

PATIENT PRESENTING CLINICAL SIGNS

Squid Dowd

SPECIES

Canine

BREED

Cairn Terrier

SEX

Male Neutered

AGE

7 years

WEIGHT

14.8lbs

History: June 2019: Squid presented to Tufts for an episode of collapse (unconscious, urinated). Found to have 3rd degree AV block. Underwent implantation of permanent transvenous endocardial pacemaker. Pre-pacemaker echo showed mildly enlarged left and right ventricles c/w advanced bradycardia. Post-pacemaker echo showed normal structure, dimensions and function. In October 2021, squid had three seizure-like events, about 1-1.5 months apart. Always happened when he was markedly excited, loses body control, becomes rigid and twitchy, no loss of consciousness, no ANS signs, 3-5 seconds with immediate responsiveness. May, 2022: Squid had an event during echo where the morphology of the ECG changed and then it appeared that the heart stopped briefly (pulse was felt quickly). Pacemaker interrogation did not show any significant events. Voltage was increased from 2.5V to 3.5V. Monitoring of the patient for several hours did not see a repeat. At the time of the echo, the episode was similar to what the owner had described with the seizure-like events. He was laid on this side for the echo, and after about 7 minutes he stretched his neck out, vocalized, and it was suspected on echocardiogram that his heart stopped. Upon sitting him upright, his heart started again. No abnormalities were seen on echo, pacemaker interrogation or ECG that could fully explain the event.

Presently, Squid is doing well, energy level is good, eating and drinking well (picky with food). Activity is kept to a minimum, but does go on walks with no issues noted. On exam today: NSR (panting), grade II/VI murmur, PSS, lung fields clear, mm pink, moist, CRT<2. BP: 120-130 mmHg.

-Echo from 2020 (Tufts): LA 1.80 cm; LA:Ao 1.10; LV 2.80 cm; mild MR, normal LV size/function

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; 25mm/s, 10mm/mV. The ventricular/paced rate is 100-115bpm with a largely regular rhythm. P waves can be seen independent of the paced complexes, consistent with complete AV block. No ectopic beats, pauses or dysrhythmias observed.

ECG diagnosis: Paced rhythm; HR 100-115bpm. Complete AV block.

INTERPRETED BY

Maggie Machen
Lamy, DVM
DACVIM (Cardiology)

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.

Left ventricle: The LV diameter is normal with adequate myocardial function. LV wall thicknesses are normal.

Left atrium: The left atrium is mildly dilated.

Mitral valve: The mitral valve is diffusely thickened with no prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with a normal velocity.

Aortic valve/aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.

Right ventricle: Normal right ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension.

Right atrium: Normal RA dimension. The pacemaker lead can be seen within the right heart traversing the TV.

Tricuspid valve: The tricuspid valve appears normal with moderate tricuspid regurgitation; velocity variable; max consistent with mild PAH.

Pulmonic valve/pulmonary artery: The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal RVOT velocity; laminar flow.

Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.

IMAGING PERFORMED BY

Pamela Harrigan,
RDCS

HOSPITAL NAME

Mass Veterinary
Services

REFERRING VET

Dr. Masloski

INVOICE

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2-Dimensional Measurements

Ao diam (cm)	1.6
LA diam (cm)	2.1
LA:Ao (Swe)	1.3
IVS thickness (cm)	0.7
LVID diastole (cm)	3.1
PW thickness (cm)	0.7
LVID systole (cm)	2.0
FS (%)	35

Doppler Measurements

PV Vmax (m/s)	0.58
AoV Vmax (m/s)	1.4
MR Vmax (m/s)	5.5
TR Vmax (m/s)	3.4
TR PG (mmHg)	47

INTERPRETATION OF THE FINDINGS

Chronic degenerative valve disease causing moderate mitral and tricuspid regurgitation. Lack of significant left or right atrial enlargement indicates the current risk for complication is low. Mild pulmonary hypertension is present, which is considered subclinical. The pacemaker lead can be seen traversing the RA/TV into the RV without obvious abnormalities. No concurrent issues are noted in this study.

Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage (B1).

The ECG shows a paced rhythm with a reasonable heart rate. Given the history, intermittent pacing issues are considered the likely cause of exertional collapse, as what is seen in this study does not support a hypoxic or cardiac output issue. Ensure the patient is having routine (q 6months) pacemaker interrogations at Tufts, as further evaluation through a holter, etc may be warranted.

RECOMMENDATIONS

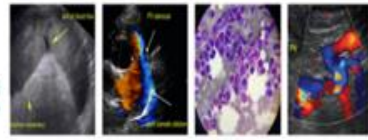
- In a dog without significant left atrial enlargement, no cardiac medications are clearly indicated.
- Ensure routine pacemaker interrogations are done at Tufts, with further evaluation of syncope if dictated by results.
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.
- Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

- Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.



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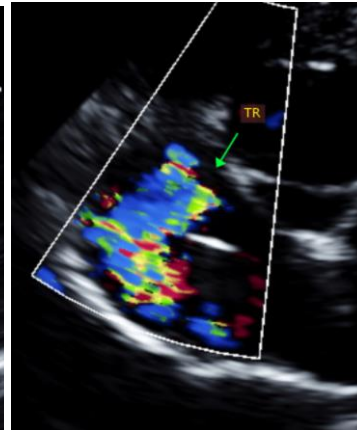
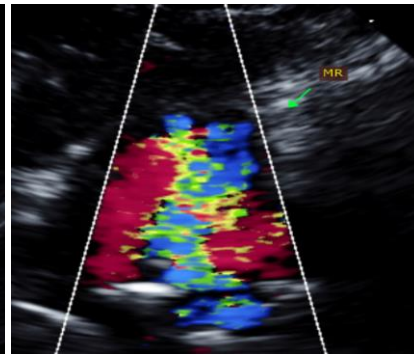
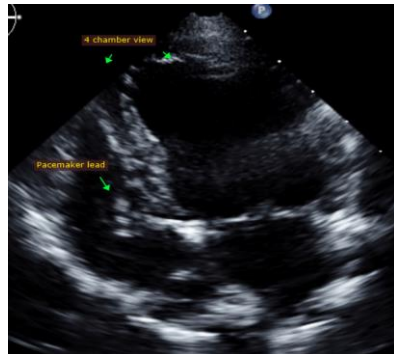
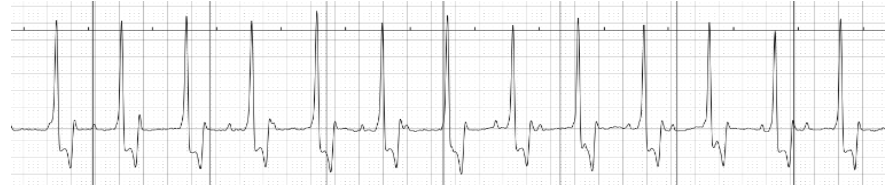
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IMAGES



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.

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Echocardiogram performed by:

Pamela Harrigan, RDCS
Pet Animal Ultrasound Service (4paus.com)