



**PATIENT**

Steve Cabranes

**PRESENTING CLINICAL SIGNS**

History: Grade 3/6 heart murmur noted on pre-anesthetic exam. No clinical symptoms.  
-Abnormal PE/Chem/CBC/UA Results: BW and ProBNP WNL.  
Sedation: torb, midazolam, alfaxan

**SPECIES**

Feline

**RADIOGRAPHIC FINDINGS** \*NOTE: Images submitted for supplemental cardiac information only.  
Cardiomegaly consistent with a PPDH. No obvious evidence of CHF.

**BREED**

Maine Coon

**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, 10mm/mV. The average heart rate is 166bpm with a largely regular rhythm. The rhythm is suspected to be sinus in origin, although p waves are not visualized due to low voltage complexes. The QRS morphologies are positive/low voltage. Prominent T waves. No ectopic beats, pauses or other dysrhythmias observed.  
ECG diagnosis: Normal sinus rhythm.

**SEX**

Male

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is normal in dimension. The endocardium appears normal. The papillary muscles are mildly remodeled and hyperechoic. The left atrium is normal in size. The right atrium and ventricle are moderately dilated. Normal tricuspid valve with trace/mild TR. Velocity consistent with mild pulmonary hypertension. The mitral valve is normal in structure and mobility. No MR. Blood flow through both the LVOT and RVOT is normal in velocity. No pleural or pericardial effusion seen. No obvious cardiac tumors. A PPDH is confirmed with liver visualized within the pericardial space.

**AGE**

1 year

**WEIGHT**

13.4lbs

**CARDIAC CHART**

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm) <small>(Moise, Pipers)</small>	LVIDd (cm) <small>(Moise, Pipers)</small>	LWVd (cm) <small>(Moise, Pipers)</small>	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.35-0.55	<2 (mean 1.5)	3.5-0.55	35-67	80-100
PATIENT	6.1	222	0.40	1.3	0.43	58	86y
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	1.2	1.3	1.3	1.4	1.2	NM	

**IMAGING PERFORMED BY**

Kim Liedberg

**HOSPITAL NAME**

SVS Imaging WI

**REFERRING VET**

Dr. Gallick

**INVOICE**

28426

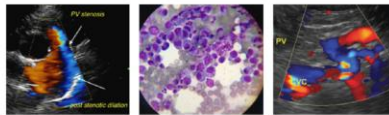
**DATE**

1/18/23

\*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.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The diagnosis is a pericardial peritoneal diaphragmatic hernia (PPDH). In the absence of trauma, in a young cat this is a congenital issue. Often congenital hernias are incidental findings in cats, with the majority causing little clinical issue. In this case, the right heart is dilated, which is highly concerning for compression peripherally by the displaced liver. Pulmonary pressures re mildly

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increased which is suspected to be a secondary issue as well. No primary structural issues are identified and the ECG is unremarkable.

**SPECIES**

Feline

Referral for advanced diagnostics is strongly recommended due to right heart enlargement, to fully understand the patient's anatomy and confirm compressive issues (CT/MR), particularly if clinical signs develop as the patient ages. Surgical correct may be an option depending on results. If declined, consider institute Plavix and reassess in 6 months, although this is less ideal.

**BREED**

Maine Coon

Generally speaking regarding PPDH patients, anesthetic risk is typically mild. The main concern in this case is if there is cardiac compression causing right heart enlargement, relative hypotension due to anesthesia may lead acute and potentially life threatening perfusion issues. Given this possibility, this raises the risk for complications in this patient. My recommendation is if further imaging is elected to perform this prior to proceeding. If declined, consider referral to a facility with an anesthesiologist as the gold standard. If both are declined, utilizing cardiac protective medications (such as opioid/ benzodiazepine premedication, propofol or alfaxalone induction, isoflurane maintenance) and avoiding vasodilators is recommended. Close monitoring of BP/HR and perfusion/oxygenation status is recommended.

**SEX**

Male

**AGE**

1 year

No medications are indicated at this time.

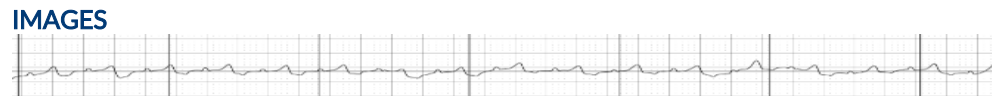
**WEIGHT**

13.4lbs

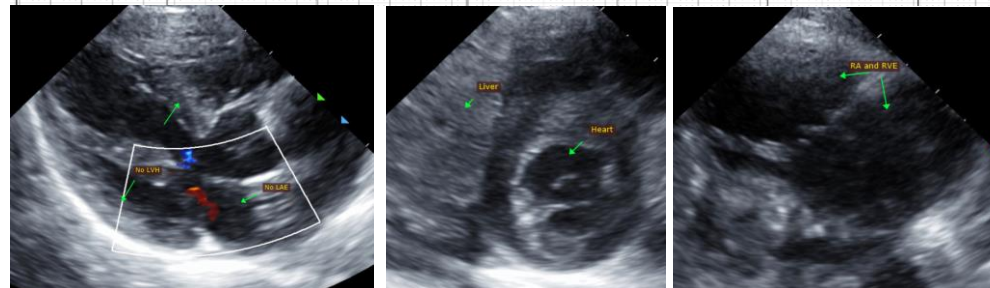
Plan: Highly recommend referral for advanced diagnostics and/or referral to an Anesthesiologist as discussed. If declined, consider institute Plavix due to RAE; Institute blood thinner Clopidogrel (Plavix) 75mg tablets; give ¼ tab orally once daily (NOTE: this medication is very bitter on the cut edges). Institute Recommend recheck echocardiogram in 1 year, sooner if clinical signs arise.

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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.

**REFERRING VET**

Dr. Gallick

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.

**INVOICE**

28426

**Maggie Machen Lamy, DVM**  
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)  
info@sonopath.com

**DATE**

1/18/23