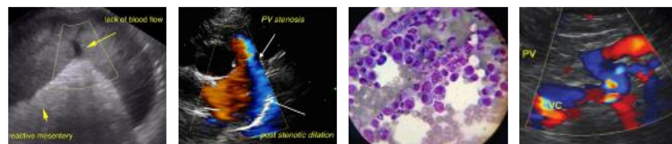
SonoPath

Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™



SonoPath.com™

1-800-838-4268 info@sonopath.com

PATIENT
Blu Romani

SPECIES
Canine

BREED
English Bulldog

SEX
Male

AGE
2 months

WEIGHT
12.3lbs

INTERPRETED BY
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY
Paul Kim, DVM

HOSPITAL NAME
Ridgefield Animal Hospital

REFERRING VET
Dr. Kim

INVOICE
27122

DATE
10/26/22

PRESENTING CLINICAL SIGNS

History: 2nd opinion on grade 4-5/6 heart murmur. Asymptomatic.

ECHOCARDIOGRAM FINDINGS

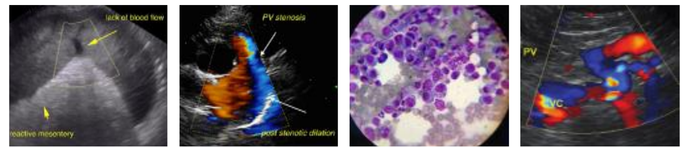
2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no obvious prolapse into the left atrial lumen. No obvious mitral regurgitation. Normal left atrial dimension. Normal LV diameter with normal myocardial function. The LV wall appears normal. The tricuspid valve appears normal with no obvious insufficiency seen. Moderate right atrial dilation. Significant right ventricular hypertrophy and remodeling indicative of pressure overload. Right ventricular dilation. Pulmonic outflow velocities are elevated at the level of the valve. The pulmonic valve is poorly visualized, and an aberrant coronary artery is not ruled out. There is significant post-stenotic dilation of the main pulmonary artery and branches. Mild pulmonic insufficiency. The aortic valve appears to have normal morphology and mobility. No obvious cardiac shunts are present. 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)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT			1.2	1.3	41	75	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	1.8	6.1	5.6	1.5	1.8	1.1
*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)
**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)
Adapted from June Boon, Veterinary Echocardiography, 1998				20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Hansson et al, Vet Rad and Ultrasound 2002				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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 pulmonic stenosis. The degree of obstruction is severe based upon the velocity/pressure gradient across the pulmonic valve and the secondary hypertrophy and remodeling of the right ventricle. There is significant RA dilation and mild TR with mild tricuspid valve thickening (likely dysplasia). The risk for CHF in the future is elevated and will likely limit lifespan. The valve itself is poorly visualized and an aberrant coronary is not ruled out. No other congenital abnormalities were visualized; however, it is important to note this is not considered an extensive congenital scan. Referral is advised.



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Referral for balloon valvuloplasty should be considered in this patient as the gold standard therapeutic option for this condition and may improve long term outcome and delay onset of clinical signs (including exertional syncope and right-sided congestive heart failure). If surgery is not elected, this patient's condition will likely limit lifespan, with many severe PS cases developing CHF by mid-life. Regardless, medical management with atenolol is recommended once patient is older to decrease heart rate and lessen the obstruction as below. Monitor for development of associated clinical signs (collapse, abdominal distention, cough, labored breathing). **Mild exercise restriction is advised.**

Breeding this animal is not advised due to the genetic link of this disease.

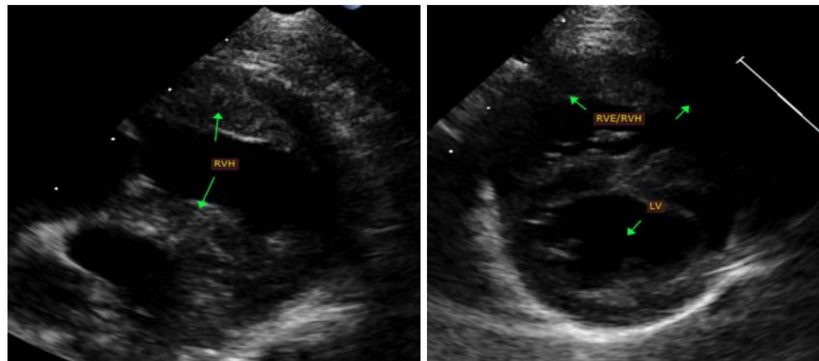
Anesthetic risk is mild to moderate at this time. **Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless absolutely necessary**. Avoid vasodilators such as acepromazine. Mild IV fluid restriction is advised. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction and recover in O2 if possible. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary.

PLAN

Once 4-6 months of age, institute atenolol to effect: 25mg tabs, ¼ tab PO BID to start (up-titrate to desired effect). Goal is to suppress heart rate <120-140bpm even with stress/activity. Baseline chest radiographs and ECG are recommended. Referral for advanced evaluation and discussion of balloon valvuloplasty ASAP if desired.

If surgery is declined, recommend recheck echocardiogram in 6 months to assess for progression, response to medication.

IMAGES



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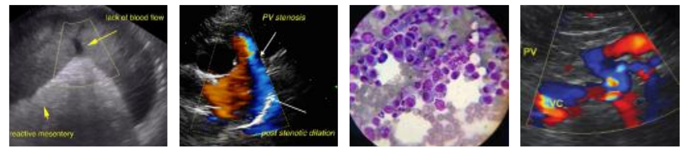

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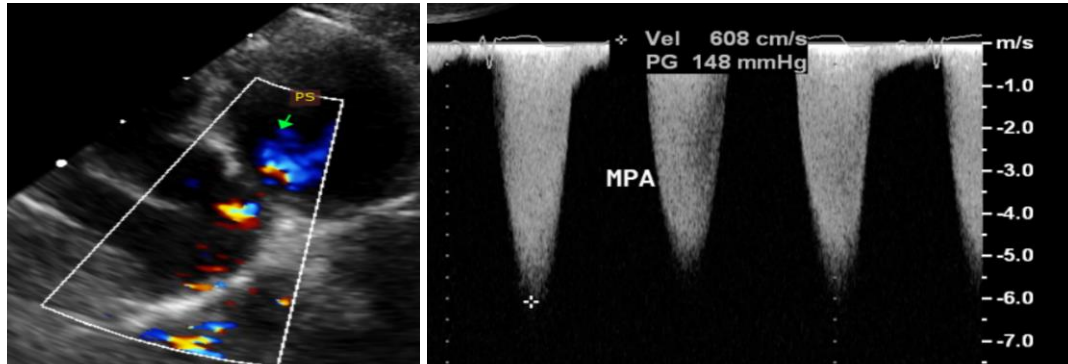

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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