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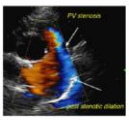
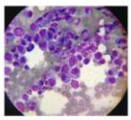
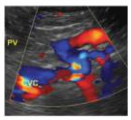
SVS IMAGING

SonoPath
Clinical Sonography & Telecytology
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1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Barry White

SPECIES

Canine

BREED

Goldendoodle

SEX

Male Neutered

AGE

1 year

WEIGHT

68lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Sarah Pender, CVT

HOSPITAL NAME

SVS Imaging QC

REFERRING VET

Dr. Bessine

INVOICE

20916

DATE

9/7/21

PRESENTING CLINICAL SIGNS

History: Grade 1 heart murmur found on 1-year annual exam. 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 mitral regurgitation. Normal left atrial dimension. Normal LV diameter with normal myocardial function. The LV wall is normal. The tricuspid valve appears normal with trace tricuspid regurgitation present. Elevated TR velocity. Mild right atrial enlargement. Mild right ventricular prominence. Elevated pulmonic outflow velocities are suspected, although a maximum is not measured. The pulmonic valve is difficult to visualize; however, what can be seen appears thickened. Increased flow velocity through the region is seen on color flow imaging. Trace pulmonic insufficiency. The aortic valve appears to have normal morphology and mobility. No AI. No obvious cardiac shunts are visualized. 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	NA	3.8	1.5	1.5	47	90	0.37
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	120	1.0	>2.0	30.8	2.8	3.4	1.8
*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)
				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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur suspected to be elevated flow velocity through the pulmonary artery consistent with moderate (or worse) pulmonic stenosis. The image set does not extensively evaluate the region and the max velocity is not measured. This diagnosis is based upon the appearance of the valve in addition to an elevated TR velocity. No other congenital abnormalities were visualized; however, small abnormalities are easily missed. **Highly recommend referral in this case for more extensive evaluation.**

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Assuming the diagnosis is confirmed, moderate PS cases fall within a grey zone. There are many patients that will not experience clinical signs (syncope, right-sided congestive heart failure) throughout their lifetime, however risk for progression to clinical signs will always remain. A diagnostic angiogram and potentially balloon valvuloplasty can be considered (particularly in the event of development of clinical signs) as the gold standard therapeutic option for this condition and may improve long term outcome. If referral is declined in this case, consider institution of Atenolol for potential long-term benefit.

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, given these cases are predisposed to development of arrhythmias going forward.

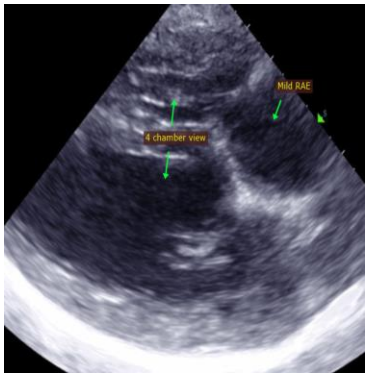
Anesthesia is not advised prior to further evaluation.

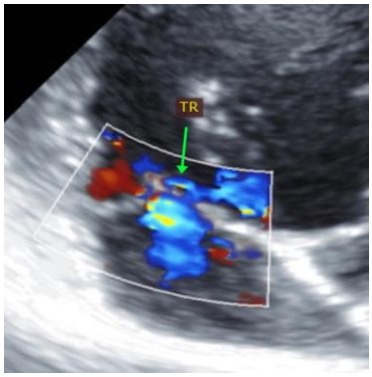
PLAN

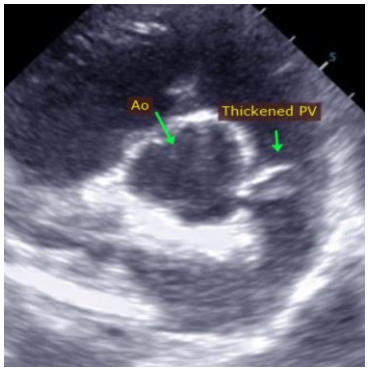
High recommend referral for evaluation/surgical consultation. If declined or not possible, consider institute lifelong atenolol 25mg tabs, give ½ tab PO q12. Recheck HR in 5-7 days; target is stressed in hospital rates not to exceed 130bpm.

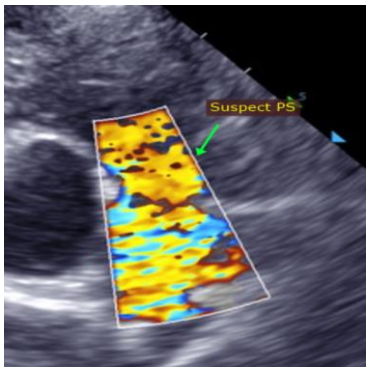
Recommend recheck echocardiogram in 6-12 months to assess for progression, response to medication.

IMAGES









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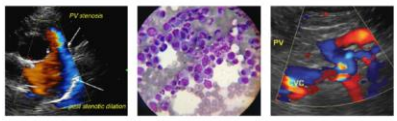

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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