



PATIENT

Daisy Varkentin

SPECIES

Canine

BREED

Maltipoo

SEX

Female

AGE

13 weeks

WEIGHT

3lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Becky Callihan,
DVM

HOSPITAL NAME

Nooksack Animal
Hospital

REFERRING VET

Dr. Ingman

INVOICE

23823

DATE

4/21/22

PRESENTING CLINICAL SIGNS

History: Presented to primary care for wellness check and vaccines last week, was the smallest puppy in litter but has not had any problems. A heart murmur was noted on PE and echo requested to help rule out congenital disease. Grade 3/6 heart murmur.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is mildly hypertrophied (1.64cm globally). There is a mildly hyperechoic endocardium. Papillary muscles are mildly hypertrophied. The left atrium is normal. The right atrium is normal in size. The right ventricle appears normal. The anterior leaflet of the mitral valve appears thickened consistent with dysplasia. An LVOTO due to the abnormal mitral valve is suspected on 2D and color flow imaging, although not captured on Spectral. There is mild mitral regurgitation associated with this abnormal motion. Trivial tricuspid regurgitation. Blood flow through the LVOT and RVOT is normal in velocity. No aortic and trace pulmonic insufficiency noted. 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	NM	1.0	1.1	60	92	NM
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	1.3	1.4	1.36	0.94	1.4	0.6
*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 presumed to be mitral valve dysplasia causing an LVOT obstruction and mitral regurgitation. This is similar to SAM in a cat, with hypertrophy of the LV secondary to pressure overload. The obstruction through the LVOT is not captured definitively; however, is presumed to be significant. The left atrium appears normal with secondary MR, indicating the risk for complication is currently low. No additional defects are seen; however, small abnormalities



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are easily missed in juvenile animals. Consider referral in this severe case for life-long management by an Attending Cardiologist.

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If referral is declined, life-long heart rate control with Atenolol is recommended once the puppy reaches 6 months of age. The dynamic nature of the obstruction will be reduced at lower heart rates. No other medications are indicated at this juncture. Life-long activity restriction is advised. Monitor at home for any respiratory signs or clinical lethargy/collapse. Prognosis is poor long term given the severity of disease at such a young age. That being said, some cases of MVD will improve on atenolol and serial monitoring is advised. Patient will always be at risk for collapse, left-sided CHF and/or sudden death going forward.

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Female

PLAN

Recommend referral in this case. If declined, initiate Atenolol (at 6 months of age), 25mg tablets; Give ¼ tab once daily. Recheck heart rate in 1-2 weeks with target stressed rate of <130bpm, increase as needed until target reached.

AGE

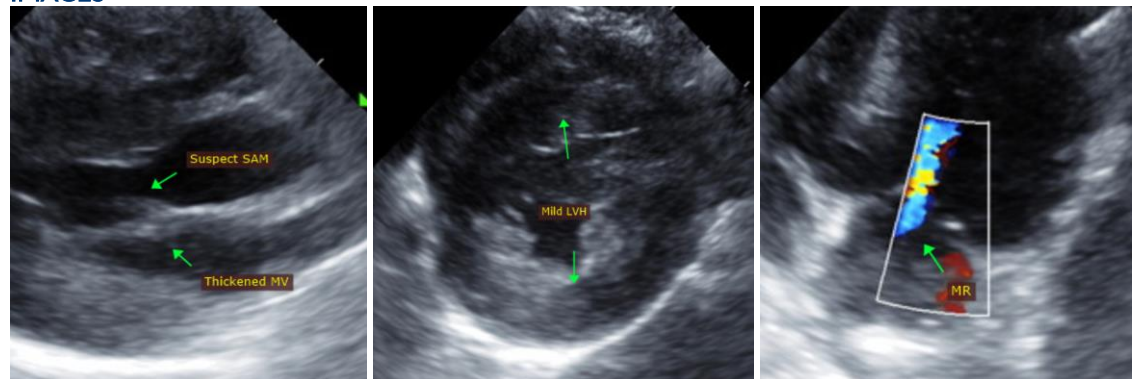
13 weeks

If referral is declined, recommend recheck echocardiogram at 1 year of age to screen for progression and/or improvement with Atenolol.

WEIGHT

3lbs

IMAGES



INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

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.

IMAGING PERFORMED BY

Becky Callihan,
DVM

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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Hospital

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Dr. Ingman

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

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