



## PATIENT

Holly Gonsior

## SPECIES

Canine

## BREED

Shih Tzu

## SEX

Female Spayed

## AGE

12 years

## WEIGHT

7.2lbs; 3.3kgs

## INTERPRETED BY

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

## IMAGING

### PERFORMED BY

Melissa Weisman, DVM

## HOSPITAL NAME

Minnesota Veterinary  
Ultrasound

## REFERRING VET

Dr. Weisman

## INVOICE

32417

## DATE

8/18/23

## PRESENTING CLINICAL SIGNS

History: Presented for potential syncopal episodes. Over past 2-3 weeks, Pt has had 4 collapsing episodes. These episodes are characterized by slowed movement, ataxia, and then unconsciousness. Pt then typically recovers within a few seconds, but on one instance Pt did urinate all over the owner. Pt has no history of heart disease prior to Blue Pearl ER visit on 8/1/23, Blue Pearl also did not detect any heart murmurs. Blue Pearl performed thoracic radiographs and found L sided atrial enlargement, O declined other diagnostics at that time. Blue Pearl recommended further cardiac workup given cardiac enlargement with echo and EKG.

-Abnormal PE/Chem/CBC/UA Results: CBC/Chem in 6/23/23: CBC unremarkable, Chem- Chloride 107, ALT 262, AST 64, CK 245. T4 WNL. (Performed with regards to some recent weight loss (3lbs over 4-5mo).

-Radiographs (8/1/23): Mild to moderate bronchial and unstructured interstitial pattern throughout lungs, soft tissue bulging present in region of left atrium- Cardiac silhouette and pulmonary vasculature otherwise unremarkable. Radiologist went on to say mild left atriomegaly; Consider mitral valve insufficiency due to endocardiosis most likely- No CHF seen. Otherwise, unremarkable thorax with incidental age-related pulmonary changes/fibrosis. No pulmonary metastasis or lymphadenopathy.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no prolapse into the left atrial lumen. No mitral regurgitation with minimal left atrial dilation. The LV diameter is decreased. Mild increase in LV wall thickness (0.7cm globally). The LV free wall is mildly hypokinetic with mildly depressed function overall for this signalment. 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. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses. The ECG shows a normal sinus rhythm with an inverted/notched QRS.

## 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	NA	NA	NM	1.38	30	57	0.36
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	120	0.6	0.6	3.3	1.8	1.9	1.3
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
*Note: All measurements based upon multi-modal images and methods. An average value is reported.				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)



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Adapted from June Boon, Veterinary Echocardiography, 1998	25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435	30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002	35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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)

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unusual case. No chamber dilation, significant valvular leaks or pulmonary hypertension are visualized. What is unusual is the LV has a volume underloaded appearance with mild LV hypertrophy. Reassessing baseline lab work and a BP are strongly recommended (provided lab work was from 6/16/23). Additionally, the LV free wall is mildly hypokinetic which is of unknown significance. If the patient is volume depleted or hypertensive, this may be a transient secondary issue; however, follow-up is recommended pending further assessment.

No obvious cause for syncope is appreciated in this study. If the BP and lab-work are both normal, consider further neurologic evaluation. The situational component of the episodes is also important and should be further explored (ie are they exertional in origin, following a cough, random, etc). Additionally, the ECG does show an inverted wide QRS morphology, and a full six-lead tracing is strongly recommended for further evaluation.

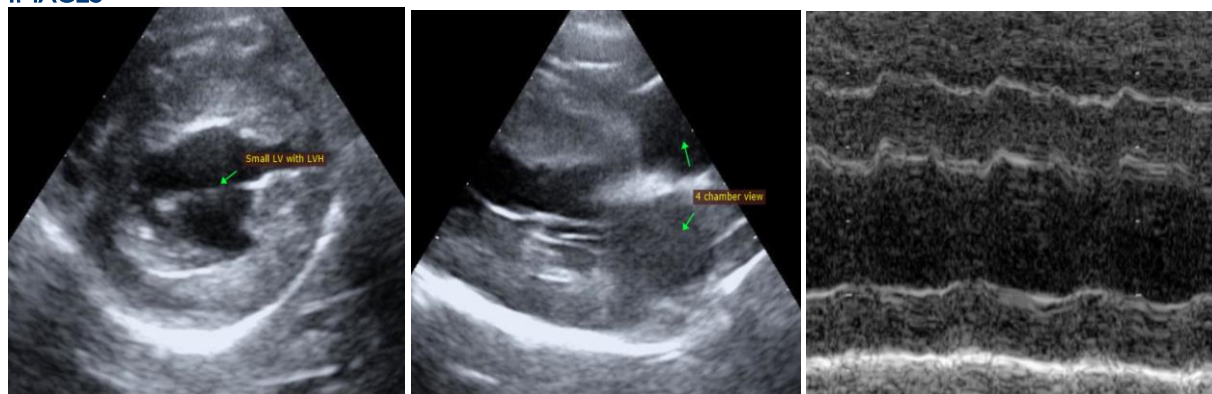
Monitor for development of a heart murmur, cough, labored breathing, exercise intolerance or collapse episodes.

## PLAN

Baseline BP, ECG and recheck lab-work as discussed. Consider further evaluation pending results.

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

## IMAGES





**PATIENT**

Holly Gonsior

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.

**SPECIES**

Canine

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.

**BREED**

Shih Tzu

**Maggie Machen Lamy, DVM**  
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)  
info@sonopath.com

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