



**PATIENT**

Roper Bopp

**SPECIES**

Canine

**BREED**

Lab

**SEX**

Male Neutered

**AGE**

6.5 months

**WEIGHT**

41lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Andy Carver, DVM

**HOSPITAL NAME**

Red River Animal  
Emergency Hospital  
and Referral Center

**REFERRING VET**

Dr. Carver

**INVOICE**

22368

**DATE**

2/4/22

**PRESENTING CLINICAL SIGNS**

History: Grade 2/6 heart murmur. Referred for gallop heart sounds, first noted at early vaccine appt and then again when rDVM neutered him. Reportedly was hypotensive during anesthesia but recovered fine. Asymptomatic at home. Checked PCV to screen for polycythemia: 38%  
-Blood pressure: 90mmHg.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets are highly abnormal/dysplastic with a thickened and club-like anterior leaflet. Abnormal motion consistent with severe mitral stenosis. Abnormal closure with mild MR. The left atrium is mildly enlarged. There is a large defect in the atrial septum, consistent with an ostium primum ASD. Flow across the defect is likely right to left based upon right atrial enlargement; however, this is difficult to visualize on doppler. An endocardial cushion defect is suspected, although not confirmed in this image set. Normal LV diameter with mildly depressed myocardial function. The LV walls are normal. The tricuspid valve is highly abnormal with abnormal motion and closure consistent with tricuspid dysplasia/stenosis. Moderate tricuspid regurgitation present. Normal TR velocity. Severe right atrial enlargement. Severe RV dilation. MPA appears normal. Normal pulmonic outflow velocities. The PV leaflets appear normal. Mild pulmonic insufficiency. The aortic valve appears normal. No pericardial or pleural effusion noted.

**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)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
<b>PATIENT</b>	NM	2.4	NM	1.69	31	60	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)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
<b>PATIENT</b>	NM	NM	1.2	18.6	2.2	2.9	2.0
*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)

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Complex congenital cardiac disease is present with a large atrial septal defect (ASD) and dysplasia/stenosis of both AV valves. The flow is right to left based upon right atrial enlargement, although not confirmed on this image set. The degree of stenosis/dysplasia of both AV valves is



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severe and likely suggests an endocardial cushion defect. With this degree of anatomic distortion, additional congenital defects may be present as these are easily missed without advanced imaging.

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The biggest concern in this case is the degree of volume overload of the right heart with high risk for associated clinical signs, including congestive failure, development of malignant arrhythmias (AF, VT, AV block, etc.), and/or sudden death at home. **Highly recommend referral to a local Cardiologist in this case for advanced imaging to confirm the diagnosis and lifelong management if possible.** An alternative would be to institute cardiac supportive medications as below in hopes of prolonging asymptomatic life. Prognosis is guarded to poor long term.

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Elective anesthesia is not advised and should not be performed.

## AGE

6.5 months

Monitor for development of associated clinical signs (collapse, abdominal distention, cough, labored breathing). Mild exercise restriction is advised. Omega fatty acid supplementation may have some long-term benefit.

## WEIGHT

41lbs

## PLAN

Highly recommend referral as discussed to confirm the diagnosis and manage this complicated case. If declined, institute Pimobendan 0.3mg/kg PO q12h. Institute Spironolactone 1-2mg/kg PO q12h. Do not utilize an ACEI due to hypotension.

If referral is declined, recommend recheck echocardiogram in 6 months. A PCV should be monitored for hemoconcentration and need for Phlebotomy lifelong.

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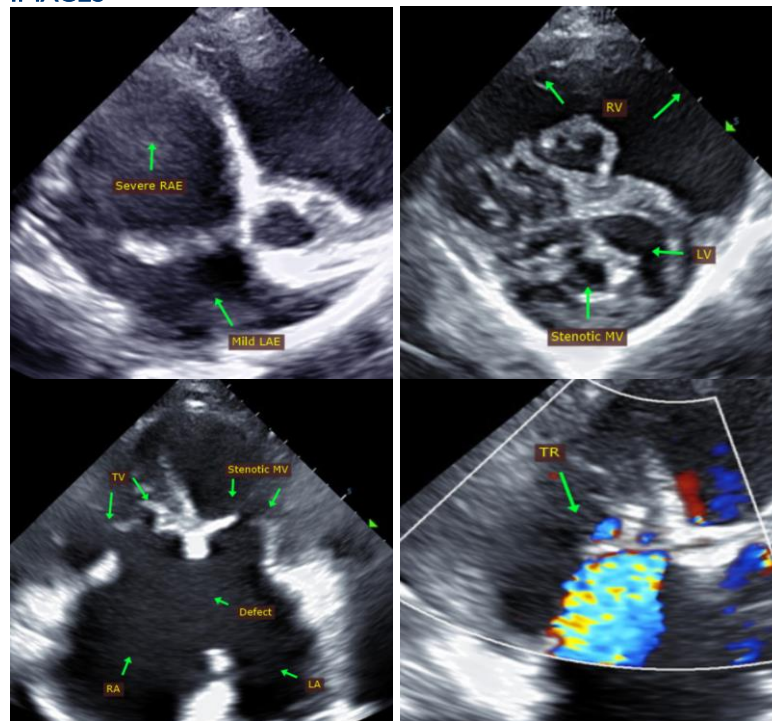
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## IMAGES





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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.

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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.

**BREED**

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Diplomate of the American College of Veterinary Internal Medicine (Cardiology)  
info@sonopath.com

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