SonoPath
Clinical Sonography & Telecytology
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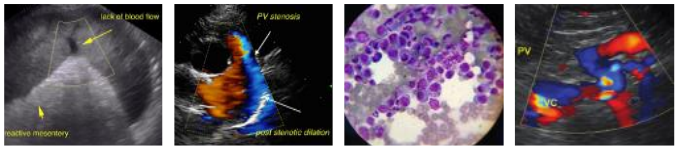

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Abby Miller

SPECIES
Canine

BREED
Boxer

SEX
Female Spayed

AGE
9 years

WEIGHT
55.1lbs

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

IMAGING PERFORMED BY
Kacie Edwards

HOSPITAL NAME
Boren Veterinary Medical Teaching Hospital - OSU

REFERRING VET
Dr. Biddick

INVOICE
30511

DATE
5/1/23

PRESENTING CLINICAL SIGNS

History: Owners came home yesterday, approximately 20 minutes after arrival, she collapsed in lateral recumbency with her hindlimbs extended. Her respiratory rate was around 55 then she began having agonal breaths. At this point, all of her limbs and neck were stiff in extension. She stopped breathing completely for a 1-minute duration and loss consciousness. When she regained consciousness and breathing, her rate was 55 breaths per minute again. The entire episode was approximately 5 minutes in duration. No paddling was noted. .She then slowly got up and began acting like her normal self again. Abby has no previous medical issues. On presentation, she was responsive. ECG showed V-tach with a rate greater than 200. Was treated with a lidocaine bolus and CRI, patient has been having occasional VPCs since. Thoracic radiographs were taken last night which revealed a normal cardiac silhouette.
-Current medications: Sotalol 120mg ½ tab every 12 hours.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no prolapse into the left atrial lumen. Trace mitral regurgitation with a normal left atrial dimension. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. Region of drop out in the mid-interatrial septum, potentially consistent with an ASD. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. Trivial aortic and no 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			NM	1.2	32	60	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	0.97	0.9	25.0	2.5	4.1	2.8
*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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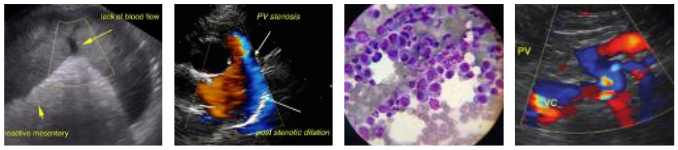

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cardiac structure and function are overtly normal in this patient with no significant right heart enlargement appreciated. The left heart dimensions are normal, and the systolic function is considered adequate for a large breed dog. No significant valvular insufficiencies are seen. Trace AI is noted, and a baseline BP is recommended. Finally, a region of drop out is seen in the interatrial septum, which may be consistent with a small atrial septal defect (ASD). This is clinically insignificant in a senior dog as this is of little hemodynamic significance and would not be related to the genesis of ventricular arrhythmias.

A history of ventricular arrythmias in a senior boxer may suggest ARVC as the likely diagnosis. ARVC can occur with or without systolic dysfunction and structural issues; however, this should be monitored going forward for any progressive development. It is always reasonable to rule out other differentials for VPCs (AUS, tick titers, troponin, etc.); however, suspicion is low given the signalment of the patient. Unfortunately, there is always an elevated risk for collapse and sudden death in any arrhythmic patient, and even on medications this risk unfortunately still persists. ARVC carries a HIGHLY variable prognosis, with some dogs able to remain asymptomatic for extended periods of time, and others developing exercise intolerance, syncopal episode, and refractory arrhythmias/sudden death imminently.

Further comment on the arrhythmia (adequacy of the medication, etc.) cannot be made without follow up ECG/holter information. It is important to note that a holter monitor is the gold standard approach to screening patients with ventricular arrythmias and should be considered prior to anesthesia. Finally, it is worth mentioning that the dose of Sotalol is quite high for this size dog; adjustment may be warranted based upon the ECG findings.

Fish oil supplementation is recommended for dogs with arrhythmias (1000mg of omega 3 and 6 once to twice daily as tolerated).

Monitor at home for collapse, exercise intolerance, and/or lethargy. Anesthesia is not recommended until good arrhythmic control is achieved. Lifelong mild to moderate activity restriction is advised.

Even with good arrhythmic control, anesthetic risk is remains moderately elevated. Avoid ketamine, telazol, Dexdomitor (or other alpha-2 agonists) and acepromazine. Recommend having lidocaine CRI available for use in the event of worsening ventricular arrhythmias under anesthesia (CRI 50—75mcg/kg/min).

PLAN

Continue Sotalol/Lidocaine depending on timeframe in hospital, ECG report etc (typically the starting dose is 1-2mg/kg PO q12h). Consider a holter monitor every 6-12 months as discussed.

Recheck ECG is recommended every 6 months with a recheck echocardiogram annually, sooner if any clinical signs arise.

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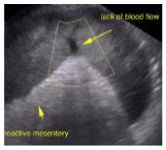
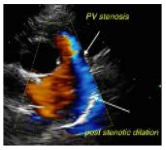
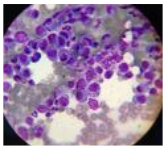
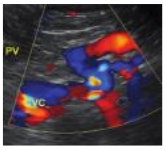

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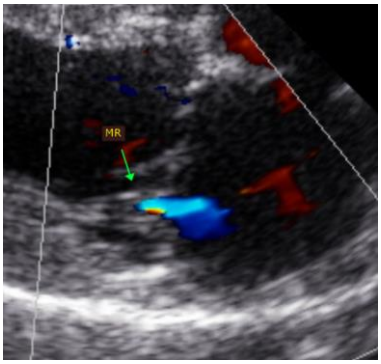
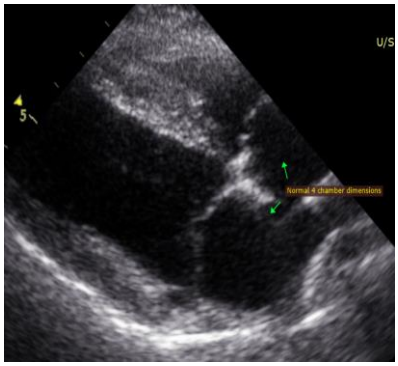
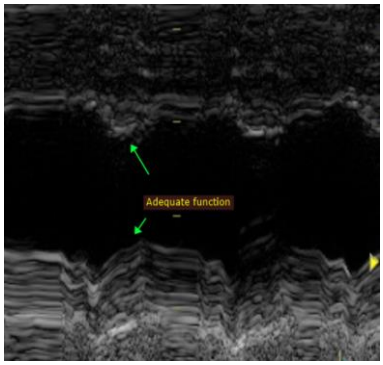
IMAGES







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. 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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