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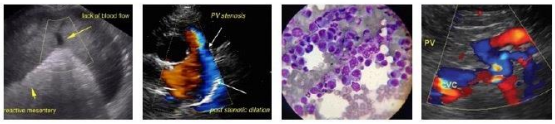

THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Grace Havlin

SPECIES
Canine

BREED
English Bulldog

SEX
FS

AGE
8 years

WEIGHT
26kgs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Crystal Hill, CVT

HOSPITAL NAME
BPH Stoney Creek

REFERRING VET
Dr. Salib

INVOICE
21631

DATE
10/20/21

PRESENTING CLINICAL SIGNS

History: Presented for collapse/laboured breathing at home, then diarrhea, not moving much. BNP elevated 1y ago. On PE P is BAR, panting/ rapid/shallow breathing. MM pink, CRT <2s. Overnight monitoring in hospital patient was stable with no concerns.
Current medications: Gabapentin 100mg, Clavaseptin 500mg
Abnormal PE/Chem/CBC/UA Results:10/19 - CBC/Biochem all WNL
Idexx CXR report: The thorax is unremarkable given the poor inspiration as well as breed of this patient. It is suspected that the increased opacity seen within the cranial thorax is likely artifact created by superposition of the thoracic limb as well as patch of the cranial mediastinum. The bronchointerstitial pattern seen is likely a result of poor inspiration and reflects partial atelectasis. No obvious intrathoracic cause of the distress is identified. Possible causes could include brachiocephalic syndrome in this patient. Tracheal collapse not overtly evident also may be considered. The possibility of occult cardiovascular disease like thromboembolism or pulmonary hypertension cannot be entirely ruled out.

ECHOCARDIOGRAM FINDINGS *Image quality limited by dyspnea/conformation.

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. No mitral regurgitation with no left atrial dilation. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with mild tricuspid regurgitation. The TR velocity is normal; however, mild right heart prominence is noted in some views which may suggest right-sided disease and/or pulmonary hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic and trace pulmonic insufficiency. 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		2.0	1.3	1.3	29	56	0.59y

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	1.4	1.0	26	2.5	4.3	3.0
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
				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)

BODY WEIGHT DEPENDENT PARAMETERS

**Note: All measurements based upon multi-modal images and methods. An average value is reported.*

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

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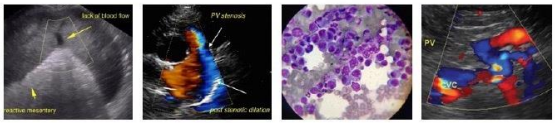

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

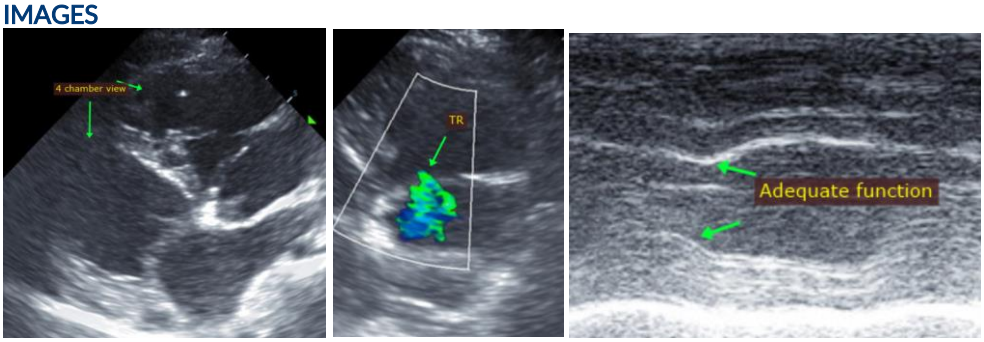
Overtly normal cardiac dimensions and function, with no obvious dysfunction or dilation of the left heart. No significant valvular leaks are visualized. The right heart is prominent in some views which may certainly reflect early pulmonary hypertension or right heart pathology; however this is suspected to be secondary rather than the primary cause of current clinical signs. It is worth noting that the patient was unstable and required intermittent oxygen throughout the study. This in addition to anatomic limitations certainly limited image quality. Small abnormalities are easily missed particularly in bulldogs and advanced echocardiography and/or thoracic CT may be indicated pending clinical response to treatment. Referral should be considered in this complicated case

No cardiac medications are obviously indicated at this time as the **symptoms appear non-cardiac in origin.** Continued work up for systemic, respiratory (infectious/inflammatory/etc) issues is recommended. Options include Baytril or similar antibiotic, anti-inflammatory prednisone, etc. As mentioned, referral should be considered pending clinical status.

Monitor for development of a heart murmur, cough, labored breathing, exercise intolerance or collapse episodes.

Chronic respiratory issues can lead to pulmonary hypertension if poorly controlled and a recheck echocardiogram is recommended should any exertional syncope/dyspnea occur, or a murmur be noted in the future.

IMAGES



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)
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