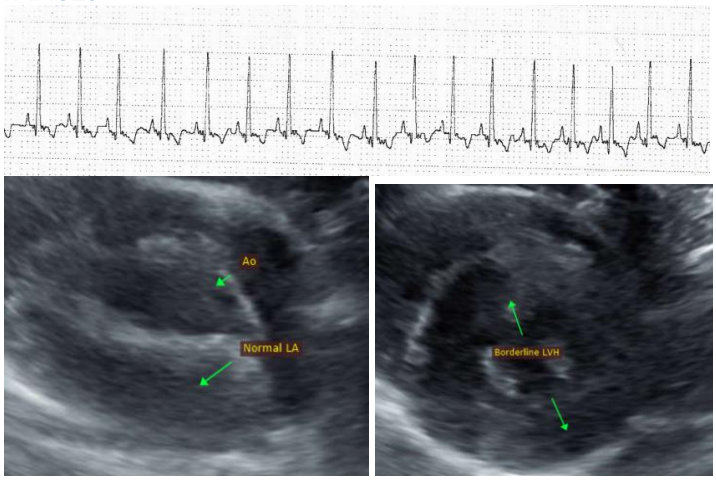

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com