



PATIENT

Purple Santini

SPECIES

Canine

BREED

Shiloh Shepherd

SEX

Female

AGE

7 weeks

WEIGHT

12.4lbs

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

30244

DATE

4/13/23

PRESENTING CLINICAL SIGNS

History: Grade IV/VI bilat murmur noted on litter exam. Asymptomatic.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets are mildly thickened. No significant mitral regurgitation. No left atrial dilation. Normal LV diameter with adequate myocardial function. The left ventricular walls are borderline normal (0.7cm globally). Normal papillary muscles. Sub-aortic narrowing is suspected, although not extensively visualized. The aortic valve appears mildly thickened. Severe stenosis is present through the region. Mild aortic insufficiency. Mildly dilated aortic root. The tricuspid valve appears thickened with mild tricuspid regurgitation. Normal velocity. Normal right atrial and ventricular diameter and morphology. The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal PA outflow velocity. No pericardial or pleural effusion noted. No cardiac tumors identified.

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	2.7	1.1	1.2	40	75	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	180	4.6	1.2	5.6	1.7	2.0	1.2
*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)
				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)
				50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is primarily due to severe aortic/sub-aortic stenosis causing elevated blood flow velocity through the LVOT and aortic valve. A small aortic leak is also noted which should be monitored going forward. Of great concern in this case is the young age of the patient with severe disease already and high risk for progression as the puppy grows. Additionally, the tricuspid valves appears mildly abnormal with mild TR, which likely reflects dysplasia. No additional congenital issues are identified in this study (shunts, etc.); however, it should be noted that small defects are easily missed. Referral for advanced imaging should always be considered in congenital cases (bubble study, angiogram, etc.), particular given the multifocal nature in this case.



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Surgery for SAS has not been proven to alter long term outcome; however, select Universities will attempt a cutting balloon valvuloplasty. If referral is declined, medical management through heart rate control is recommended once the puppy is old enough, in hopes of decreasing the obstruction long term. Omega fatty acid supplementation may be of some long-term benefit.

Prognosis is guarded pending monitoring for progression to severe, with many dogs in the severe category succumb to malignant arrhythmias by early to mid-life and others maintaining asymptomatic status for some time. Serial echocardiography is recommended lifelong to assess for progression and risk for complication as the patient matures. Monitor for development of labored breathing, exercise intolerance or collapse episodes, as SAS patients are more predisposed to development of arrhythmias than to CHF. Mild exercise restriction is advised lifelong.

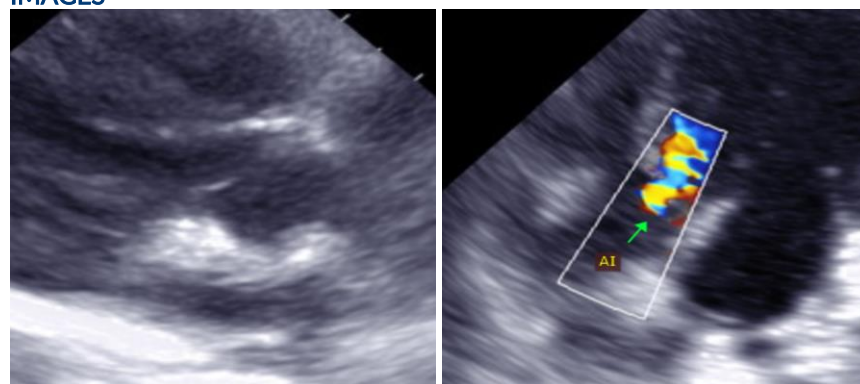
Once Atenolol is initiated, anesthetic risk is mild. Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless clinically indicated. Avoid ketamine and acepromazine due to systemic vascular effects. Mild IV fluid restriction is advised. Recommend prophylactic antibiotics for any orthopedic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

PLAN

Highly recommend referral in this case given the complexity of the issues. If declined, once the puppy is 6 months old institute atenolol to effect: 0.5-1.5mg/kg SID-BID (up-titrate to desired effect). Goal is to suppress heart rate <130bpm even with stress/activity.

Recommend recheck echocardiogram in 6-8 months to screen for progression, sooner if clinical signs arise.

IMAGES





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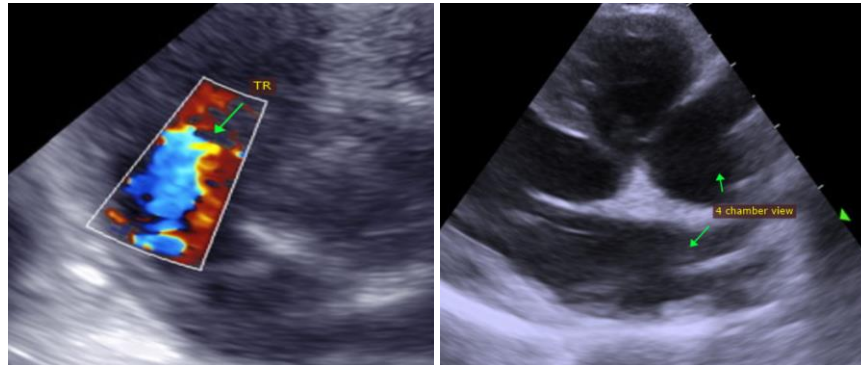
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Maggie Machen Lamy, DVM
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