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Clinical Sonography & Telecytology
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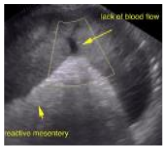
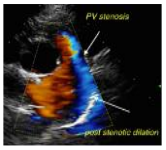
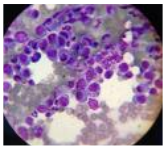
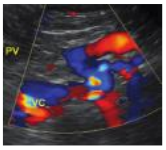

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Faye Valentine

SPECIES
Canine

BREED
Mix

SEX
Female Spayed

AGE
2 years

WEIGHT
35lbs

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

IMAGING PERFORMED BY
Fred Gromalak, DVM

HOSPITAL NAME
SVS Imaging

REFERRING VET
Dr.Hoffman

INVOICE
22423

DATE
2/8/22

PRESENTING CLINICAL SIGNS

History: Elevated ProBNP. Grade 6/6 heart murmur. Honking cough noted.

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 a tethered septal leaflet; suspect concurrent stenosis. Severe tricuspid insufficiency seen. Severe right atrial dilation. Severe right ventricular hypertrophy and remodeling indicative of pressure overload. Moderate right ventricular dilation. Pulmonic outflow velocities are elevated at the level of the valve; >6m/s. The pulmonic valve is highly abnormal, thickened and stenotic. There is mild post-stenotic dilation of the main pulmonary artery and branches. Moderate pulmonic insufficiency. The aortic valve appears to have normal morphology and mobility. Normal aortic outflow velocities. No obvious AI. 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	6.0	1.2	1.2	52	85	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	180	1.1	5.7	15.9	2.3	2.3	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)
				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 valvular 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 tricuspid valve also appears abnormal/dysplastic with severe TR, which is a poor prognostic indicator leading to severe right atrial enlargement. This is resulting in a significant high velocity tricuspid regurgitation. The risk for CHF in the future is elevated and will likely limit lifespan. No other congenital abnormalities were visualized, however small shunts or defects can be difficult to identify without a sedated bubble study.

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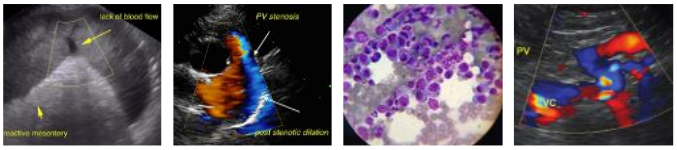

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Referral for advanced imaging and possible balloon valvuloplasty should be considered in this patient as the gold standard therapeutic option for this condition and may improve long term outcome and delay onset of clinical signs (including exertional 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 to decrease heart rate and lessen the obstruction as below. Additionally, consider use of Spironolactone and an ACE-I for long-term theoretic benefit. Monitor for development of associated clinical signs (collapse, abdominal distention, cough, labored breathing). Mild exercise restriction is advised.

A honking cough is more likely to be due to airway disease; however, screening chest radiographs are strongly recommended. This patient will always be at risk for right-sided CHF, which more frequently presents as abdominal distention +/- labored breathing.

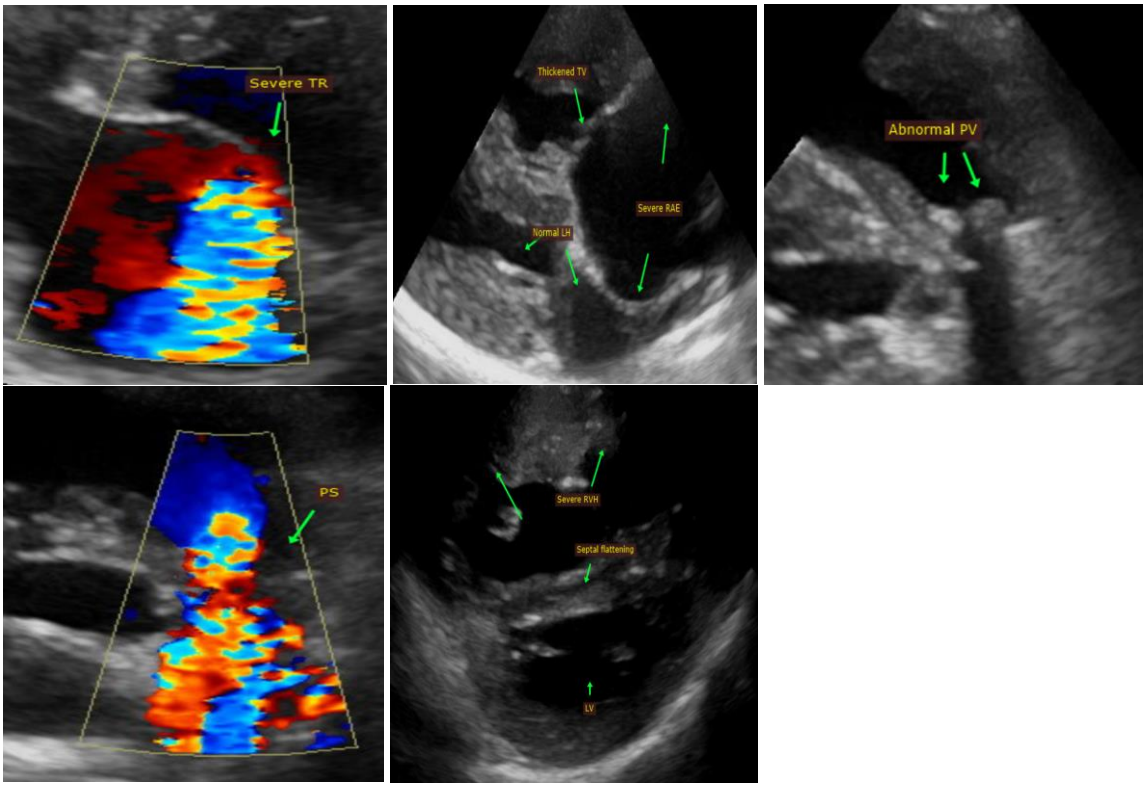
Elected anesthesia is not advised.

PLAN

Baseline CXR are recommended. 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. Institute Spironolactone 1-2mg/kg PO q12h. Institute ACE-I 0.5mg/kg PO q12h. Baseline ECG is recommended. Referral for balloon valvuloplasty ASAP if desired.

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

IMAGES



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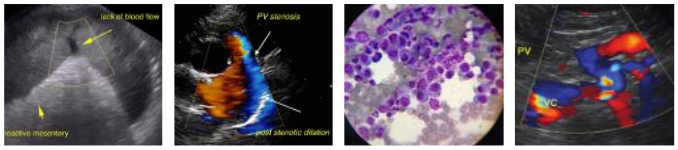

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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