
**PATIENT**

Lemonade Maloy

**PRESENTING CLINICAL SIGNS**

History: Grade 4/5 heart murmur. No medications currently.

**SPECIES**

Canine

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no obvious prolapse into the left atrial lumen. Normal left atrial dimension. Normal LV diameter with adequate myocardial function. The LV wall appears normal. The tricuspid valve appears mildly thickened with mild TR. Moderate right atrial dilation. Moderate to severe right ventricular hypertrophy and remodeling indicative of pressure overload. Septal flattening in systole. Severely elevated velocity through the pulmonic valve consistent with stenosis. The valve is difficult to visualize; however valvular stenosis is suspected. Moderate pulmonic insufficiency. Post-stenotic dilation of the PA branches. No obvious cardiac shunts are visualized. No pericardial or pleural effusion noted.

**BREED**

Bulldog Mix

**SEX**

Female Intact

**AGE**

12 weeks

**CARDIAC CHART**
**WEIGHT**

5.5lbs

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	1.9	1.26	1.3	48	90	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	130	1.1	4.8	6.0	1.3	2.3	1.2
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
<b>BODY WEIGHT DEPENDENT PARAMETERS</b>				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)
				50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

**INTERPRETED BY**

 Maggie Machen Lamy,  
 DVM DACVIM  
 (Cardiology)

**IMAGING PERFORMED BY**

Kelly Reschny, RVT

**HOSPITAL NAME**

 Beatties Pet Hospital  
 East Hamilton

**REFERRING VET**

Dr. MacDonald

**INVOICE**

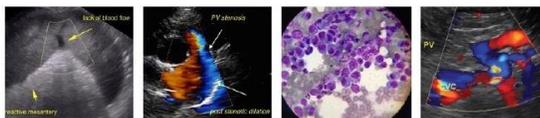
20382

**DATE**

8/3/21

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The cause of the murmur is severe pulmonic stenosis. The pulmonic valve appears abnormal, albeit difficult to see, suggesting a purely valvular stenosis. A dynamic component secondary to RV hypertrophy is also suspected. There is significant right heart enlargement indicating high risk for complication. The tricuspid valve is likely abnormal as well with a tricuspid leak. No other congenital abnormalities were visualized; however, small cardiac defects are easily missed particularly juvenile animals.



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Highly recommend referral for further evaluation and consultation with a local Cardiologist. Balloon valvuloplasty is likely the gold standard therapeutic option and may improve long term outcome. If surgery is not elected, this patient's condition will likely limit lifespan, with many severe PS cases developing CHF by mid-life. It should also be mentioned that this breed is predisposed to a coronary vessel abnormality which would limit surgical options. Further evaluation is advised.

Typically, medical management for severe PS is recommended using atenolol to decrease heart rate and lessen the presumed obstruction. In this young patient I would not institute medications until referral is considered. If declined recommend institute atenolol at 4-6 months of age. Mild exercise restriction is advised lifelong. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

Patient will always be at risk for development of syncope episodes, exercise intolerance, and/or right-sided CHF/malignant arrhythmias. Sudden death is a possibility lifelong with significant structural disease.

Elective anesthesia is not advised prior to assessing response to atenolol/further evaluation.

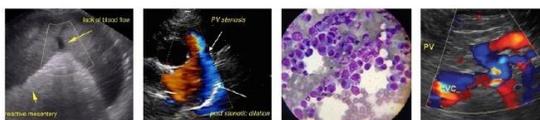
Breeding this animal is certainly contraindicated and sterilization should be considered.

## PLAN

Referral for further evaluation is advised as discussed ASAP. If declined and once the patient is 4-6 months of age, institute atenolol to effect: 1/4 tab PO BID to start (up-titrate to desired effect). Goal is to suppress heart rate < 120-140bpm even with stress/activity.

Recommend conservative monitoring with a recheck echocardiogram at 1 year of age to assess for progression.

## IMAGES



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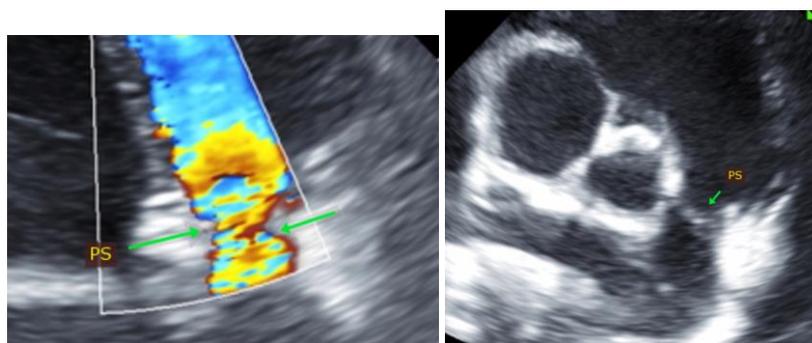
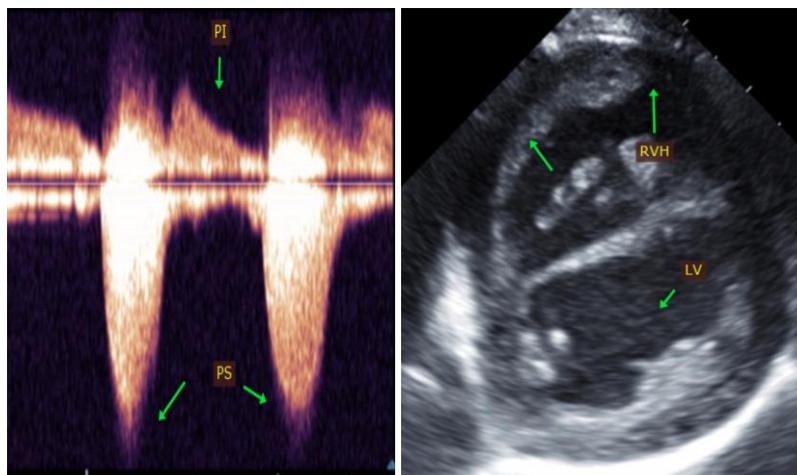
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**The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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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