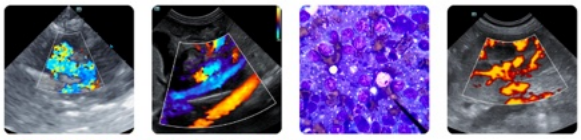


DATE

4/21/26

PATIENT

Zoe Bortin

SPECIES

Canine

BREED

Chihuahua

SEX

Spayed female

AGE

9/8/12

WEIGHT

11 lbs

INTERPRETED BY

Bradley Harris, DVM, DACVECC, DACVIM (cardiology)

HOSPITAL NAME

Pleasantville AH of Fallston

REFERRING VET

Dr. Gounaris

INVOICE

74671

PRESENTING CLINICAL SIGNS

History: Presented 04/16 for progressively worsening cough. Still e/d normally. No v/d. Energy level unchanged.
2021 - previous rDVM in different state diagnosed Zoe with degenerative MVD ACVIM stage B2 and pulmonary hypertension. following echocardiogram. Zoe's cardiac murmur has since increased in intensity- most recently increased from grade 4 to grade 5-6. Rest of PE was unremarkable - respiratory rate and effort WNL.
Pertinent abnormal PE/Chem/CBC/UA Results: Labwork not attached, reported as: August 2025 - CBC/chem unremarkable
Current medications: Pimobendan 125mg BID.
Blood Pressure: N/A.
Sedation used: Not required to complete full diagnostic ultrasound.
Pertinent previous ultrasound results: No previous.
STAT: Not requested.
Imaging performed by: Stephanie Warga RDCS, RVT.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The left atrium is moderately enlarged. The left ventricle is severely enlarged with marginal systolic function. The right atrium and ventricle are normal in dimension with normal 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 trivial 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 no pulmonic and moderate aortic valve insufficiency identified. The aortic regurgitation pressure gradient is consistent with possible systemic hypertension. There is no visible pericardial, pleural, or free peritoneal fluid documented. No evidence of hepatic venous congestion is noted. The cardiac chambers, pericardial, and visible extra-cardiac regions are free of masses, spontaneous echo contrast, or thrombi.

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	5.0 kg	140	3.22	1.7	1.83	3.7	2.05
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	45	0.2	1.0	1.6	6.6	3.8	28

ULTRASONOGRAPHIC FINDINGS

These findings are consistent with degenerative/myxomatous mitral valve disease with moderate hemodynamic effects consistent with ACVIM Stage B2. The patient also has moderate pulmonary hypertension, likely from a combination of left-sided heart disease and possibly underlying lung disease. Correlate these findings with thoracic radiographs. There is also concern for potential systemic hypertension.

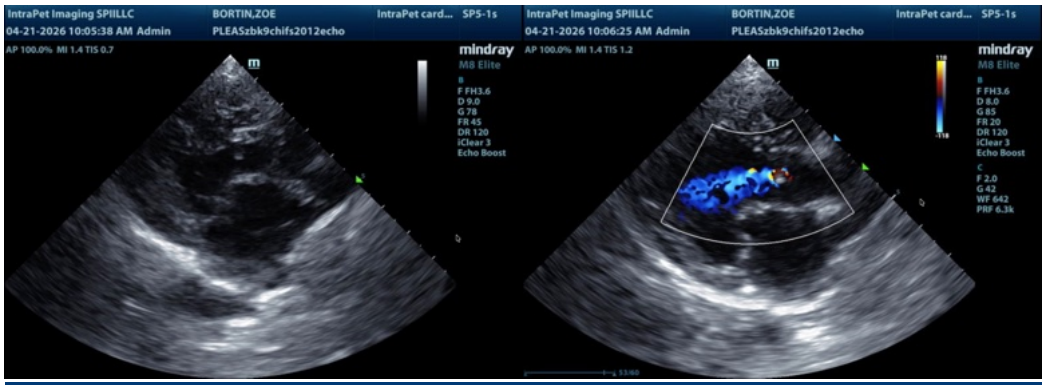
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

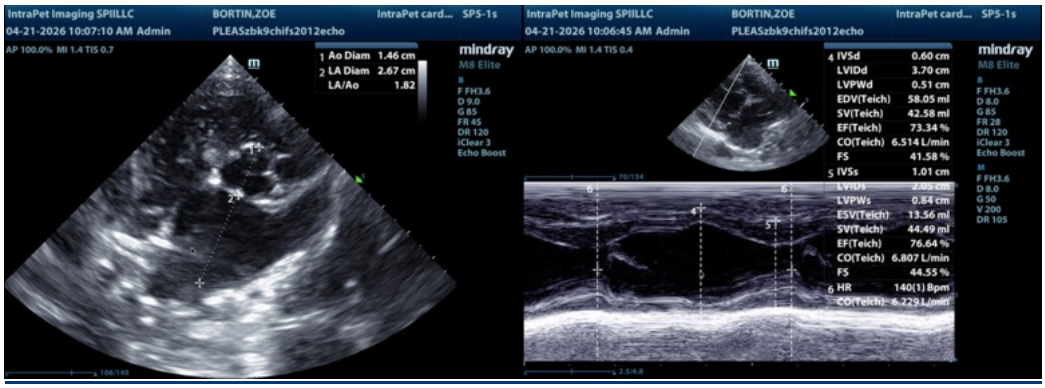
Given the degree of chamber dilation and concern for systemic hypertension, cardiac therapy with enalapril (0.5 mg/kg BID assuming lack of renal insult) and Vetmedin (0.25-0.35 mg/kg BID) is recommended. Given the degree of pulmonary hypertension, sildenafil (2 mg/kg TID) should also be considered. While there is an increased risk of IV fluids, corticosteroids, or anesthesia, there is no overt objection, as the need likely outweighs the risks. Thoracic radiographs, blood pressure, and chemistry should be performed now for a baseline, and repeated again in 1-2 weeks. A repeat echo is indicated in 6 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.

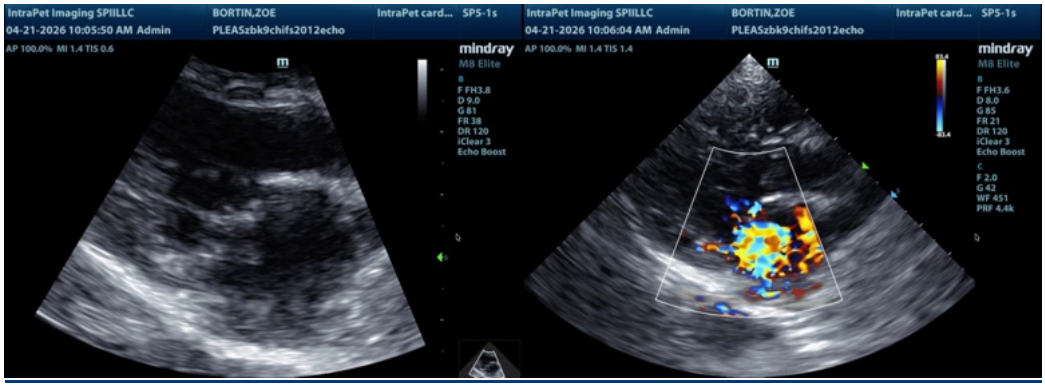
Anesthesia considerations:
While there is no CHF present, there is likely an increased anesthetic risk which must be considered prior to any anesthetic procedure. If anesthesia is necessary, then alpha-2 agonists, ketamine, high dose acepromazine, and Telazol should be avoided. If an ACE inhibitor (enalapril, 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. Fluid therapy during anesthesia should be considered at a reduced rate (e.g., 5 ml/kg/hour) if possible. 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 an optimal body condition 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.

Bradley Harris, DVM, DACVECC, DACVIM (cardiology)
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