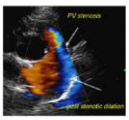
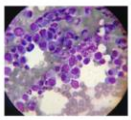
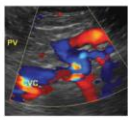
IMAGING PERFORMED BY
svsmobileimaging.com 309 - 737 - 3070

SVS IMAGING

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Sophie Czosek

SPECIES

Canine

BREED

Terrier

SEX

Female Spayed

AGE

9 years

WEIGHT

22.6lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Khatter/Gordon

INVOICE

29167

DATE

2/22/23

PRESENTING CLINICAL SIGNS

History: Presented for not eating, coughing, vomiting and loose stool. Grade 3-4/6 left side systolic heart murmur noted on exam. Elevated ProBNP.
-Current medications: Started on Pimobendan 2.5 mg PO BID, Entyce 3mg/kg PO SID. Treated with IVF 40mg/hr LRS, cerenia 1mg/kg IV SID, Vitamin B12 1cc IM Vitamin B Complex 1cc IM.
-Abnormal PE/Chem/CBC/UA Results: Elevated BUN, ProBNP, creat, ALB, ALP, Amy, CA, Phos.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.

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, 10mm/mV. The average heart rate is 120bpm (range 100-150bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. A single VPC is suspected, although artifact cannot be ruled out. No supraventricular premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with respiratory variation. Suspect single VPC.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is thickened with abnormal motion appreciated. There is moderate eccentric mitral regurgitation present, likely secondary to SAM. Normal velocity. There is mild left atrial dilation. The left ventricle diameter is normal with adequate systolic function. Left ventricular wall thicknesses are globally increased (0.8cm). The aortic valve appears normal. No aortic insufficiency. There is an elevated LVOT velocity with a dynamic profile. The RVOT velocity is mildly elevated. No PI. Right atrial and right ventricular dimensions are subjectively normal. The tricuspid valve is normal with trace tricuspid regurgitation. The pulmonary artery and pulmonic valve are normal. No pericardial/pleural effusion or cardiac masses are seen.

CARDIAC CHART

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.0	NM	1.5	1.5	60	90	0.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LA** 2D short axis Base view (cm)	**LVIDd** Avg; 2D and m-mode short axis (cm)	**LVIDs** Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
PATIENT	120	5.0	2.4	10.3	1.9	2.7	1.1
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
Note: All measurements based upon multi-modal images and methods. An average value is reported.				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
				15	1.83 (2.0)	3.71 (2.4)	2.43 (2.1)
				20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
Adapted from June Boon, Veterinary Echocardiography, 1998 Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)

PATIENT

Sophie Czosek

SPECIES

Canine

BREED

Terrier

SEX

Female Spayed

AGE

9 years

WEIGHT

22.6lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Khatter/Gordon

INVOICE

29167

DATE

2/22/23

Hansson et al, Vet Rad and Ultrasound 2002 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
	40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unusual case. The mitral valve leaflets appear thickened with a dynamic LVOT obstruction and LVH, which is most consistent with a dysplastic mitral valve. Murmur history would be helpful to determine if this is a congenital issue or atypical degeneration. Regardless there is significant pressure overload as the LV walls are increased. The valve abnormality is also causing mitral regurgitation, which can lead to worsening left atrial enlargement over time. Baseline lab work suggests azotemia and pseudohypertrophy may also be exasperating the appearance. A BP is strongly recommended given the history and findings. No additional issues are identified.

Given these findings, rate control with Atenolol could be considered. That being said, in a senior patient with systemic illness, I would not utilize any medications at this time. Pimobendan should be discontinued, given a significant obstruction. Pending BP assessment, further vasodilator therapy may be warranted. No obvious indication for additional medications at this time. Prognosis is guarded long term, given the highly unusual nature of the findings.

The ECG is largely normal with a single suspect VPC. In a dog with systemic illness and structural changes, this is of little concern at this time. Monitor for signs of sustained arrhythmia, such as acute syncope or collapse.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes.

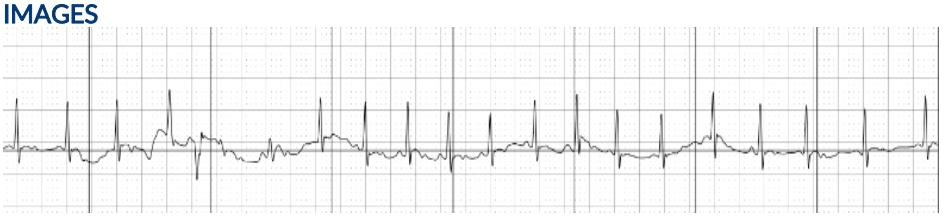
Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

PLAN

Screening BP is recommended. Discontinue Pimobendan as discussed.

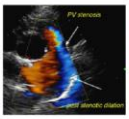
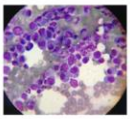
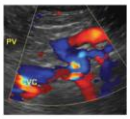
A recheck echocardiogram is recommended in 6 months to screen for progression.

IMAGES



IMAGING PERFORMED BY
svsmobileimaging.com 309 - 737 - 3070

SVS IMAGING

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Sophie Czosek

SPECIES

Canine

BREED

Terrier

SEX

Female Spayed

AGE

9 years

WEIGHT

22.6lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

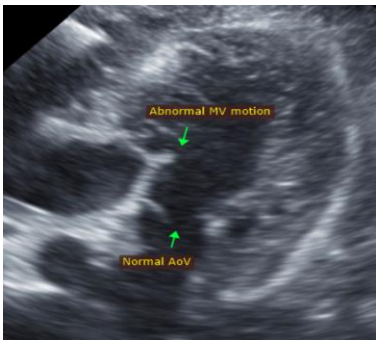
Dr. Khatter/Gordon

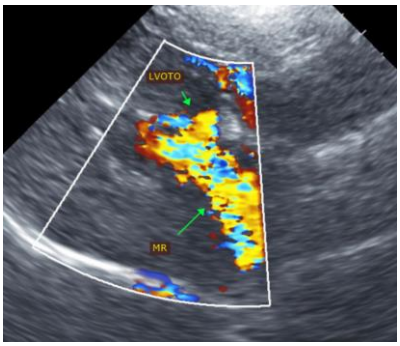
INVOICE

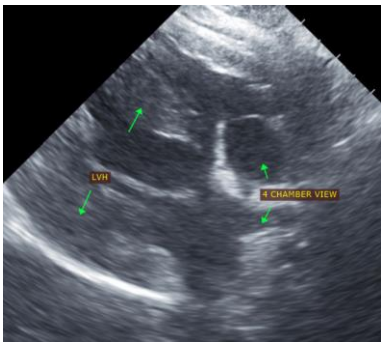
29167

DATE

2/22/23







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