



**PATIENT**

Scout Leonhardt

**SPECIES**

Canine

**BREED**

Shih Tzu

**SEX**

FS

**AGE**

6y 8m

**WEIGHT**

9.4 lbs.

**INTERPRETED BY**

R. McKenzie Daniel,  
 DVM, DABVP  
 (Canine and Feline)

**IMAGING PERFORMED BY**

Shari Reffi, CVT

**HOSPITAL NAME**

William Penn VH

**REFERRING VET**

Dr. Bouzaout

**INVOICE**

10929

**DATE**

5/28/26

**PRESENTING CLINICAL SIGNS**

Chronic cough, right atrial enlargement, nose discharge. VHS=10.3.

Current meds: Denamarin

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (M-Mode)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	-	2.4 MAX	-	1.24	44	76	0.2
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT	LAD LA MAX4 Chamber	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				
PATIENT	110	1.1	0.7	9.4 lbs.	2.0	2.1	-

**Cardiac Presentation**

The echocardiogram in this patient demonstrated normal **left atrial** size based on 2 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. Mild TR was noted on Doppler, measuring 2.4 m/s MAX. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). No visible **pericardial** or free pleura fluid was noted. The cranial **mediastinum and pericardial and extra-cardiac regions** were free of masses in the visible window.

**ULTRASONOGRAPHIC FINDINGS**

- Normal cardiac structure / function
- Mild tricuspid insufficiency – no evidence of clinical pulmonary hypertension



**PATIENT**

Scout Leonhardt

**SPECIES**

Canine

**BREED**

Shih Tzu

**SEX**

FS

**AGE**

6y 8m

**WEIGHT**

9.4 lbs.

**INTERPRETED BY**

R. McKenzie Daniel,  
 DVM, DABVP  
 (Canine and Feline)

**IMAGING PERFORMED BY**

Shari Reffi, CVT

**HOSPITAL NAME**

William Penn VH

**REFERRING VET**

Dr. Bouzaout

**INVOICE**

10929

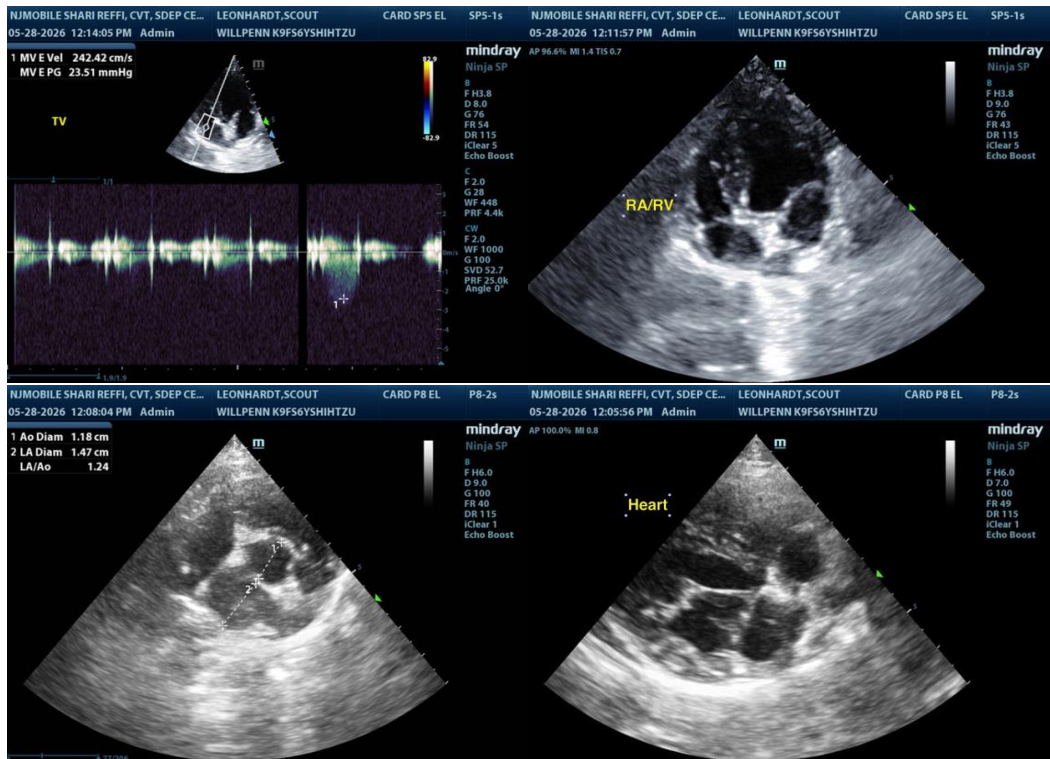
**DATE**

5/28/26

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

There is no evidence of left or right heart chamber enlargement, LV systolic dysfunction, arrhythmia, or clinical pulmonary hypertension as a cardiac cause of the chronic cough, indicating likely chronic lower airway disease. There is no indication for cardiac medications. Correlation with three-view chest radiographs with concurrent respiratory support is recommended.

There are no anesthetic contraindications. Suggested anesthetic protocol may include opioid or Benzodiazepine pre-med, induction with Propofol or Alfaxalone, and appropriate gas anesthesia with avoidance of alpha 2 agonists.



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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)  
[info@sonopath.com](mailto:info@sonopath.com)