



PATIENT

Pink Santini

SPECIES

Canine

BREED

Shiloh Shepherd

SEX

Female

AGE

7 weeks

WEIGHT

15.3lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

North Warren Animal
Hospital

REFERRING VET

Dr. Corrado

INVOICE

30243

DATE

4/13/23

PRESENTING CLINICAL SIGNS

History: Grade II-III/VI L murmur noted on litter exam. Asymptomatic.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is mildly hypertrophied (0.82cm globally). There is a diffusely hyperechoic endocardium consistent with fibrosis. Mild papillary muscle hypertrophy. The left atrium is mildly enlarged. The right atrium is mildly dilated. The right ventricle appears normal. The mitral valve is thickened, consistent with dysplasia. There is mild mitral regurgitation. Mild tricuspid regurgitation seen. Normal velocity. Blood flow through the LVOT is severely increased. Subaortic narrowing is suspected. The aortic valve appears thickened. Mild aortic insufficiency. Moderate PI. Normal RVOT velocity. No obvious shunts. No evidence of cardiac tumors or metastatic lesions on this scan. No pleural or pericardial effusion 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 | NM | 2.4 | 1.45 | 1.4 | 32 | 60 | 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 | NM | 5.0 | 1.5 | 6.9 | 1.8 | 2.2 | 1.5 |
| *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) |
| <i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i> | | | | 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 | | | | 25 | 2.18 (2.4) | 4.48 (2.9) | 3.10 (2.5) |
| Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435 | | | | 30 | 2.33 (3.3) | 4.83 (3.9) | 3.39 (3.4) |
| Hansson et al, Vet Rad and Ultrasound 2002 | | | | 35 | 2.48 (4.3) | 5.17 (5.0) | 3.69 (4.5) |
| Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995 | | | | 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

Complex congenital heart disease is present with abnormalities in all four valves. The primary cause of the murmur is increased flow velocity through the LVOT and aortic valve. There is also a sub-aortic component suspected, due to the appearance of the LVOT. A small aortic insufficiency is noted, which should be monitored going forward. Mild LV hypertrophy is present indicating the disease is well compensated for at this time; however, this puppy is extremely young. Additionally, both the mitral and tricuspid valves are mildly abnormal with mild leaks appreciated. Finally, significant PI is noted without obvious stenosis. Both the left and right heart are mildly enlarged, suggesting the totality of the findings is significant. Highly recommend referral in this case due to multiple complex abnormalities and need for lifelong monitoring.



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If referral is declined, lifelong heart rate control with atenolol is recommended as below, once the puppy is 4-6 months of age. No other medications are indicated at this juncture. Monitor for development of labored breathing, exercise intolerance or collapse episodes, as SAS/AS patients are more predisposed to development of arrhythmias than to CHF. Mild exercise restriction is advised lifelong.

Prognosis is guarded yet highly variable, with many severe AS/SAS patients succumbing by mid-life. My main concern in this case is the young age of the patient with secondary changes/enlargement already present. Follow up/referral is strongly recommended.

Once Atenolol is initiated, anesthetic risk is moderate. Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless clinically indicated. Avoid ketamine and acepromazine due to systemic vascular effects. Mild IV fluid restriction is advised. Recommend prophylactic antibiotics for any orthopedic or dental procedure in the future given predisposition to endocarditis.

PLAN

Recommend referral for lifelong monitoring. If declined and once the puppy is 4-6 months of age, institute titrating dose of atenolol: 25mg tablets; Give ¼ tab once daily. Recheck heart rate in 1-2 weeks with target stressed rate of <140bpm, Increase as needed until target reached. Will need to up-titrate to desired effect as puppy grows.

Recommend recheck echocardiogram in 6 months to assess response to atenolol and screen for small concurrent defects, sooner if clinical issues arise.

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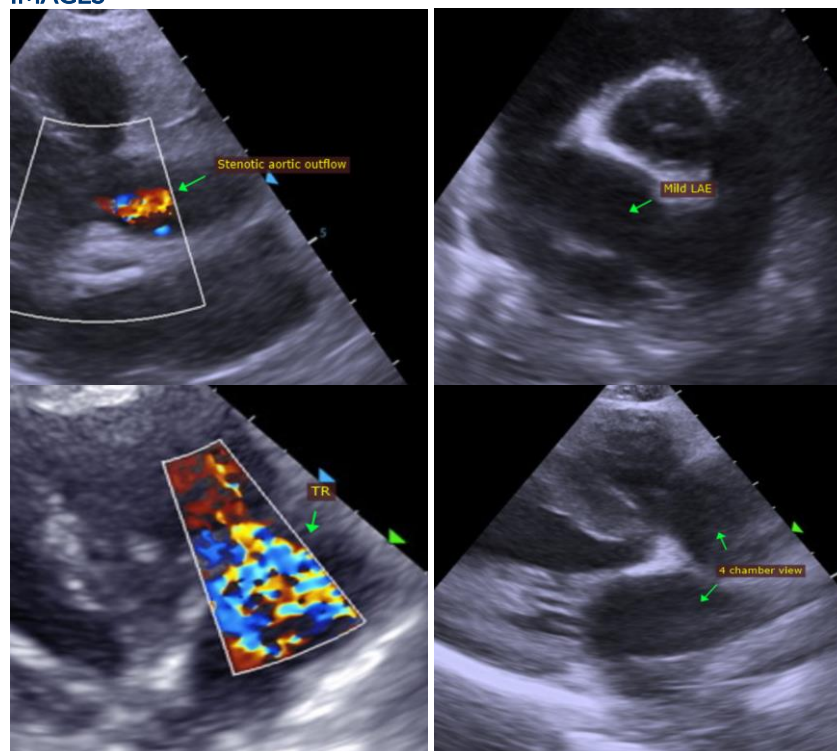
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IMAGES





PATIENT

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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.

SPECIES

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

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

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