



PATIENT

Cashew Tryon

SPECIES

Canine

BREED

Great Pyrenees Mix

SEX

Male

AGE

~1 month

WEIGHT

5.5lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Jacque Pankatz,
DVM

HOSPITAL NAME

Mountain Vista
Veterinary Hospital

REFERRING VET

Dr. Pankatz

INVOICE

28723

DATE

2/1/23

PRESENTING CLINICAL SIGNS

History: Patient presented with intention tremor, hiccups, malnourishment, low body condition score, Grade IV heart murmur louder on right side but still present on left side - parasternal, liver shunt ruled out by bloodwork. Considered seizure activity related to cardiac vs neurological.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
Mild left-sided 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; 50mm/s, 10mm/mV. The average heart rate is 200bpm with a regular rhythm. 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 mildly increased in dimension (0.75cm globally). There is a mildly hyperechoic endocardium consistent with fibrosis. Mild symmetric papillary muscle hypertrophy and remodeling. The right ventricle is subjectively normal in size and morphology. There is mild left atrial enlargement present. No right atrial enlargement present. Normal RVOT velocity. No TR. Normal LVOT velocity on Doppler; however, an obstruction is suspected on 2D/color imaging (inconsistent). There is systolic anterior motion (SAM) of the mitral valve is seen with an elongated anterior leaflet. Trivial MR. There is no pericardial effusion noted. No pleural effusion appreciated. No obvious cardiac tumors.

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 | NA | NA | 1.3 | 1.6 | 39 | | 0.1 |
| 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 | NM | 1.7 | 1.6 | 2.5 | 1.7 | 1.8 | 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) |
| | | | | 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



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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The likely cause of the murmur is mitral valve dysplasia. This is based upon the appearance of the MV, with abnormal motion seen. What is unusual is a true obstruction is difficult to document, and only trivial MR is identified despite LV hypertrophy. Unless the patient is sedated, this is difficult to explain. Additionally the LA is mildly dilated which may suggest risk going forward. NO obvious additional congenital issues are documented and the ECG is normal.

Given these findings in a 4 week old puppy, no medications are indicated. Highly recommend reassess at 4 months of age as atenolol is likely warranted. Referral should always be considered in a congenital case, particularly with atypical findings as are seen here.

No obvious cause for seizure-like activity is seen. One exception would be if the event was with significant exertion/HR stimulation. If this is the case, activity restriction is recommended.

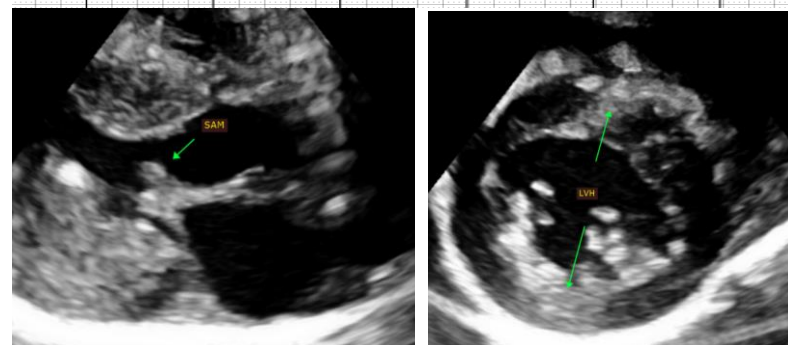
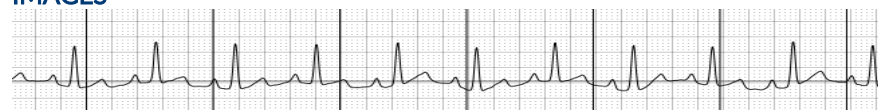
Monitor at home for any respiratory issues or signs of blood clot events (neurologic change, paralysis, etc.).

Anesthesia is not advised prior to recheck

PLAN

Referral or a recheck echocardiogram is recommended at 4 months of age, sooner if any issues arise in the interim.

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



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or if I can be of any further assistance please contact me.

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