



PATIENT

Rosita Kraft

SPECIES

Canine

BREED

Boston Terrier

SEX

Female Spayed

AGE

4 years

WEIGHT

19.6lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Dana Alterman,
RDCS, LVT

HOSPITAL NAME

Eubank Animal Clinic

REFERRING VET

Dr. Grainger

INVOICE

30160

DATE

4/10/23

PRESENTING CLINICAL SIGNS

History: Recheck echo. Grade 4-5/6 murmur. Crackles, labored breathing and coughing which responded to furosemide as breathing is much better, more energy and eating well.

-Current medications: Furosemide 12.5mg PO BID.

-Pertinent previous echo findings (11/2019 Valley Veterinary Cardiology): Severe congenital subvalvar aortic stenosis (SAS) with moderate left ventricular hypertrophy. There is a subvalvar ridge located in the LVOT. The left atrium is normal size with a LA/Ao 1.3. The LV-AO pressure gradient is 196mmHg. The FS% is 56 with hyperdynamic systolic performance.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 160bpm (range 140-180bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. MEA is normal. Isolated VPCs throughout; singles only, monomorphic with an LV origin. Occasional APCs; singles only. No pauses or dysrhythmias observed.

ECG diagnosis: Normal sinus rhythm with isolated VPCs and APCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The anterior mitral valve leaflet appears normal with mild central mitral regurgitation. No obvious prolapse into the left atrial lumen. Severe left atrial dilation. Significant LV dilation with severe myocardial dysfunction. The left ventricular walls are mildly increased in dimension. Sub-aortic ridge is visualized (see below) consistent with severe SAS. The aortic valve is also mildly thickened. Moderate AI. Elevated aortic outflow velocity >5m/s. Prominent coronary arteries can be seen. The tricuspid valve appears subjectively normal, with trace tricuspid regurgitation. No significant right heart enlargement. The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal PA outflow velocity; laminar. No pericardial or pleural effusion noted. No cardiac tumors identified.

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	NM	NM	2.4	2.2	16	30	1.1
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	5.3	0.8	8.9	2.6	3.7	3.1
*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)
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>				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)



PATIENT

Rosita Kraft

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)

SPECIES

Canine

BREED

Boston Terrier

SEX

Female Spayed

AGE

4 years

WEIGHT

19.6lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Dana Alterman,
RDCS, LVT

HOSPITAL NAME

Eubank Animal Clinic

REFERRING VET

Dr. Grainger

INVOICE

30160

DATE

4/10/23

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Severe congenital sub-aortic stenosis (SAS) persists causing significantly elevated blood flow velocity through the LVOT and aortic valve. The velocity is indicative of a severe pressure gradient elevation (PG >100mmHg; normal being 5-10mmHg). This is similar to what is described previously. What is unusual is this pathology typically results in severe LV hypertrophy, which was noted previously. Comparatively this exam shows only mild thickening, which likely suggests an end-stage or burnout physiology. There is severe LV dysfunction and LA enlargement supporting this hypothesis. No other significant issues are identified.

The ECG does show APCs and VPCs. These are no doubt secondary to severe structural changes. What is seen here does not warrant anti-arrhythmic therapy; however, a holter monitor should be considered.

Given these findings, full cardiac support is recommended as below. Pimobendan is somewhat controversial with an outflow tract obstruction; however, with this degree of dysfunction this is also recommended.

Monitoring of sleeping respiratory rates will be paramount to screen for recurrent congestive heart failure at home in the future. Cough suppression to improve QOL can also be considered once diuretics are on board for any residual mechanical cough in the face of normal sleeping respiratory rates. Long term prognosis is typically poor at this stage (stage C), with most dogs able to be maintained on medications for <6 months after the diagnosis of CHF. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes in the future. Monitoring of sleeping breathing rates at home is recommended to screen for progression to CHF. Omega fatty acid supplementation (1000mg twice daily) and mild salt restriction may be of some long term benefit.

PLAN

Recommend the following oral medications: Pimobendan 0.25-0.3mg/kg PO q12h, Lasix 1-2mg/kg PO q12h, Spironolactone 1-2mg/kg PO q12h,

Recheck BP and renal values in 5-7 days. If BP >130mmHg and patient is feeling well, institute ACE-I 0.5mg/kg PO q12h. Consider a holter monitor.

Monitor renal values/BP/HR every 3-4 months lifelong.

Recheck echocardiogram in 6 months to screen for progression, sooner if issues arise in the interim.



PATIENT

Rosita Kraft

SPECIES

Canine

BREED

Boston Terrier

SEX

Female Spayed

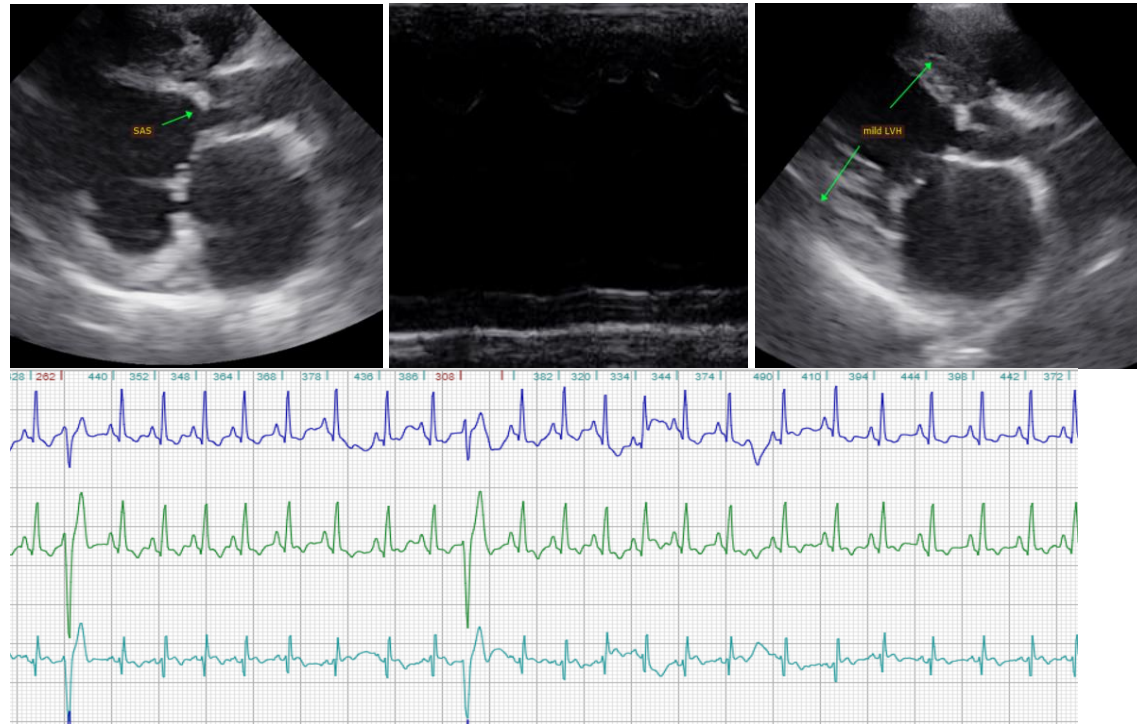
AGE

4 years

WEIGHT

19.6lbs

IMAGES



INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Dana Alterman,
RDCS, LVT

HOSPITAL NAME

Eubank Animal Clinic

REFERRING VET

Dr. Grainger

INVOICE

30160

DATE

4/10/23

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