DATE

4/21/26

PATIENT

Brooks Halford

SPECIES

Canine

BREED

King Charles Cavalier

SEX

Neutered male

AGE

1/16/15

WEIGHT

23 lbs

INTERPRETED BY

Bradley Harris, DVM, DACVECC, DACVIM (cardiology)

HOSPITAL NAME

Perry Hall AH

REFERRING VET

Dr. Baer

INVOICE

74635

PRESENTING CLINICAL SIGNS

History: O reported a suspected seizure last night: P made a strange noise, then rolled repeatedly for <1 min; afterward was lethargic, would not use stairs, and had heavy/rapid breathing. Post-event: P urinated outside; would not drink; slept through early morning; at 0700 am still lethargic with very heavy breathing; urinated again; sniffed breakfast and walked away; tail wag noted; appetite decreased; no vomiting; stool normal last night. PE: mm: pale pink and slightly tacky, grade 3/6 holosystolic murmur, arrhythmia
Pertinent abnormal PE/Chem/CBC/UA Results: Labwork not attached, reported as pending.
Current medications: Pimobendan 5mg ½ tab PO BID. Lasix .4ml IV. (50mg/ml) given 9:46am
Blood Pressure: Right lateral size 3 cuff RF 100, 110, 100 mmHg
Sedation used: Not required to complete full diagnostic ultrasound.
Pertinent previous ultrasound results: No previous.
STAT: Requested.
Imaging performed by: Stephanie Warga RDCS, RVT.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The left atrium is severely enlarged. The left ventricle is severely enlarged with marginal systolic function. The right atrium and ventricle are dilated with adequate systolic function. The anterior and posterior mitral valve leaflets are thickened and redundant consistent with myxomatous changes, and there is severe prolapse. There is moderate to severe mitral regurgitation identified. The tricuspid valve leaflets are thickened and redundant, with mild to moderate tricuspid regurgitation and evidence of moderate pulmonary hypertension. The left ventricular outflow tract demonstrates normal laminar flow, and the visible aorta is unremarkable. The right ventricular outflow tract assessment reveals normal laminar flow, with appropriate main pulmonary artery diameter and right pulmonary artery distensibility. There is mild pulmonic and no aortic valve insufficiency identified. There is mild pericardial, but not overt pleural, or free peritoneal fluid documented. There is evidence of hepatic venous congestion noted. The cardiac chambers, pericardial, and visible extra-cardiac regions are free of masses, spontaneous echo contrast, or thrombi. There is significant cardiomegaly noted on thoracic radiographs with distention of the pulmonary veins and peri-hilar pulmonary infiltrate consistent with pulmonary edema.

CANINE CARDIAC PARAMETERS	Body Weight kg	HR BPM	LAD 4 ch Long	RAD 4 ch Long	La/Ao Heart Base	LVIDd	LVIDs
NORMAL PARAMETER		50-100			<1.6		
PATIENT	10.45 kg	190	6.23	2.66	2.55	4.67	2.53
CANINE CARDIAC PARAMETERS	**FS**	**EPSS**	**PV V MAX (m/s)**	**AV V Max (m/sec)**	**MR Vmax**	**TR Vmax**	**RPA distensibility (normal >30%)**
NORMAL PARAMETER	28-40	<0.6	0.7-1.6	0.7-1.7	4.5-5.5	< 2.7	
PATIENT	46	0.2	0.7	0.9	5.0	4.2	NM

ECG:
The underlying rhythm is supraventricular in origin (QRS <70ms) with slightly irregular R-R intervals and average heart rate of 190bpm. The P-R interval is prolonged (>100ms) and frequently superimposed on the T-wave from the previous complex. There are intermittent runs of QRS complexes with a right axis deviation, likely reflecting the right ventricular hypertrophy. There is no evidence of atrioventricular block or ventricular ectopy identified. This rhythm is suspected to represent a sinus tachycardia with a first-degree atrioventricular block and intermittent alterations in mean electrical axis (electrical alternans) likely secondary to the presence of pericardial effusion and right ventricular dilation.

ULTRASONOGRAPHIC FINDINGS

These findings are consistent with degenerative mitral valve disease with significant hemodynamic effects. Given the degree of chamber enlargement, recent thoracic radiographs, and pericardial effusion, congestive heart failure is a likely explanation for the clinical/radiographic signs, consistent with ACVIM Stage C. The patient also has moderate pulmonary hypertension, likely from a combination of left-sided heart disease and possibly underlying lung disease.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

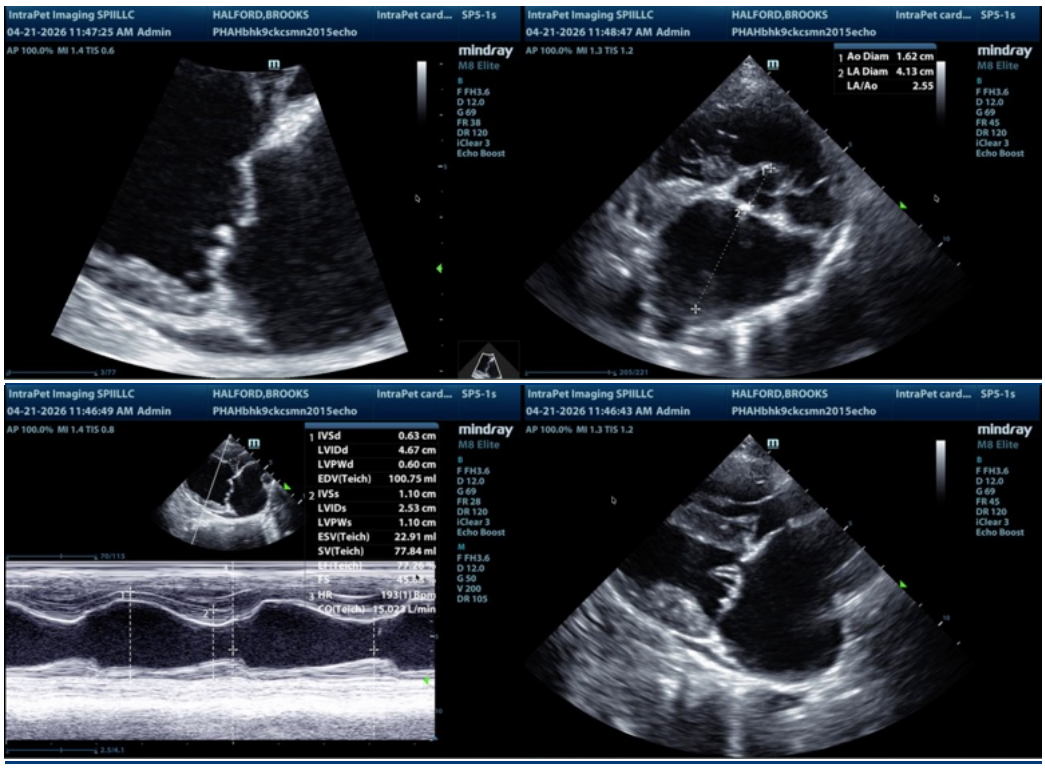
Therapy for CHF is recommended, with Lasix bolus (2-4 mg/kg IV PRN up to 10 mg/kg total dose) or a CRI (0.5-1 mg/kg/hr) as needed to resolve edema. Once oral therapy is started, therapy should include Lasix (2mg/kg BID), enalapril (0.5mg/kg BID assuming normotension and lack of renal insult), spironolactone (1-2mg/kg BID), and Vetmedin (.25-.35mg/kg BID). Dobutamine (2.5-10 µg/kg/min as a CRI, starting at 2.5 µg/kg/min and increasing the dosage incrementally) may be used in addition to the above treatments to improve the left ventricular function and blood pressure in patients that fail to respond adequately to diuretics, pimobendan, sedation, oxygen, and comfort care measures. A repeat chest X-rays, BP, ECG, and chemistry should be performed again in 1-2 weeks. A repeat echo is indicated in 3 months. Owners should monitor resting respiratory rate at home. Values above 30 breaths/minute or an increase in respiratory rate 10% above baseline should prompt veterinary re-evaluation.

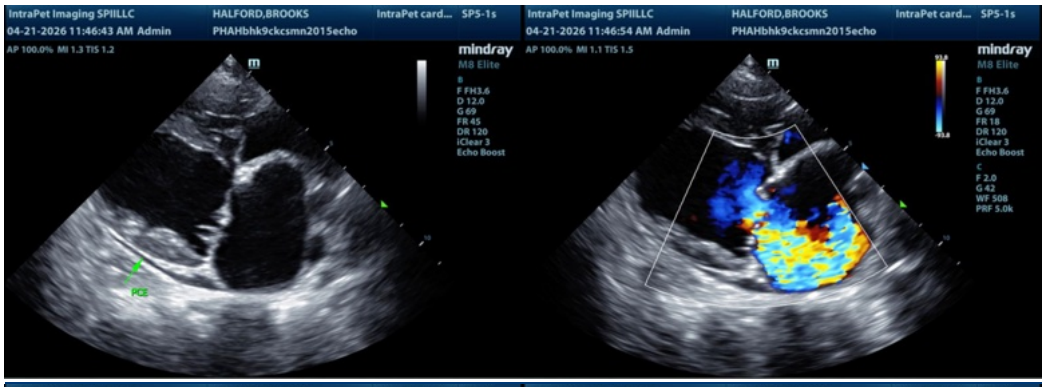
Anesthesia considerations:
Anesthesia should be avoided until manifestations of congestive heart failure (edema/effusion/respiratory distress) have resolved. Following that time, if anesthesia is necessary, then alpha-2 agonists, ketamine, high dose acepromazine, and Telazol should be avoided. If an ACE inhibitor (enalapril, benazepril) or spironolactone is being given, it should not be administered on the morning of general anesthesia. Other cardiac medications should be administered per the normal dosing schedule. Anesthetic IV fluid use should be limited to < 3 ml/kg/hr and, if IV fluid therapy is administered during the procedure, a 1 mg/kg dose of IM Lasix should be administered when the patient is awake and standing in recovery. A shorter anesthetic duration will reduce the risk of complications. Pre-oxygenation is advised. Premedication with an opioid (i.e., butorphanol, hydromorphone, oxymorphone) with or without a benzodiazepine is generally the safest protocol. An induction agent such as Propofol, alfaxalone, or diazepam/etomidate can be used to effect. Maintenance of anesthesia with isoflurane or sevoflurane is reasonable. Dobutamine (2.5-10 µg/kg/min as a CRI, starting at 2.5 µg/kg/min and increasing the dosage incrementally) may be used in lieu of fluid boluses to augment systemic blood pressure.

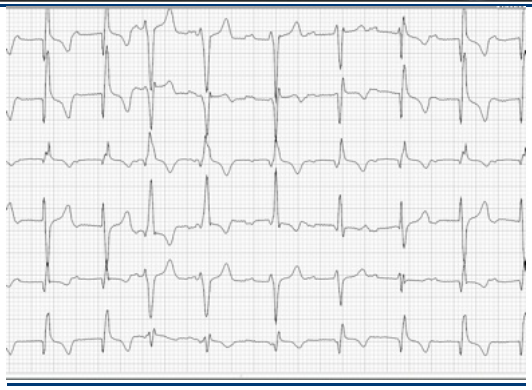
Diet:
A high-quality food from Hills, Royal Canin, Science Diet, Eukanuba, Iams, or Purina that is highly palatable with adequate protein and calories for maintaining optimal body condition with mild dietary sodium

restriction (<100 mg/100 kcal) is recommended. Consider omega-3 fatty acid supplementation. Avoid any boutique, exotic, or grain-free diets.

Activity:
Moderate physical activity (meandering walks, exploring the backyard, playing with toys inside, getting excited when family gets home, etc.) is encouraged, but periods of strenuous aerobic activity (jogging, strenuous outdoor ball play, prolonged play at the dog park, etc.) should be avoided, especially during periods of high heat (> 80 F) and humidity. Dogs with heart disease tend to tolerate cool and cold temperatures much better than high temperatures. Avoid sudden increases in activity (e.g. 2 block walks during the week but 2 mile walks followed by 30 minutes at the dog park on the weekends) as this may be difficult for the cardiovascular system to deal with.







The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. 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.

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