SonoPath
Clinical Sonography & Telecytology
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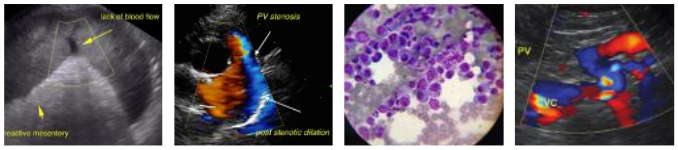

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1-800-838-4268 info@sonopath.com

PATIENT
Amelia's Litter 2022 Boy Cornog

SPECIES
Canine

BREED
Cavalier

SEX
Male

AGE
3 months

WEIGHT
6lbs

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

IMAGING PERFORMED BY
Tam Mengine, DVM

HOSPITAL NAME
Stoney Creek Veterinary Hospital

REFERRING VET
Dr. Mengine

INVOICE
27267

DATE
11/3/22

PRESENTING CLINICAL SIGNS

History: Grade 5/6 systolic murmur in L axillary region. No clinical signs, active and larger than littermate. Given 0.2mg/kg butorphanol prior to ultrasound.

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. Trivial mitral regurgitation. Mild left atrial dilation. Normal LV diameter with adequate myocardial function. The LV wall thickness is normal. The tricuspid valve appears normal in form with no tricuspid regurgitation present. Mild right atrial dilation is suspected. Mild right ventricular hypertrophy is appreciated with mild enlargement overall. The PV leaflets are suspected to be thickened and abnormal suggesting pulmonic stenosis, although standard images are difficult to obtain. Trace pulmonic insufficiency. The aortic valve appears largely normal in morphology and mobility. A PDA is not ruled out in this study. No pericardial or pleural effusion noted. No cardiac tumors seen.

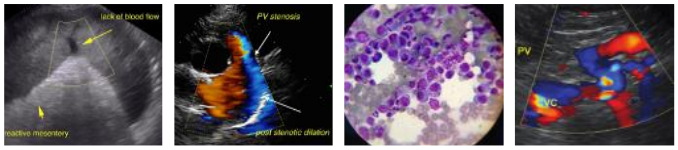
CARDIAC CHART

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	NA	1.1	1.5	37	70	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	2.1	NM	2.7	1.6	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)
				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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The presumptive diagnosis is valvular pulmonic stenosis (PS) based upon the appearance of the pulmonic valve. Standard images are difficult to obtain in this case and this is presumptive at this time. The fight heart appears mildly affected suggesting a mild abnormality is present, although difficult to confirm. Ancillary issues, such as a PDA, are not entirely ruled out, particularly given mild left atrial enlargement.

Any congenital case should ideally be offered referral to an attending Cardiologist as the gold standard, in order to confirm the presumptive diagnosis and assess for other small defects that



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are difficult to identify. This is particularly warranted in a case where interventional procedures and/or medical management may be warranted life-long. Certainly what is seen here is enough to warrant further evaluation.

Assuming the diagnosis remains mild PS, medications nor surgery are typically recommended as the majority of mild dogs will live a normal life span without associated clinical signs and long-term prognosis is good. That being said, moderate or severe cases may have an improved outcome through surgical and/or medical intervention. Medical management includes drugs that will slow heart rate and lessen the obstruction. The obstruction will worsen at higher heart rates, so maintaining a slow rate can help avoid clinical signs. Commonly, beta blocker medications such as atenolol are used to control the heart rate.

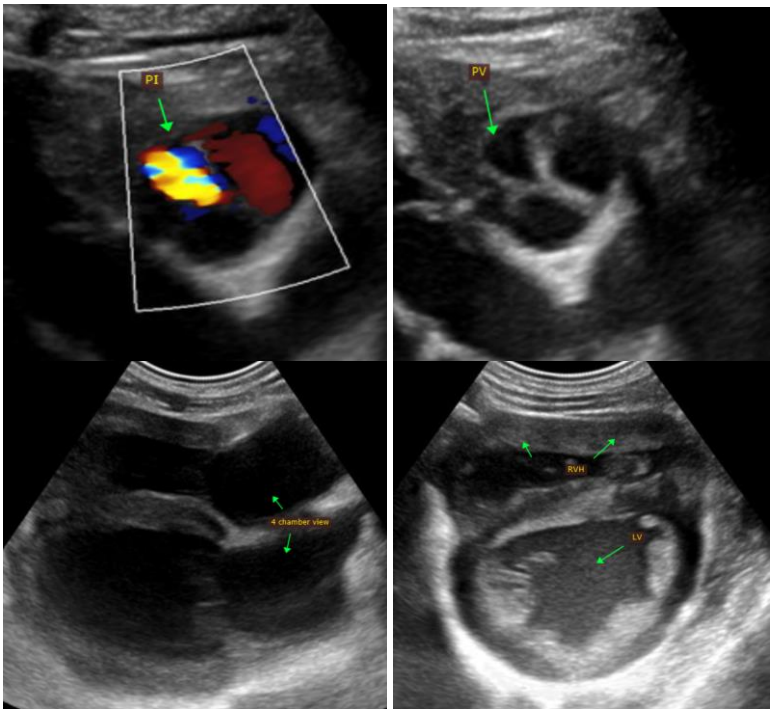
Monitor at home for symptoms including exercise intolerance, difficulty breathing, abdominal distention and/or syncope (fainting). Mild activity restriction is advised lifelong.

Anesthetic risk is considered mild if needed. Avoid heart rate stimulating drugs such as atropine or glycopyrrolate. Avoid excessive vasodilation/hypotension. Pre-oxygenate for 5-10 minutes prior to induction. A reasonable protocol would be as follows: premedicate with opioid/benzodiazepine, propofol or alfaxalone induction, isoflurane maintenance. Monitor ECG, BP as is standard.

PLAN

Referral is strongly recommended for a definitive diagnosis. If declined, recommend recheck echocardiogram once full stature (8-12 months) to assess for progression and reassess the diagnosis.

IMAGES



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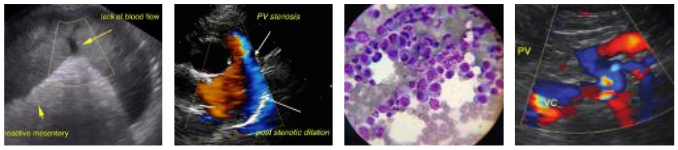

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)
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