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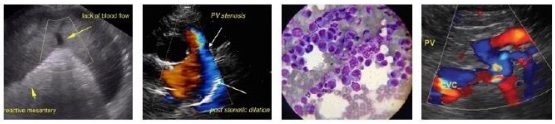

THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Borys Skwarlinski

SPECIES
Canine

BREED
Schnauzer

SEX
Male Intact

AGE
8 months

WEIGHT
68.3lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Kelly Reschny, RVT

HOSPITAL NAME
Campbelleville Animal Hospital

REFERRING VET
Dr. Kamrani

INVOICE
23287

DATE
3/25/22

PRESENTING CLINICAL SIGNS

History: Young asymptomatic patient. Systolic heart murmur since the first puppy examination, grade 3 systolic. Assess the patient before anesthesia castration surgery.
-Abnormal PE/Chem/CBC/UA Results: CBC and chemistry profile all WNLs, 4DX all negative

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

A single lead ECG is available; 50mm/s, 5mm/mV. The average heart rate is 100bpm (range 63-166bpm). P waves cannot be seen throughout; however, this is thought to be due to device insensitivity; a sinus origin is suspected. Isolated APCs are seen throughout; primarily single beats with a single couplet appreciated. No ventricular premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with isolated APCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Continuous flow detected with color Doppler in the pulmonary artery in the region of the ductus arteriosus. High velocity shunt primarily L-R (max not measured). Moderate volume overload of the left heart with decreased systolic function. Increased LV sphericity. Mild LA dilation. Moderate central MR. No obvious TR. Mildly elevated pulmonic outflow velocities; mild pulmonic insufficiency. MPA and branch dilation. The PV appears normal. Mildly elevated aortic outflow velocities with no AI. No pericardial or pleural effusion noted. No obvious cardiac masses.

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	5.0		1.5	1.6	30	58	0.5
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	2.5	1.6	31.0	4.5	5.6	3.7
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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)

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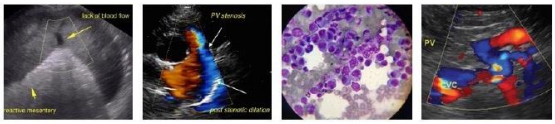

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is a patent ductus arteriosus (PDA). This is a congenital condition where a blood vessel present in the fetus remains open after birth. When patent, this allows blood to recirculate through the lungs inappropriately and volume overloads the left heart chambers as is seen here. There is also moderate MR, however this is clinically insignificant at this time. It is important to note that other small congenital defects can be easily missed in these cases, and advanced imaging with a Cardiologist is recommended.

Given moderate LA/LV dilation, this patient is at risk for progression to CHF, arrhythmias, PDA reversal due to development of pulmonary hypertension, exertional syncope, and/or sudden death at home in the future. Monitor sleeping respiratory rates at home to screen for progression to CHF.

The ECG shows a sinus rhythm with isolated APCs. These are commonly seen in dogs with left atrial enlargement and do not warrant further therapy at this time. Monitor at home for signs of sustained arrythmias, such as syncope or acute lethargy.

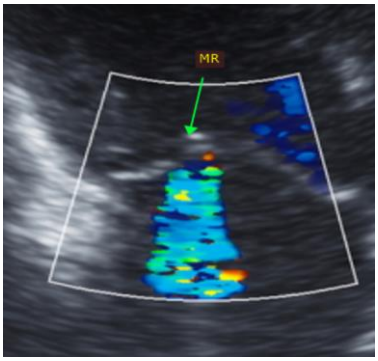
Gold standard therapy is surgical closure of the vessel. This can be done interventionally or through a thoracotomy, and consultation with a local Cardiologist is recommended if sought (**highly recommended).** Success rates for the procedure are generally high, particularly given the asymptomatic status and a good chance for a normal life if closed appropriately. Regardless of whether or not surgery is elected, cardiac support with Pimobendan is recommended for long term benefit. If surgery is not an option, prognosis is guarded to poor long term and close monitoring is advised.

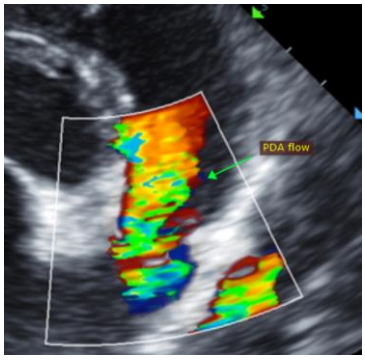
Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitoring of sleeping breathing rates is recommended as the best way to screen for progression to CHF at home. Mild activity restriction is advised. Monitor at home for breathing changes, worsening cough, fainting episodes, exertional dyspnea.

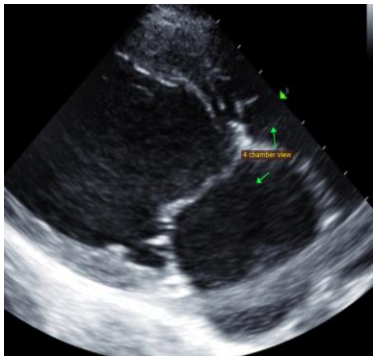
PLAN

Institute Pimobendan 0.3mg/kg PO q12h. **Recommend referral to a local Cardiologist for surgical consultation.** If not an option, reassess structure and function every 6 months lifelong to assess need for additional medications, sooner if clinical signs arise (progressive cough, labored breathing, syncope).

IMAGES







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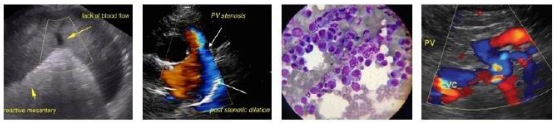

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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