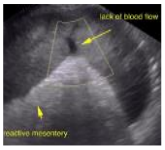
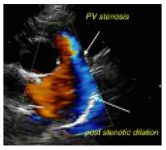
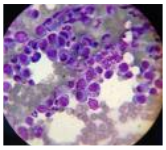
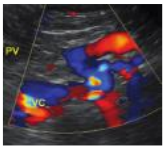
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

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

PATIENT
Tyto Woof Gang Rescue

SPECIES
Canine

BREED
Mix

SEX
Male

AGE
9 weeks

WEIGHT
17lbs

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

IMAGING PERFORMED BY
Fred Gromalak, DVM

HOSPITAL NAME
SVS Imaging

REFERRING VET
Dr.Vivk

INVOICE
22424

DATE
2/8/22

PRESENTING CLINICAL SIGNS

History: High grade heart murmur. Distended abdomen. Comes from a litter of puppies with heart issues.

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 thickened with moderate insufficiency seen. Severely elevated velocity. Moderate right atrial dilation. Significant right ventricular hypertrophy and remodeling indicative of pressure overload. Right ventricular dilation. Pulmonic outflow velocities are markedly elevated at the level of the valve. The pulmonic valve is unable to be well visualized; however, thickening/stenosis is suspected. There is mild post-stenotic dilation of the main pulmonary artery and branches. Mild pulmonic insufficiency. The aortic valve appears to have normal morphology and mobility; however, velocity is mildly elevated. No obvious cardiac shunts are present. No pericardial or pleural effusion noted.

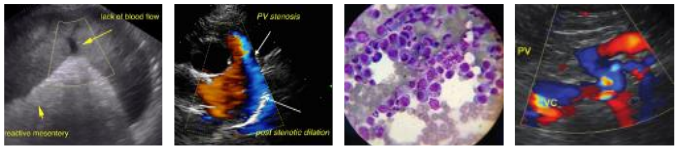
CARDIAC CHART

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	NA	4.5	1.2	1.3	62	93	0.3
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	190	1.5	6.2	7.7	1.6	1.6	0.6
*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 is severe 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. The pulmonic valve is not extensively visualized; however, a valvular stenosis is suspected. There is significant RA dilation and moderate TR with likely reflects concurrent tricuspid valve dysplasia which is a poor prognostic indicator. The risk for CHF in the future is elevated and will likely limit lifespan. No other congenital abnormalities were visualized,



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however small shunts or defects can be difficult to identify without advanced imaging in patients this young.

In a 9 week old rescue puppy there are a few ways to proceed. Humane euthanasia is a viable option and must be considered, given the degree of disease seen here and a poor to grave prognosis. An alternative would be referral for advanced imaging and balloon valvuloplasty as the gold standard therapeutic option for this condition to confirm the diagnosis and establish a relationship for lifelong management/medications. If referral is declined, a third option would be to attempt oral medications as below, knowing that outcome is limited. **A distended abdomen is noted on exam and not evaluated in this image set; screening for ascites is strongly recommended.** If present, the patient is already in CHF at 9 weeks old and either full cardiac support including diuretic therapy or humane euthanasia should be elected.

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.

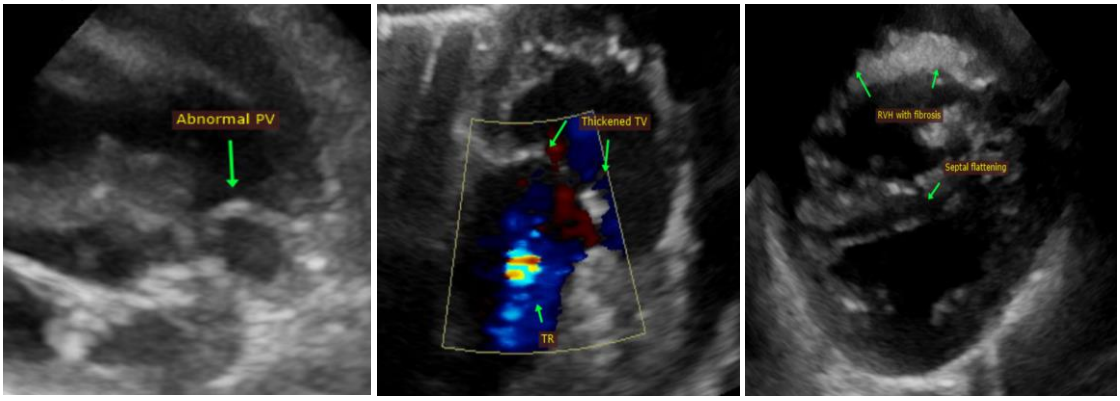
Elected anesthesia is not advised.

PLAN

Assess for ascites ASAP. If present, CHF dictates a grave prognosis and humane euthanasia should be considered. As an alternative, referral for advanced imaging can be considered. As a final option, if ascites is not present atenolol can be instituted once at least 4 months old; use atenolol to effect: 25mg tabs, ¼ tab PO SID 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.

If referral is declined, recommend recheck echocardiogram in 6 months, sooner if clinical signs arise.

IMAGES



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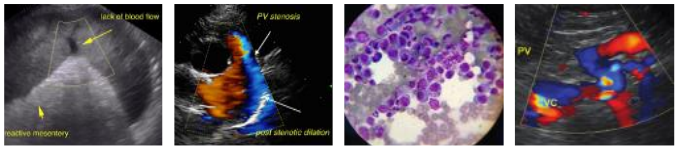

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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