



PATIENT

Mia Benedetto

SPECIES

Canine

BREED

Miniature Pinscher

SEX

Female Spayed

AGE

14 years

WEIGHT

10.3lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Garvey

INVOICE

29025

DATE

2/15/23

PRESENTING CLINICAL SIGNS

History: Presented for coughing and diarrhea for 1 month. Gave Doxycycline which kept cough under control. Currently sneezing and snorting. No heart murmur noted. Tachycardia present. On no current medications.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.

Sternal malformation impedes careful evaluation. Significant subjective cardiomegaly with LA dilation. No obvious evidence of CHF, although this is not entirely ruled out.

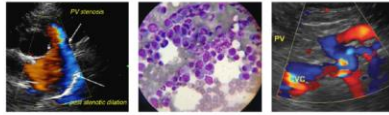
ECHOCARDIOGRAM FINDINGS

2D, m-mode and Doppler imaging are available. Diffuse thickening of mitral valve leaflets (anterior > posterior) with prolapse into the left atrial lumen. Restricted motion is noted in diastole with mitral stenosis suspected on color flow imaging. Mitral inflows are not directed assessed; however, suspicion is high based upon aliased views (see below). Severe eccentric mitral regurgitation with marked left atrial dilation. Mild LV dilation with hyperdynamic myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. Mild right atrial and ventricular dilation. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities. No pulmonic or aortic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed.

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	5.2	NA	NM	2.8	39	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	1.5	0.5	4.7	4.1	3.1	1.9
*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)

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**

Mia Benedetto

SPECIES

Canine

BREED

Miniature Pinscher

SEX

Female Spayed

AGE

14 years

WEIGHT

10.3lbs

INTERPRETED BYMaggie Machen Lamy,
DVM, DACVIM
(Cardiology)**IMAGING PERFORMED BY**

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Garvey

INVOICE

29025

DATE

2/15/23

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing severe mitral regurgitation. The motion and appearance of the mitral valve is concerning for mitral stenosis, which is typically a congenital issue present from birth. This can certainly contribute to volume overload over time and often does not accompany a murmur. Regardless, what is seen here is severe with marked left atrial enlargement. No additional issues such as systolic dysfunction are identified.

The described cough is likely multi-factorial in origin, including a mechanical component due to cardiomegaly, possible concurrent airway disease and/or early CHF given the severity of disease. Given an atypical chest conformation utility of CXR is limited. Given the symptoms and echo findings, **full lifelong cardiac support is recommended as below including Lasix therapy.** Depending on clinical response to the medications, cough suppression may also be useful. Monitoring of sleeping breathing rates in the future will be paramount to determine the origin of any future cough. The average survival of canine patients with active pulmonary edema is 8-9 months on medications, however they generally are able to maintain a good quality of life for that period. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future. Monitoring of renal values is recommended lifelong.

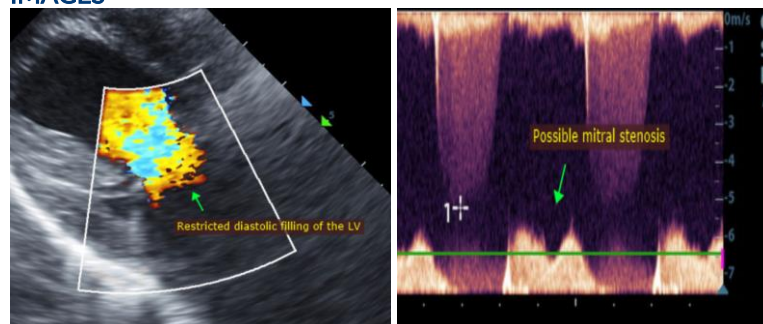
Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a worsening cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

Screening BP is recommended. Administer Pimobendan 0.3mg/kg PO q12h. Administer low dose furosemide/Lasix 1 mg/kg PO q12h. Administer spironolactone 1-2mg/kg PO q12h. Consider hydrocodone with homatropine (0.2-0.4mg/kg PO up to q4-6 hours PRN) if cough persists despite normal SRRs.

A renal panel and BP are recommended in 10-14 days, then every 3-4 months on diuretics to ensure tolerance of medications. If doing well at that time and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h.

A recheck echocardiogram is recommended in 6 months to screen for progression, sooner if clinical signs arise/persist.

IMAGES

IMAGING PERFORMED BY

svsmobileimaging.com 309-737-3070



PATIENT

Mia Benedetto

SPECIES

Canine

BREED

Miniature Pinscher

SEX

Female Spayed

AGE

14 years

WEIGHT

10.3lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

**IMAGING
PERFORMED BY**

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

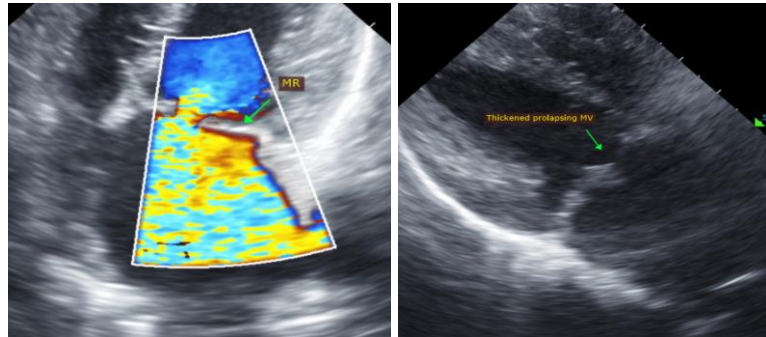
Dr. Garvey

INVOICE

29025

DATE

2/15/23



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