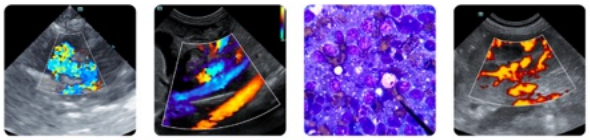

PATIENT

Molly Valentin

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed female

AGE

12 years

WEIGHT

7.8 kgs

INTERPRETED BY

Bradley Harris, DVM, DACVECC, DACVIM (cardiology)

IMAGING PERFORMED BY

Meredith Swart

HOSPITAL NAME

Swart Veterinary Imaging

REFERRING VET

Dr. Swart

INVOICE

68972

DATE

11/25/25

PRESENTING CLINICAL SIGNS

History: Seen at couple days ago then last night but suspected seizure. When rDVM inquired more, there was increased concern for syncope. X-rays showed enlarged right heart, tracheal collapse, and some concern for lower airway dz. Owners report chronic cough but they do not report it is severe. Molly was started on sildenafil last night after she represented to the ER for episode of collapse.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The left atrium is normal in dimension. The left ventricle is normal in dimension, with normal systolic function. The right atrium and ventricle are subjectively enlarged with reduced systolic function and moderate right ventricular hypertrophy and septal flattening. The anterior and posterior mitral valve leaflets presented normal linear structure, extension in systole, and union in diastole, without regurgitation, prolapse, or myxomatous changes noted. The tricuspid valve leaflets display moderate regurgitation with evidence of severe pulmonary hypertension. The left ventricular outflow tract demonstrated normal laminar flow and the visible aorta is unremarkable. The right ventricular outflow tract assessment revealed normal laminar flow, with an increased main pulmonary artery diameter and reduced distensibility. There is mild pulmonic insufficiency and no aortic valve insufficiency documented. There is no pericardial or pleural effusion, but mild free peritoneal fluid noted. The cardiac chambers, pericardial and visible extra-cardiac regions were 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	7.8 kg	NM	1.56	2.66	1.15	1.92	1.21
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	37	0.1	0.9	1.2	Not Present	4.6	NM

ULTRASONOGRAPHIC FINDINGS

These findings identify significant pulmonary hypertension (PH) in the absence of any clinically relevant left-sided disease. Therefore, cor pulmonale secondary to primary pulmonary disease/PH is the likely cause for morbidity. Pulmonary hypertension in dogs is most commonly secondary to primary respiratory disease (chronic bronchitis, pulmonary fibrosis, or other forms of pulmonary interstitial disease). Pulmonary hypertension can also develop in dogs with severe heartworm disease or secondary to pulmonary thromboembolism (PTE). Less commonly, pulmonary hypertension is identified in dogs as

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an idiopathic condition. The degree of PH has resulted in right sided cardiac enlargement (cor pulmonale), and subsequent congestive heart failure. The clinical signs are likely attributable to this condition.

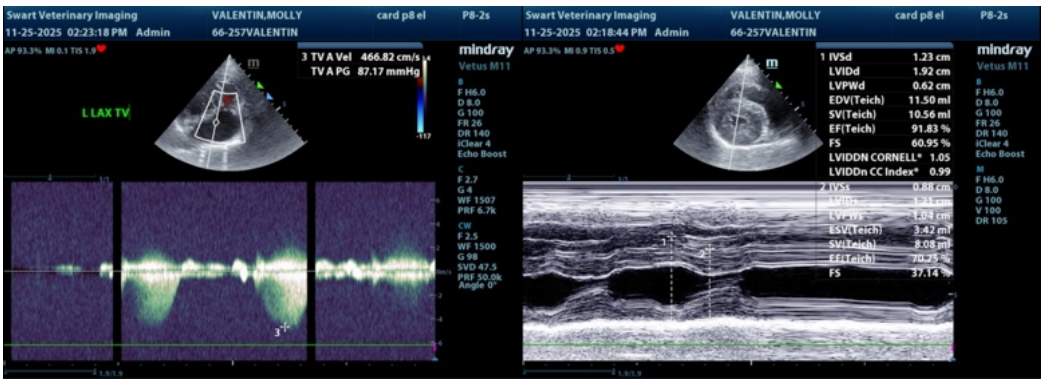
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Therapy for CHF is recommended, and should include Lasix (1-2 mg/kg BID), enalapril (0.5 mg/kg BID), and Vetmedin (0.25-0.35 mg/kg BID), sildenafil (2 mg/kg BID), and spironolactone (1-2 mg/kg BID). Evaluation for primary pulmonary disease with thoracic radiographs, a heartworm test, and bronchoscopy are indicated. The merits of an airway scope/wash should be discussed with the owner, especially prior to any steroid use. A repeat echo is indicated in 3-6 months.

Anesthesia considerations:
Anesthesia should be avoided if possible. If anesthesia is necessary, then alpha-2 agonists, ketamine, 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 (5 ml/kg/hour) if possible (i.e., if not hypotensive). A shorter anesthetic duration will reduce the risk of complications. Pre-oxygenation is mandatory. Premedication with an opioid (e.g., 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.

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. Ensure the patient is not currently receiving a boutique, exotic, or grain-free diet.

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.



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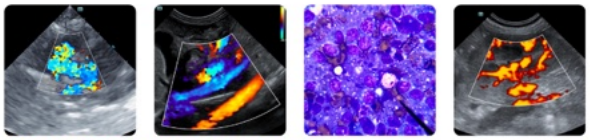

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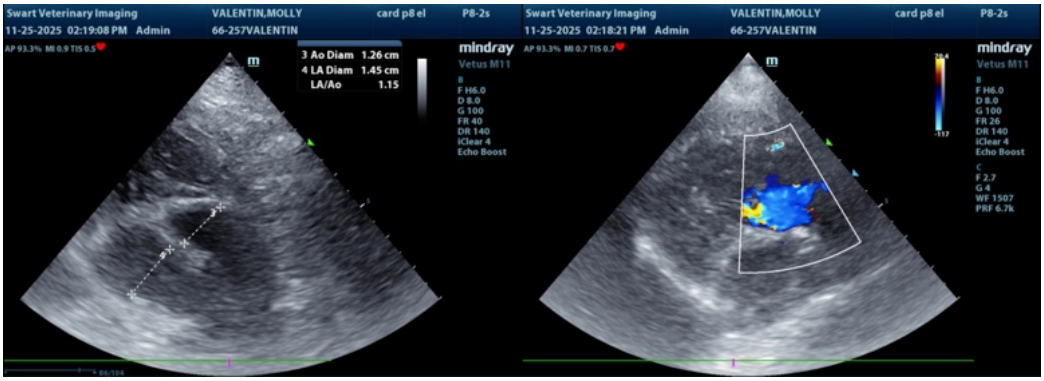

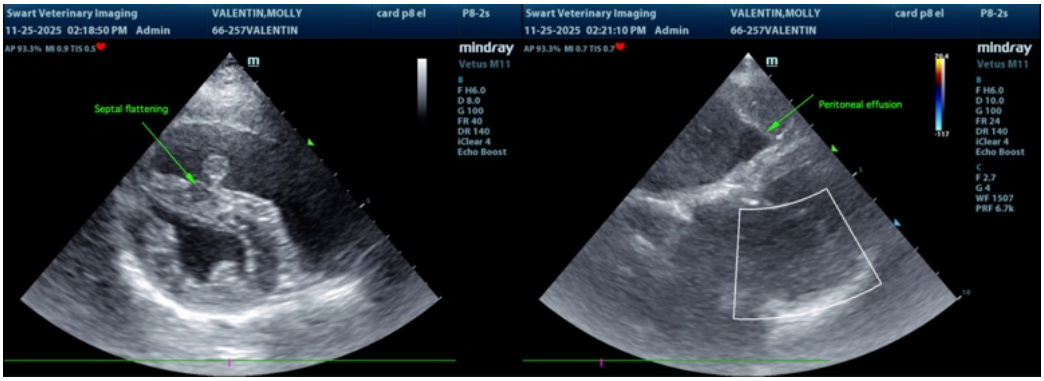

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

info@SonoPath.com