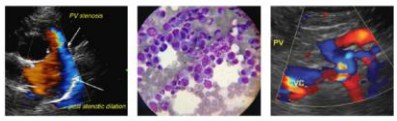
IMAGING PERFORMED BY
svsmobileimaging.com 309 - 737 - 3070



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

**PATIENT**
Maverick Pershall

**SPECIES**
Canine

**BREED**
Cavalier

**SEX**
Male Neutered

**AGE**
13 years

**WEIGHT**
23lbs

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

**IMAGING PERFORMED BY**
Sarah Pender, CVT

**HOSPITAL NAME**
SVS Imaging QC

**REFERRING VET**
Dr. Case

**INVOICE**
25578

**DATE**
7/27/22

## PRESENTING CLINICAL SIGNS
History: Was seen at the emergency center for syncopal episode on 7/11/22 - started Enalapril 5mg SID. Grade 4/6 heart murmur. BP: 192, 185, 176, 174mmHg.
-ECG report: Possible VPC.

## RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
Minimal cardiomegaly. No obvious evidence of CHF.

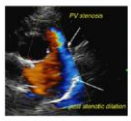
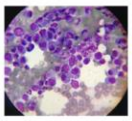
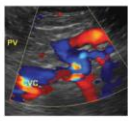
## ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.
A single lead ECG is available; 25mm/s, 10mm/mV. The average heart rate is 140bpm (range 100-166bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm .
*Note: A brief ECG tracing is included from the ER labeled 7/22/22 showing a single VPC.

## ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Mild eccentric mitral regurgitation with mild left atrial dilation. No significant LV dilation with adequate myocardial function. The tricuspid valve appears mildly thickened with moderate tricuspid regurgitation. Normal velocity. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic and trivial pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

## 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 | NM | 2.4 | NM | 1.4 | 40 | 72 | 0.3 |
| **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 | 133 | 1.1 | 0.8 | 10.4 | 2.1 | 3.2 | 2.1 |
| *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** *Note: All measurements based upon multi-modal images and methods. An average value is reported.* | | | | 5 | 1.40 (4.5) | 2.74 (5.2) | 1.60 (4.7) |
| | | | | 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) |
| | | | | 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) |
| | | | | 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) |

Adapted from June Boon, Veterinary Echocardiography, 1998
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435
Hansson et al, Vet Rad and Ultrasound 2002
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995



**PATIENT**

Maverick Pershall

**SPECIES**

Canine

**BREED**

Cavalier

**SEX**

Male Neutered

**AGE**

13 years

**WEIGHT**

23lbs

**INTERPRETED BY**

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

**IMAGING PERFORMED BY**

Sarah Pender, CVT

**HOSPITAL NAME**

SVS Imaging QC

**REFERRING VET**

Dr. Case

**INVOICE**

25578

**DATE**

7/27/22

| | | | | |
|---|---|---|---|---|
| | 50 | 2.88 (7.1) | 6.07 (8.3) | 4.46 (7.4) |

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing mild mitral and moderate tricuspid regurgitation. Lack of significant left atrial enlargement indicates the current risk for complication is low. No additional issues are noted in this study.

The ECG is largely normal; however, a single VPC is noted on the ER tracing. This is of unknown significance as a single abnormality is of little consequence. No treatment is indicated based upon what is seen here.

No obvious cardiac contribution to the episode is seen in this study, and other possibilities should be considered. Further historical information may help differentiate syncope from seizures. Further evaluation is advised, including systemic work up, neurologic consultation, etc. If the episodes persist undiagnosed, a holter can be considered although this is considered unlikely cause.

With no significant left atrial enlargement, no cardiac medications are clearly indicated. It is unclear why Enalapril was instituted without significant cardiac enlargement, and this can be discontinued. That being said, the reported blood pressure is elevated, yet highly variable. Reassess these values prior to determining if vasodilator therapy is truly warranted. If >180mmHg with consistent readings, Amlodpine is typically a more potent vasodilator.

Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage (B1). Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a 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.

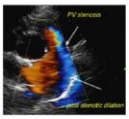
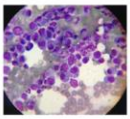
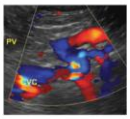
## PLAN

Discontinue ACE-I. Reassess BP in 1-2 weeks as discussed. Consider further systemic evaluation, neurologic consultation, etc. A holter monitor can be considered as noted.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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**

Maverick Pershall

**SPECIES**

Canine

**BREED**

Cavalier

**SEX**

Male Neutered

**AGE**

13 years

**WEIGHT**

23lbs

**INTERPRETED BY**

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

**IMAGING PERFORMED BY**

Sarah Pender, CVT

**HOSPITAL NAME**

SVS Imaging QC

**REFERRING VET**

Dr. Case

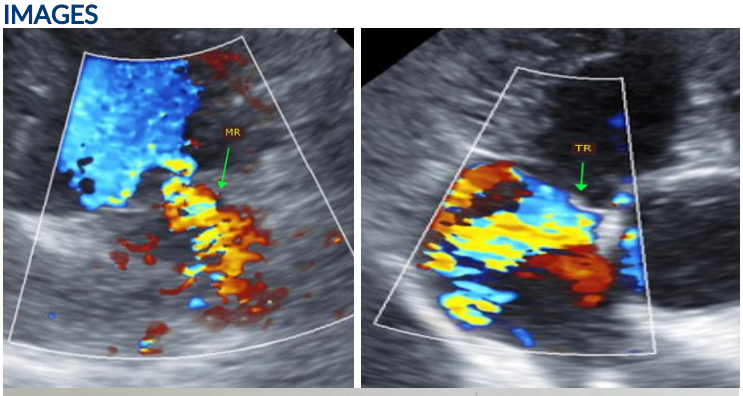
**INVOICE**

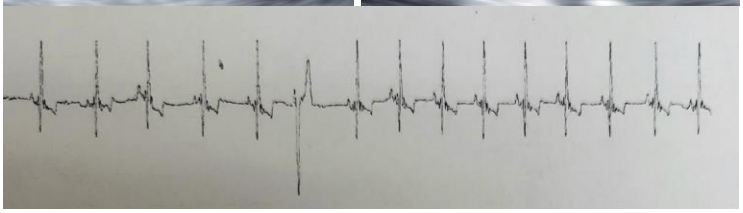
25578

**DATE**

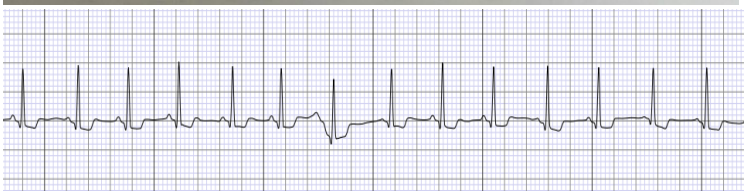
7/27/22

**IMAGES**



ER tracing 7/22/22



7/27/22

**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